



INTERNATIONAL MEDICAL CONGRESS OF SILESIA

Conference organized online

May 12-14 2021

ABSTRACT BOOK



Students'
Scientific
Association
SUM

**STUDENTS' SCIENTIFIC ASSOCIATION
OF THE
MEDICAL UNIVERSITY OF SILESIA**



PTSS

Polskie Towarzystwo
Studentów Stomatologii
Zabrze



**SAMORZĄD
DOKTORANTÓW
Śląskiego Uniwersytetu
Medycznego w Katowicach**

**POLISH ASSOCIATION OF DENTAL
STUDENTS
BRANCH ZABRZE**

**DOCTORAL STUDENTS' GOVERNMENT
OF THE
MEDICAL UNIVERSITY OF SILESIA**

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Dear Students,

I have a great pleasure to invite you to the International Medical Congress of Silesia 2021 - "SIMC 2021" organized at the Medical University of Silesia. Even though Covid pandemics caused the change of form of our meeting I have no doubt that despite everything it will be a great scientific adventure for all.

This annual event has become our long-standing tradition and a continuation of the International and Interfaculty Conference of Students of Medical Universities, organized by Student Scientific Society of our University since 2006.

The aim of the Conference is to initiate and to promote the scientific development of students as well as to facilitate exchange of experience and create a forum for scientific discussion.

It is also an unique opportunity for young scientists to present their achievements in front of international audience. I am proud that our Silesian region can host this splendid event.

I would like to express my appreciation to the Organizing Committee. It is thanks to your hard work and creativity that this event is held at a highest substantive standard when it comes not only to presented papers and discussions but also the professional organization. I am convinced that the scientific program and the accompanying events that are prepared by you will meet the expectations of attendees. I am very happy that despite pandemics so many of you have found time and energy to take part in our event.

Finally, I wish all participants many scientific achievements and persistence in pursuit of chosen life and professional goals. I hope this could be a prelude of your scientific careers during exciting period of medical studies. I wish you all a fruitful and productive time during the SIMC 2021 Conference!



Rector

Of The Medical University Of Silesia

Tomasz SZCZEPAŃSKI, MD, PhD, Professor of Medicine



Dear Colleagues,

It is a great honor and pleasure to invite you to participate in a very special event which is an INTERNATIONAL MEDICAL CONGRESS of SILESIA (SIMC). Organized by Students' Scientific Association of Medical University of Silesia.

While I did hope to see you all in person this May, the health and safety of our attendees, staff and exhibitors remains the top priority of the Scientific Association of Medical University of Silesia which is why we have made the decision to transition the 2021 SIMC's sessions to a virtual meeting.

You can rest assured that the virtual 2021 SIMC will continue the good traditions of student scientific meetings.

I strongly encourage you to support this conference actively. Medicine and science are, and always should be a passion. The SIMC conference is a great opportunity to exchange your scientific experience and compete in the scientific field. It does not really matter if you win as the success consists of going from failure to failure without loss of enthusiasm.

I do believe that you will find the meeting enjoyable and fruitful as the organizers did spare no effort to make it so.

See you virtually on 12th May 2021.

The Head of
Students' Scientific Association
Of the Medical University of Silesia in Katowice
Michał HOLECKI, MD, PhD, Professor of Medicine

Dear Participants!

67 years ago, in December, in Zabrze, the First Conference organized by Students' Scientific Society of the Medical University of Silesia was held. Throughout the years our Conference grew up worldwide in numbers of presented papers and was transferred to the grounds of University Campus in Katowice-Ligota. Nowadays it is one of the largest Students Conferences in Poland and Central Europe.

This year, due to epidemic situation, The Congress will be held online for the very first time. It will be a wonderful opportunity not only to present your research to broader audience but also to meet our colleagues from all over the world.

As the Board of the Students' Scientific Society of the Medical University of Silesia we are deeply honored to organize the International Medical Congress of Silesia 2021 (SIMC 2021). This year almost 300 papers were submitted and arranged between 20 scientific sessions. All the participants have once again put their confidence in us and decided to share with others the results of many months of hard work. However, we cannot meet face to face in the halls of the Medical University of Silesia in Katowice, we hope the online version of SIMC 2021 will respond to all your needs and allow further development of our Congress. We are extremely proud of the growing popularity of sessions aimed at doctoral students. This was possible thanks to the continuing friendship and cooperation with the Doctoral Students' Self-Government.

The purpose of the Conference, despite alterations both in its location as well as form, has remained unchanged since 1954. We work relentlessly through the year to make this event not only an occasion for new scientific experiences, but also a fascinating adventure and preparation for future educational challenges.

We would like to extend our sincere thanks to the Rector of the Medical University of Silesia in Katowice Prof. Tomasz Szczepański PhD, MD, Vice-Rector for Science and International Relations Prof. Katarzyna Mizia-Stec PhD, MD, Vice-Rector for Academic Affairs Prof. Jerzy Stojko PhD, MD, Curator of the Students' Scientific Society Prof. Michał Holecki , PhD, MD, Chancellor of SUM, Ireneusz Ryszkiel, PhD, MD and the administrative staff, for all assistance and support in overcoming organizational difficulties.

We express our gratitude to Prof. Michał Holecki, MD, PhD for giving an honorary lecture for the participants of our Conference. We sincerely thank the Members of the Scientific Committees of individual sessions. Every year, they devote a lot of time to share their knowledge and experience.

We extend our gratitude to the Members of Doctoral Students' Self-Government who supported us and took responsibility for the organization of doctoral sessions. Our thanks are due also to all the volunteers, who have done their best to make this remarkable event happen.

Most of all, we would like to thank all of the participants of this year's edition for your creative work, ambitions and ingenuity in the conducted research. You are the very essence of the Congress!

We wish you to endure discussions, exceptional lectures and good luck during presentation!

The Board of Students' Scientific Association
Of the Medical University of Silesia

Dear Participants and Colleagues,

On behalf of the Doctoral Students' Self-Government, we would like to express our thanks for the possibility of participation in the International Medical Congress of Silesia (SIMC) 2021, beside the Students' Scientific Association of the Medical University of Silesia.

We believe profoundly that continuing agreement between students and PhD candidates paves the way for beneficial cooperation, based on exchanging views and experiences in order to develop friendship and, most important, mutual respect.

We are grateful to all of the members of the Organizing Committee, especially to the representatives of the Medical University of Silesia, for the possibility of holding the conference during the COVID-19 pandemic.

We are convinced that the subjects and specific issues addressed during this Conference are found among issues currently facing us young researchers. Sessions that have been prepared for you will not only be an opportunity to present your research results but also to exchange opinions and provide an inspirational experience for every participant. We extend our sincere gratitude to the Rector of the Medical University of Silesia in Katowice Prof. Tomasz Szczepański, MD, PhD, the Director of the Doctoral School Prof. Agata Stanek, MD, PhD, the Chancellor of SUM, Ireneusz Ryszkiew, MD and all of the workshops' organizers and administrative staff for their help and support.

We sincerely thank all of the members of the Scientific Committees for the time they devoted, valuable comments and exchange of experiences. In addition to the words of appreciation, we invite you to familiarize yourself with the subjects of papers presented at each session, in particular by the PhD candidates, who are always willing to share the knowledge they gained through continuous scientific research.

The Board of the Doctoral Students' Self-Government
of the Medical University of Silesia in Katowice

CONFERENCE'S PLAN

Wednesday, 12th May 2021

- | | |
|---------------|--|
| 8:15 – 9:00 | The Opening ceremony |
| 9:00 – 13:30 | Session of Anesthesiology, Intensive Care and Emergency Medicine
Session of Basic Sciences
Session of COVID-19
Session of Dermatology and Allergology
Session of Dietetics and Nutrition |
| 14:00 – 17:00 | Session of Psychiatry and Sexology
Session of Public Health and Healthcare
Session of Invasive Cardiology and Cardiothoracic Surgery
Session of Physiotherapy and Orthopedics |

Thursday, 13th May 2021

- | | |
|---------------|---|
| 9:00 – 13:30 | Session of COVID-19 II
Session of Doctoral Clinical Medicine
Session of Doctoral Scientific Medicine
Session of Gynecology and Obstetrics
Session of Internal Medicine |
| 14:00 – 17:00 | Session of Neonatology and Pediatrics
Session of Neurology and Neurosurgery
Session of Non-Invasive Cardiology
Session of Surgical Specialities
Session of Internal Medicine II |

Friday, 14th May 2021

- | | |
|---------------|--|
| 9:00 – 13:30 | Session of Stomatology
Session of Non-Invasive Cardiology II
Session of Surgical Specialities II
Session of Public Health and Healthcare II |
| 16:30 – 18:00 | The closing ceremony:
Prof. Michał Holecki MD, PhD honorary lecture
Awards announcement |



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TABLE OF CONTENSTS

SESSION OF DOCTORAL CLINICAL MEDICINE	15
SESSION OF DOCTORAL SCIENTIFIC MEDICINE	35
SESSION OF ANAESTHESIOLOGY, INTENSIVE CARE AND EMERGENCY MEDICINE	49
SESSION OF BASIC SCIENCES	69
SESSION OF COVID-19	83
SESSION OF COVID-19 II	99
SESSION OF DERMATOLOGY AND ALLERGOLOGY	113
SESSION OF DIETETICS AND NUTRITION	127
SESSION OF GYNECOLOGY AND OBSTETRICS.....	137
SESSION OF INTERNAL MEDICINE	155
SESSION OF INTERNAL MEDICINE II	173
SESSION OF INVASIVE CARDIOLOGY AND CARDIOTHORACIC SURGERY	187
SESSION OF NEONATOLOGY AND PEDIATRICS.....	207
SESSION OF NEUROLOGY AND NEUROSURGERY	226
SESSION OF NON-INVASIVE CARDIOLOGY	242
SESSION OF NON-INVASIVE CARDIOLOGY II	258
SESSION OF PHYSIOTHERAPY AND ORTHOPEDICS.....	272
SESSION OF PSYCHIATRY AND SEXOLOGY.....	286
SESSION OF PUBLIC HEALTH AND HEALTHCARE	302
SESSION OF PUBLIC HEALTH AND HEALTHCARE II	316
SESSION OF RADIOLOGY, RADIODIAGNOSTICS AND NUCLEAR MEDICINE	330
SESSION OF STOMATOLOGY	338
SESSION OF SURGICAL SPECIALITIES	348
SESSION OF SURGICAL SPECIALITIES II	360

SESSION OF DOCTORAL CLINICAL MEDICINE

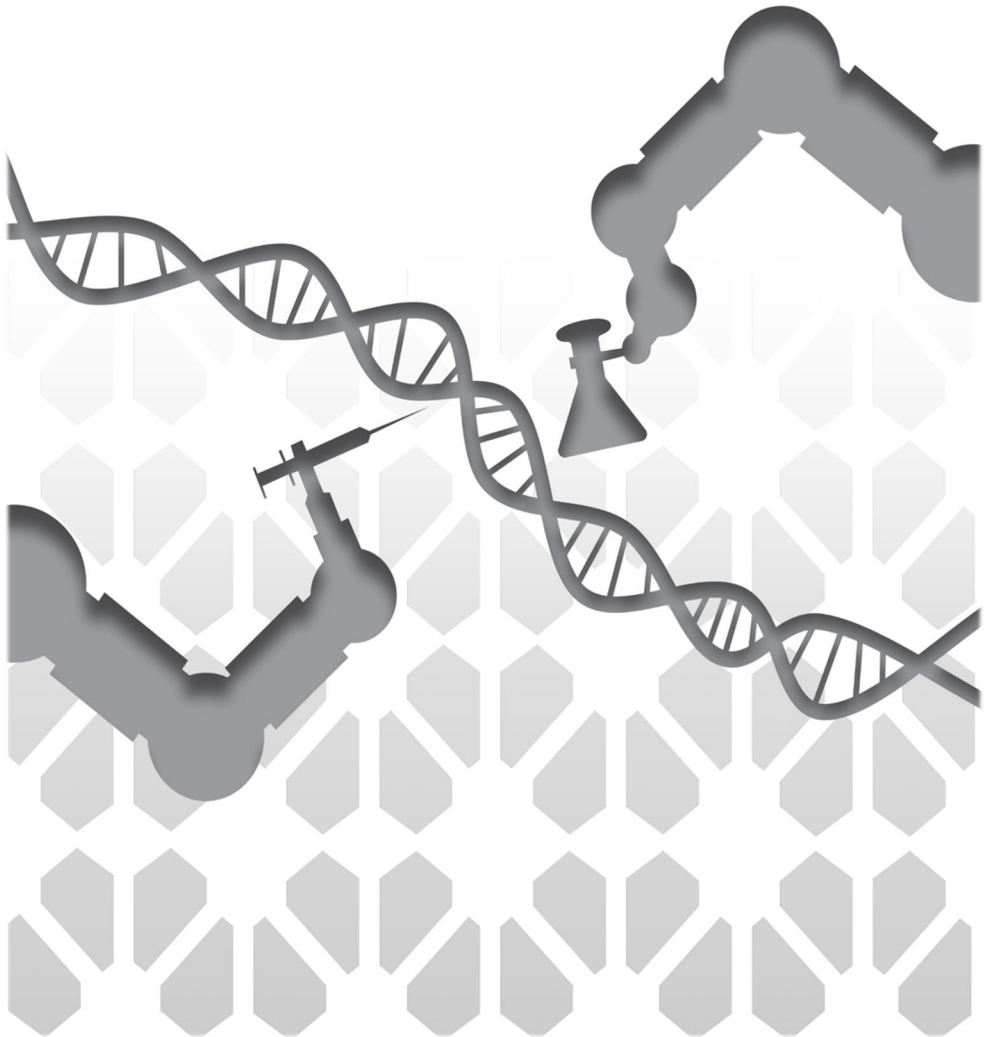


Table of Contents

COVID-19 in a single lung transplant recipient	17
Identification of risk factors in patients with copd based on results of volume sphygmography	18
To intubate or not to intubate – non-invasive ventilation as early respiratory support in preterm infants	19
The widespread effect of harmful words: generalization of nocebo paraesthesia to pain perception.....	20
Reproducibility of spatial summation of pain effect.....	21
Hyperspectral assessment of acne vulgaris skin	22
The challenges of treating a patient with recurrent congenital toxoplasmic chorioretinitis..	23
„Do medics know better?“ – the attitude to nutrition during the lactation period among healthcare providers. The survey results.....	24
Eating habits of Children with Autism during the first year of life.....	25
Seniors’ attending the Universities of the Third Age classes living in urban areas of the Silesian Voivodeship quality of life - preliminary results.....	26
Carotid web: a neglected cause of ischemic stroke?	27
The impact of the COVID-19 pandemic on the incidence of depressive symptoms and the possibility of developing depression depending on cognitive functioning.....	28
Dietetics advice – an effective way for sliming in the times 'COVID-19'?	29
The impact of preventive hysteroscopic metroplasty of septate uterus on reproductive outcomes – preliminary results	30
Intraoperative hypotension and its organ-related consequences in hypertensive subjects undergoing abdominal surgery: a cohort study.....	31
Non-invasive imaging techniques in the diagnosis of psoriatic skin.	32
Etiology, risk factors and management of urosepsis in hospitalized patients with urinary tract dysfunctions: a retrospective laboratory based study.....	33
Antibiotic susceptibility of Clostridium spp. and spores occurrence in the hospital environment	34

COVID-19 in a single lung transplant recipient

Agata Sobczyk, Mikołaj Tomasiuk

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Work's tutor: Andrzej Świątkowski

Introduction: In the era of the SARS-CoV-2 virus pandemic, immunosuppressed organ transplant recipients are a group of patients particularly vulnerable to a more severe course of infection.

Case description: A forty-one-year-old patient after single lung transplantation in July 2011 in the course of idiopathic pulmonary fibrosis, was admitted to the hospital due to dyspnea and decreased exercise tolerance. On admission, the patient did not require oxygen therapy. The computed tomography (CT) did not reveal any focal densities or disseminated within the transplanted lung. The bronchoscopy showed no narrowing of the bronchi. In the following days of hospitalization, he developed dyspnea and fever. On the 13th day of stay, a control, primary negative test for the presence of SARS-CoV-2 virus was positive. Chest CT scan showed small areas of milk glass lesions within the transplanted lung, absent in the previous examination. The patient required oxygen therapy. During the next day, the oxygen flow was increased from 2 l/min to 10 l/min on the mask with a reservoir. Remdesivir was included in the treatment. After 2 days there was an exacerbation of respiratory failure, patient required non-invasive ventilation with continuous positive airway pressure (NIV CPAP) with maximum FiO₂ 50%. NIV CPAP ventilation was applied periodically for 7 days achieving gradual improvement. Patient was on immunosuppressed therapy with steroid and tacrolimus. Dosages of medications were adjusted during treatment with remdesivir. The patient in good general condition, who did not require oxygen therapy, was discharged home on the 31st day of hospitalization.

Conclusions: Early detection of SARS-CoV-2 infection, early initiation of antiviral therapy and modification of immunosuppressive therapy were factors improving the patient's prognosis.

Keywords: COVID-19; lung transplant recipient

Identification of risk factors in patients with copd based on results of volume sphygmography

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Work's tutor: prof Viktor Myliagin, MD, PhD

Introduction: Concomitant cardiovascular pathologies contribute to severe Chronic Obstructive Pulmonary Disease (COPD) progression, worsen prognosis and increase mortality rates. Increased arterial stiffness is a pathophysiological process, occurring in the cardiovascular system, which has a bad impact disease outcomes.

Materials and methods: M93 COPD patients were divided into 4 groups according to the grades of bronchial obstruction following application of a bronchodilator. 20 patients were in Group 1 had 20 patients with moderate and mild respiratory disorder, Group 2 had 32 patients with moderately severe respiratory disorders, Group 3 included 27 patients with severe respiratory disorders, Group 4 involved 14 patients with grave respiratory disorders. Arterial stiffness was assessed with a volume sphygmography method with evaluation of cardio-ankle vascular index (CAVIO). Statistical analysis was performed using Kruskal Wallis and Dunn's tests.

Results: The groups were equal by age, level of blood pressure, smoking history. CAVI was 13,2 [11,7; 14,8], 13,8 [12,8; 15,1], 13,5 [11,4; 15,4] and 16 [14,5; 19,2] accordingly in groups 1, 2, 3 and 4. There were no statistically significant differences in the level of CAVIO in groups 1, 2 and 3, the level of CAVI in group 4 was significantly higher than in any other group ($p < 0,05$) and 21,8 [CI95: 12,7-32,7] % higher than the level of CAVIO in combined 1, 2 and 3 group.

Conclusions: Severe obstructive disorders are a factor of increased cardiovascular risk due to increased arterial stiffness.

Keywords: chronic obstructive pulmonary disease, arterial stiffness

To intubate or not to intubate – non-invasive ventilation as early respiratory support in preterm infants

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Work's tutor:
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Introduction: Preterm birth increases the risk of respiratory distress syndrome (RDS). Non-invasive ventilation (NIV) allows the lungs to be adequately ventilated, without the use of invasive ventilation, which requires intubation.

The aim: Retrospective analysis of the failure rate of NIV, used as early respiratory support, in a group of premature infants with risk of developing RDS. The aim was also to distinguish predictive factors of NIV failure.

Materials and methods: The study group were neonates born prematurely <33 weeks of gestation and hospitalized in the Department of Neonatology at University Hospital in Wrocław in 2019- 2020. Inclusion criteria: birth age < 33 weeks of gestational age, the use of NIV in the first 15 minutes after birth, absence of congenital anomalies. NIV failure was defined as the need for invasive ventilation with intubation of the patient <72 h of life.

Results: 144 newborns were included in the study. The mean gestational age was 30 + 5/7 weeks. Body weight range was 550- 2200 g. Failure of early CPAP was reported in 26.6%. 42.75% of preterm infants required surfactant administration. Risk factors for failure of NIV were low birth weight, intrauterine growth retardation, lack of prenatal steroid therapy, premature rupture of membranes, oligoamniosis, and high oxygen concentration in the respiratory mixture (FiO₂) in the first two hours of life.

Conclusions: The safety and efficacy of early NIV has been demonstrated in infants born prematurely. Predictive factors for the failure of NIV, which are important in planning the therapeutic management of preterm infants with RDS, were identified.

Keywords: non- invasive ventilation; preterm infant; neonatology

The widespread effect of harmful words: generalization of nocebo paraesthesia to pain perception

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Work's tutor: Dr Wacław M. Adamczyk

Introduction: From a behavioral point of view, the nocebo effect is formed by learning processes such as classical conditioning or instructional learning (verbal suggestions). Assuming that the nocebo effect is a learned phenomenon, it can be driven by well-established behavioral principles, for instance, generalization. Indeed, previous research on human anxiety or pain-related fear has shown that learned responses are prone to stimulus generalization. Interestingly, there are no reports on response generalization of placebo or nocebo effects.

The aim: The study aimed to test response generalization of the nocebo effect. In particular, the study aimed to investigate whether nocebo paraesthesia generalizes to other symptoms, e.g. pain.

Materials and methods: This pilot study was conducted on a group of 19 healthy volunteers, randomly assigned to one of two groups: experimental with ointment application, and control group without any intervention. A cuff-based sphygmomanometer connected to external-control device was used to induce pain and paraesthesia. In the experimental group, an inactive, odorless ointment was applied with the verbal suggestion that this ointment increases the "tingling" sensation. In the control group there was no verbal suggestion and no cream application. The participants were asked to assess the severity of pain and paraesthesia (tingling) on the co-VAS (Computerised Visual Analogue Scale) continuously during series of ischemic stimuli.

Results: No statistically significant differences were observed as indicated by the lack of interaction between factors "group" and "time", for both paraesthesia ($F(1,18) = 0.0001$; $p = 0.99$) and pain ($F(1,18) = 0.03$; $p = 0.87$)

Conclusions: Data collection for this project is delayed due to the COVID-19 pandemic. It is not yet possible to draw final conclusions at this stage of the project. The negative results may be due to the small sample size of the pilot study. Further research is needed.

Keywords: placebo, nocebo, response generalisation, pain, paresthesia

Reproducibility of spatial summation of pain effect

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Work's tutor: Dr Wacław M. Adamczyk

Introduction: Spatial summation of pain (SSP) is observed when pain increases together with the increase in the size of nociception (or injury). Previously, the SSP has been demonstrated using a modified Cold Pressor Task by Marchand & Arsenault (2002) in healthy volunteers and is suggested to be driven by a complex interaction of facilitatory and inhibitory loops in the pain system.

The aim: The main aim of this study was to reproduce the SSP effect using Cold Pressor Task that was adapted for field experiments. Secondary aims were to investigate the role of expectation in the SSP effect and how the SSP effect changes over time.

Materials and methods: A group of healthy participants were assessed in two experimental conditions, both at the same day (interval of 1h): i) ascending condition - SSP induced by increasing the area of noxious stimulation, ii) descending condition - SSP induced by decreasing the area of noxious stimulation. During each condition, participants immersed 5 different segments of the hand in the cold water (5°C) for 1 minute. Segments differed in magnitude (size). Pain intensity and expected pain levels were measured using the Visual Analogue Scale (VAS) ranging from 0 (no pain) to 100 (worst pain imaginable).

Results: Preliminary results from the General Linear Model analysis ($n=8$) showed significant effect of "time" ($F(2,14) = 7.31, p < 0.01$), and "area" ($F(4,28) = 11.14, p < 0.001$), indicated that SSP effect was successfully found. Results also revealed significant interaction between "time" and "area" ($F(8,56) = 25.07, p < 0.001$).

Conclusions: Inspection of the preliminary data suggests that the current paradigm is feasible at SSP induction in healthy volunteers. Moreover, obtained preliminary data demonstrate that pain increases differently depending on the area stimulated.

Keywords: Pain modulation, spatial summation of pain, lateral inhibition, cold pressor task

Hyperspectral assessment of acne vulgaris skin

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Introduction: Hyperspectral imaging is an innovative technology for obtaining quantitative measurements based on transcutaneous spatial and spectral information. The main advantage of hyperspectral imaging is to obtain hundreds of spectral bands containing signals beyond the range of human visual perception. The images obtained from the hyperspectral camera can be used to collect reflectance or wave absorption values to determine tissue properties.

Materials and methods: The study included 15 patients (mean age 24 ± 4 years) with moderate acne vulgaris and 10 patients without acne lesions (mean age 24 ± 5 years). Photographs were taken using the Fotomedicus, Elfo, Polska system for clinical skin photography and hyperspectral documentation using the Specim IQ hyperspectral camera. The analysis was carried out on hyperspectral images, from which the ROI areas on the face were separated, then the spectral analysis and the gray level co-occurrence matrix - GLCM were analyzed, using parameters such as contrast and homogeneity. Hyperspectral images were converted to grayscale resulting in monochrome images with 256 gray levels. Pixels situated at an angle of 0° located in the immediate vicinity were analyzed.

Results: There was a difference between the reflectance of skin with acne lesions and healthy skin. The analysis of the gray level co-occurrence matrix - GLCM showed a very strong negative correlation between contrast and homogeneity.

Conclusions: Hyperspectral imaging and gray level co-occurrence matrix analysis - GLCM can be used as an innovative, non-invasive method of assessing acne skin.

Keywords: hyperspectral imaging, acne vulgaris, skin assessment

The challenges of treating a patient with recurrent congenital toxoplasmic chorioretinitis

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Work's tutor:
Kocięcki Jaroslaw, PhD, DSc, Assoc. Prof.

Introduction: Congenital toxoplasmosis is a rare, non-curable parasite infection, that affects approximately 242 children in Europe every year. Poland has one of the highest rates of congenital toxoplasmosis in Europe. Transmission of *Toxoplasma gondii* to the fetus results in serious medical conditions, such as development delays, intellectual disabilities, seizures, hearing loss and blindness. Chorioretinitis is a serious manifestation of congenital toxoplasmosis, that can recur even after 25 years from the primary infection, which poses a therapeutic challenge.

Case description: 42-year-old female reported to the Ophthalmology Emergency Room due to blurred vision and pain in the right eye, accompanied by a constant headache. The patient suffered from congenital toxoplasmosis with two relapses in the past. On clinical examination, best-corrected visual acuity was 1,0 in both eyes and the intraocular pressure was significantly increased. Slit lamp examination showed vitritis and an active retinochoroidal lesion the right eye and an inactive retinochoroidal scar in the left eye. Based on clinical examination relapse of toxoplasmosis was suspected. Serology for *Toxoplasma gondii* was positive. Pyrimethamine with sulfadiazine, clindamycin, topical corticosteroids and intraocular pressure-lowering drugs were implemented. During the treatment, the patient developed corticonuclear cataract in both eyes and reported psychotic symptoms. Clinical condition improved after two weeks and the treatment with corticosteroids was maintained with a lower dosage.

Conclusions: Treatment of ocular manifestations of congenital toxoplasmosis is challenging. The clinical benefit of treatment should be weighed against side effects for each patient.

Keywords: toxoplasmic chorioretinitis, congenital toxoplasmosis, adverse effects of corticosteroids

„Do medics know better?” – the attitude to nutrition during the lactation period among healthcare providers. The survey results

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Work's tutor:
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Introduction: Misbeliefs about „lactating mother's diet” are an emerging social determinant of breastfeeding. It remains a prevalent perception, also among medical staff, that mothers should prophylactically exclude certain products from their diet.

The aim: The aim of the study was to assess the knowledge of Polish society on nutrition during the lactation period. Here, we report the results on the willingness of medical personnel to recommend prophylactic dietetic restrictions to breastfeeding mothers and on factors contributing to this practice.

Materials and methods: The total of 407 responses from medical staff were analyzed. The survey included questions referring to the respondents' knowledge on nutrition during lactation and experience with following or advising dietetic restrictions. Statistical analyses were performed with significance level set at $p < 0.05$.

Results: 15% of respondents admitted having recommended a prophylactic elimination diet to their breastfeeding patients. The parity ($p < 0.001$) and following an elimination diet while nursing ($p < 0.001$) had a significant impact on recommending prophylactic dietetic restrictions to the patients. No correlations between place of residence and following ($p = 0.237$) nor recommending ($p = 0.193$) elimination diet were found.

Conclusions: The conviction on the advantageous impact of prophylactic dietetic restrictions when nursing on infant's health is still present in Polish society, including medical personnel. Personal experience affects further counselling to breastfeeding patients.

Keywords: breastfeeding; diet; health care surveys

Eating habits of Children with Autism during the first year of life

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Introduction: The autism spectrum disorder (ASD) are pervasive developmental disorders characterized by the stereotypic behavior and difficulties with the verbal and nonverbal communication. Besides the symptoms considered as the diagnostic criteria of autism, there coexist a number of additional disorders, such as development deficit, psychiatric, neurological, behavioral, somatic as well as eating disorders.

The aim: The evaluation of the eating habits among the children with autism in comparison to the group of healthy peers during the first year of life.

Materials and methods: 75 children homogeneous in terms of age and sex aged 2 to 16 years old took part in the clinical study where the experimental group consisted of 41 children with the diagnosed autism, and the control group consisted of 34 children without any developmental disorders. The analysis was performed based on the questionnaire of our own design which was related to the newborn and infant feeding practices. The statistical analysis of the collected data was performed.

Results: When compared to the healthy peers, the children with the diagnosed autism more often required several trials of introducing any new types of food with the parents engaging in entertaining the child or diverting the child's attention from the food. In the study group parental help was necessary during feeding, but it was a child instead of a guardian who decides what kind of food will be eaten. There exist also differences in preferences between the food consistency and feeding accessories. The autistic children are more often fussy about food and show the symptoms of food selectivity.

Conclusions: The eating problems play a significant role in children with ASD, and it must be controlled by the pediatrician. It requires a lot of involvement from the parents and for that reason they should be included in the diagnosis and therapy interdisciplinary program in the form of the psychological and nutrition help.

Keywords: ASD, children, nutrition, eating habits, food selectivity

Seniors' attending the Universities of the Third Age classes living in urban areas of the Silesian Voivodeship quality of life - preliminary results

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Introduction: In recent years, along with the increase of life expectancy of elders, a great interest in seniors' quality of life has been observed.

The aim: The aim of the study was to assess seniors' attending the Universities of the Third Age classes living in urban areas of the Silesian Voivodeship quality of life.

Materials and methods: 340 seniors attending the Universities of the Third Age classes, living in urban areas of the Silesian Voivodeship were examined - 293(86.18%) women and 47(13.82%) men. The research tool was an original questionnaire supplemented with a standardized Successful Aging Index (SAI) questionnaire.

Results: Successful Aging Index (SAI) among examined seniors was 11.55, and the highest average of points was obtained in the domain: "sense of security" (3.96). More than half of the respondents stated that their life had changed for the better after retirement (177;52.06%). Most of the seniors spent their free time actively (249;73.24%), and 196(57.65%) practiced physical activity systematically (1-2 times a week). The most common motives for taking up physical activity by seniors were: desire to improve overall health (122;35.88%) and to relax or unwind (108;31.76%), while 58(17.06%) did it to make new friends and social contacts. Daily activities such as cleaning, shopping and body toilet were not difficult for the surveyed seniors (292;85.88%). Regular meetings with family and friends were declared by 330(97.06%) respondents, and a third of the them (97;28.52%) went to the cinema/theater or museum several times a month. The vast majority of examined seniors (305;89.7%) were under the constant care of primary care physician and performed systematic check-ups.

Conclusions: 1. The quality of life of surveyed seniors was good, and retirement resulted in positive changes in their lives. 2. Attending the Universities of the Third Age classes mobilized surveyed seniors to spend their time in an active way, both physically, socially and culturally.

Keywords: quality of life, seniors

Carotid web: a neglected cause of ischemic stroke?

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Introduction: Carotid web (CaW) is a shelf-like linear filling defect in the posterior aspect of the internal carotid bulb, representing an intimal variant of fibromuscular dysplasia (FMD). Acute ischemic stroke (AIS) is the third most common cause of death in Poland and CaW may constitute as one of causes of cryptogenic stroke.

The aim: To determine the frequency of CaW occurrence in patients with AIS or transient ischemic attack (TIA) based on the once again analyzed CT angiography (CTA).

Materials and methods: The study was carried out retrospectively by analyzing 325 electronic clinical and imaging data regarding patients with AIS or TIA, hospitalized in years 2018 – 2020 in the Department of Neurology of Medical University of Silesia in Katowice. The mean age of the patients was 69.9 ± 12.7 (range 25-98) years; 163/325 (50.2%) were women. The patient's condition was assessed with the National Institutes of Health Stroke Scale (NIHSS). The main risk factors such as hypertension, atrial fibrillation, diabetes mellitus, hypercholesterolemia were also analyzed. All head/neck CTA studies were independently evaluated by two radiologists for presence or absence of CaW.

Results: There were 285/325 (87.7%) patients with AIS, including 32/285 (11.2%) diagnosed with cryptogenic strokes and CaW was identified in 28/325 (8.6%) and 3/32 (9.4%), respectively. Two (7.1%) CaWs were observed in the bilateral carotid arteries and five (17.9%) were ipsilateral to the stroke side. The presence of CaW was related with higher level of total and HDL cholesterol ($p = 0.02$). The mean NIHSS score at admission and at discharge was 7.8 ± 5.9 , 5.4 ± 5.9 , respectively. There were no significant differences between presence of CaW and age, NIHSS score, the level of LDL cholesterol and triglycerides, as well as gender, the stroke side, the extent of vascularity, thrombectomy, recurrent or cryptogenic stroke.

Conclusions: Clinicians should be aware of CaW as a potential rare cause of AIS. It is worth to analyze CTA to find FMD.

Keywords: acute ischemic stroke; cryptogenic stroke; carotid web; fibromuscular dysplasia; CT angiography;

The impact of the COVID-19 pandemic on the incidence of depressive symptoms and the possibility of developing depression depending on cognitive functioning

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Introduction: The announcement by the World Health Organization in 2020 of the COVID-19 pandemic has consequences in the form of reducing interpersonal contacts. This situation directly affected the daily lives of billions of people around the world. The impact of limiting human contact on mental health among particular social groups began to be correlated. This work focuses on the problem of people in the geriatric age.

The aim: The aim of the study was to assess the risk of developing depression among patients in long-term care facilities in Poland during the COVID-19 pandemic and to assess the relationship between the risk of depression and the occurrence of cognitive disorders in the study group.

Materials and methods: 273 patients of long-term care centers in Poland were qualified for the study. The risk of depression was determined using the proprietary questionnaire. The Mini-Mental State Examination (MMSE) screening scale was used to assess the prevalence of dementia. Both the depression risk assessment and the MMSE scale were carried out twice: in March and December 2020.

Results: In March, deep dementia was reported in 28.2% of patients, and in December this incidence increased to 31.1%. In March, none of the patients had a high risk of depression, and the average risk was characterized by 14.3% of the respondents, while in December, the result indicating a high risk of depression was obtained by 2.6% of patients, and the average risk was reported by 45.4% of patients. Statistical analysis showed that higher scores for the MMSE scale correspond to a higher risk of depression.

Conclusions: A higher risk of depression was observed with the development of the epidemic. Patients with cognitive impairment are characterized by a lower risk of developing depression compared to those with normal MMSE scores. During the study, the progression of cognitive disorders was observed in patients, and the percentage of people with normal MMSE results also decreased.

Keywords: COVID-19, SARS-CoV-2, psychogeriatrics, depression, dementia

Dietetics advice – an effective way for sliming in the times 'COVID-19'?

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Background: Modern media have a huge impact on the eating habits of the population especially in the times 'COVID-19'. Dietary office is a place for all people, who want to get rid of extra pounds. 'Covid-19' is a difficult time for all people. How does 'Covid-19' affect our lives?

The aim: Evaluation of the effectiveness of dietetics advice in the times of 'COVID-19'.

Materials and methods: 55 people, including 43 women and 12 adult men, participated in the pilot study. The questionnaire contained 30 questions (10 questions HR, 15 single choice questions, 3 multiple-choice, 2 open-ended question). All questionnaires were subjected to statistical analysis.

Results: Among the respondents, 55 replied that they had have problem with weight. 100% of respondents believe that dietetics advice is helpful in the fight against obesity in the times of 'Covid-19'. In the times of 'Covid-19'; with the aid of dietary office adults struggle with obesity still. 100% of respondents use to advice of a dietitian for less than one year, in the times of 'Covid-19'. Most people reduced the body weight about 1-11 kg. 40% respondents declare they regularly practiced physical activity, in the times of 'Covid-19'. One of five respondents used a special diet, in the times of 'Covid-19'. 90% respondents are under the specialist care (outpatient of metabolic diseases, dietician, fitness trainer) in the times 'Covid-19'. According to respondent's dietary office give users a control of weight loss process and needed psychological support by other people with the same problems in the times of 'Covid-19'.

Conclusions: In the times 'Covid-19', using to dietetic advice gives the users more benefits still. The study shows, that regular using to dietetic advice helps maintain consequence in the change in eating habits which results in weight loss by overweight people.

Keywords: dietetics advice, weight loss, 'COVID-19'

The impact of preventive hysteroscopic metroplasty of septate uterus on reproductive outcomes – preliminary results

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Introduction: Septate uterus is one of the most frequent congenital uterine anomalies caused by disturbances in resorption of the midline septum of fused Müllerian ducts at the early stage of female reproductive tract development. It may lead to infertility or subfertility, miscarriages, preterm delivery and poor neonatal outcomes. Thus far, there are three equivalent, widely accepted definitions of septate uterus provided by the societies: ESHRE/ESGE, ASRM and CUME.

The aim: The aim of the study was to evaluate the impact of preventive hysteroscopic metroplasty on reproductive outcomes.

Materials and methods: Forty patients in reproductive age (18-42 years) and septate uterus were included in the retrospective cohort study. Participants were divided into two groups: (I) Group 1 (n=20): Patients who underwent hysteroscopic metroplasty of uterine septum and (II) Group 2 (n=20): Patients who were observed according to standard gynecological protocol. The primary endpoint was a labor of alive newborn within 12 months after the start of intervention. Secondary endpoints included: number of miscarriages and preterm deliveries, way of delivery (natural labor versus caesarean section), and neonatal anthropometric measurements.

Results: Any statistically significant differences were not observed in the number of alive newborns delivered after performing hysteroscopic metroplasty of septate uterus, in comparison to an observed group ($p > 0.05$). Improvement of neonatal outcomes depended on: the type of definition used to septum diagnosis, length of septum internal indentation and previous obstetrical history of the patient. Caesarean sections were performed significantly more often in Group 1, in comparison to Group 2 ($p < 0.05$).

Conclusions: Preventive hysteroscopic metroplasty of septate uterus should be performed only in patients with septa of specific morphology. However, further research on bigger cohort is vital to reach a consensus.

Keywords: septate uterus, hysteroscopy, metroplasty, reproductive outcomes

Intraoperative hypotension and its organ-related consequences in hypertensive subjects undergoing abdominal surgery: a cohort study

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Introduction: Intraoperative hypotension (IOH) is a serious medical threat. It is associated with organ hypoperfusion, which is deleterious to vital organs. Little is known about the prevalence and consequences of IOH in subjects with arterial hypertension (AH).

The aim: We aimed to assess the prevalence of IOH, its hypoperfusion-related clinical consequences and their determinants, taking into account the role of AH, in a homogeneous cohort of patients undergoing abdominal surgery.

Materials and methods: We enrolled 508 patients (219 males, median age 62 years). IOH was defined as systolic blood pressure (SBP) <90 mmHg for at least 10 minutes or mean arterial pressure (MAP) <65 mmHg for at least 10 minutes or a need for norepinephrine infusion of at least 0.05 µg/kg/min for ≥ 10 min or intraoperative MAP drop of at least 30% from baseline value for at least 10 minutes, regardless of the time of surgery. Acute kidney injury, stroke or transient ischemic attack, delirium and myocardial infarction was considered as the outcome.

Results: AH concerned 234 (46%) individuals. The prevalence of IOH varied from 19.9% to 59.4%, depending on the definition used. Patients with AH were more likely to experience ↓MAP >30% than non-hypertensive patients (OR=1.53; 95%CI 1.07-2.19; p=0.02). The outcome was diagnosed in 38 (7.5%) patients. AH was a significant predictor of hypoperfusion-related events, regardless of IOH definition applied (logOR 2.80±3.22; p<0.05 for all). Only IOH defined as 'MAP<65mmHg' was confirmed to be a determinant of negative outcome (logOR=2.85; 95%CI 1.35-5.98; p<0.01), with AUROC=0.83 (95%CI 0.0-0.86); p<0.01.

Conclusions: IOH is frequent in patients undergoing abdominal surgical procedures, particularly in patients with preoperatively diagnosed AH. AH is a significant predictor of hypoperfusion-related events, regardless of IOH definition applied. MAP<65 mmHg lasting for >10 min during surgery should be recommended to identify hypertensive subjects at risk of hypoperfusion-related adverse events.

Keywords: arterial pressure, general surgery, abdominal surgery, hypotension, hypertension

Non-invasive imaging techniques in the diagnosis of psoriatic skin

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Introduction: Psoriasis is one of the most common dermatological diseases, characterized by red, dry plaques that appear on the different skin area caused by hyperproliferation, inflammation and immune dysfunction. One of the useful imaging methods for psoriasis skin is thermal imaging and high frequency ultrasound (HFUS).

The aim: The aim of this study was to compare the features of the skin without psoriatic lesions and psoriatic skin using thermal and HFUS imaging.

Materials and methods: For the purpose of this study, twenty-two participants with psoriatic lesion have been taken into consideration. The patients underwent HFUS imaging of the psoriatic lesion and at the site without such lesion on selected skin locations. DUB SkinScanner high-frequency ultrasonography in B-scan projection with a 33 MHz was used to examine skin density. Thermal imaging camera FLIR T420 was used to assess temperature distribution. All temperature registrations were performed in the same room and under the same conditions.

Results: Analysis of the collected ultrasound images showed statistically significant density differences between the image of the skin without psoriatic lesion and lesional psoriatic skin. Active lesions demonstrated increased temperature compared to their surroundings skin area without psoriatic lesions.

Conclusions: HFUS and thermal imaging can be a useful method for diagnosis and monitoring psoriasis.

Keywords: high-frequency ultrasound, thermal imaging, psoriasis

Etiology, risk factors and management of urosepsis in hospitalized patients with urinary tract dysfunctions: a retrospective laboratory based study

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Introduction: UTI (urinary tract infection) is a common complaint, considering to be the most common hospital-acquired infection and one the leading cause of urosepsis. The incidence of urosepsis increases annually due to aging of the population and increasing antimicrobial resistance of main UTI pathogens.

The aim: The aim of this study was to analyze and to characterize the main bacterial etiologic agents causing UTI, complicated with urosepsis among urologic patients and to evaluate modern treatment standard in patients suspected for urosepsis.

Materials and methods: We analyzed retrospectively patients suffering from UTI, complicated with urosepsis admitted to the Urology ward, between 2017-2020 in Silesian hospital.

Results: The cumulative 138 incidences of UTI with urosepsis was noted at the study period. The median age of these patients was 67 (20-94) and 59,4% (82/137) were men. The most common causes for the admission to Urology ward were: in 37% (51/137) hydronephrosis (due to the afunction of urinary drainage catheters) and in 22,5% (31/137) hydronephrosis, due to urolithiasis. On admission, 34,8% (48/137) patients required catheter or nephrostomy replacement, while 28,5% (39/137) required urinary stenting and 17,5% (24/137) performing percutaneous puncture nephrostomy. The median hospitalization time was 10 day (1-23). The majority of bacterial blood cultured pathogens were Enterobacteriaceae 85% (116/137) and 41% (48/116) demonstrated ESBL-production (extended-spectrum β -lactamase), accounting for 35% (48/137) of urosepsis cases.

Conclusions: In the development of urosepsis the prevalence of the Enterobacteriaceae was 85 % with the high 39 % of esbl positive strains. Patients with ESBL-producing microorganisms less frequently received appropriate empiric antimicrobial therapy than control patients. The hospitals stay and antibiotic treatment was significantly longer than in control group.

Keywords: urosepsis, enterobacteriaceae, ESBL, urology

Antibiotic susceptibility of *Clostridium* spp. and spores occurrence in the hospital environment

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Introduction: Spores of *Clostridium* spp. are biochemically inactive forms, resistant to many environmental factors including disinfectants. Among the popular methods of testing the cleanliness of the hospital environment (RODAC type contact plates), neither ensures detection of spores.

The aim: The aim of this study was to detect the presence of *Clostridium* spp. spores with the use of a special C diff Banana Broth™ and to evaluate antibiotic susceptibility of isolated strains.

Materials and methods: The study was conducted in December 2020 in the 86-bed hospital of Silesian region. Sixty environmental samples were taken from patients' rooms. Disposable, sterile swabs moistened with sterile PBS were used for collection of environmental samples, swabs have been directly inoculated to C diff Banana Broth™, and after careful closure, media were transported to the Department of Medical Microbiology and incubated at 37°C for about 2 weeks. Positive broths (changing color) were inoculated on appropriate media and incubated for 48h at 37°C under anaerobic conditions. The growing colonies were identified biochemically with the VITEK 2 Compact. The antibiotic susceptibility of the isolated strains was determined by E-test for 9 antibiotics. MIC values were determined using Brucella Blood Agar plates and Schaedler Broth. Plates were incubated at 37°C for 48 h in an anaerobic chamber. The antibiotic susceptibility results were interpreted in accordance with the recommendations of EUCAST, 2020.

Results: Sixty samples were collected for *Clostridium* spp. and 19 (32%) positive results were obtained: 11 *C. perfringens*, 4 *C. baratti*, 2 *C. clostridioforme*, 1 *C. paraputrificum* and 1 *C. difficile*. None of the isolated strains were resistant to metronidazole and vancomycin, 2 strains demonstrated decreased susceptibility to penicillin.

Conclusions: For epidemiological surveillance appropriate media such as C diff Banana Broth for *Clostridium* spp. spore detection should be used.

Keywords: *Clostridium* spp, environment, antibiotics

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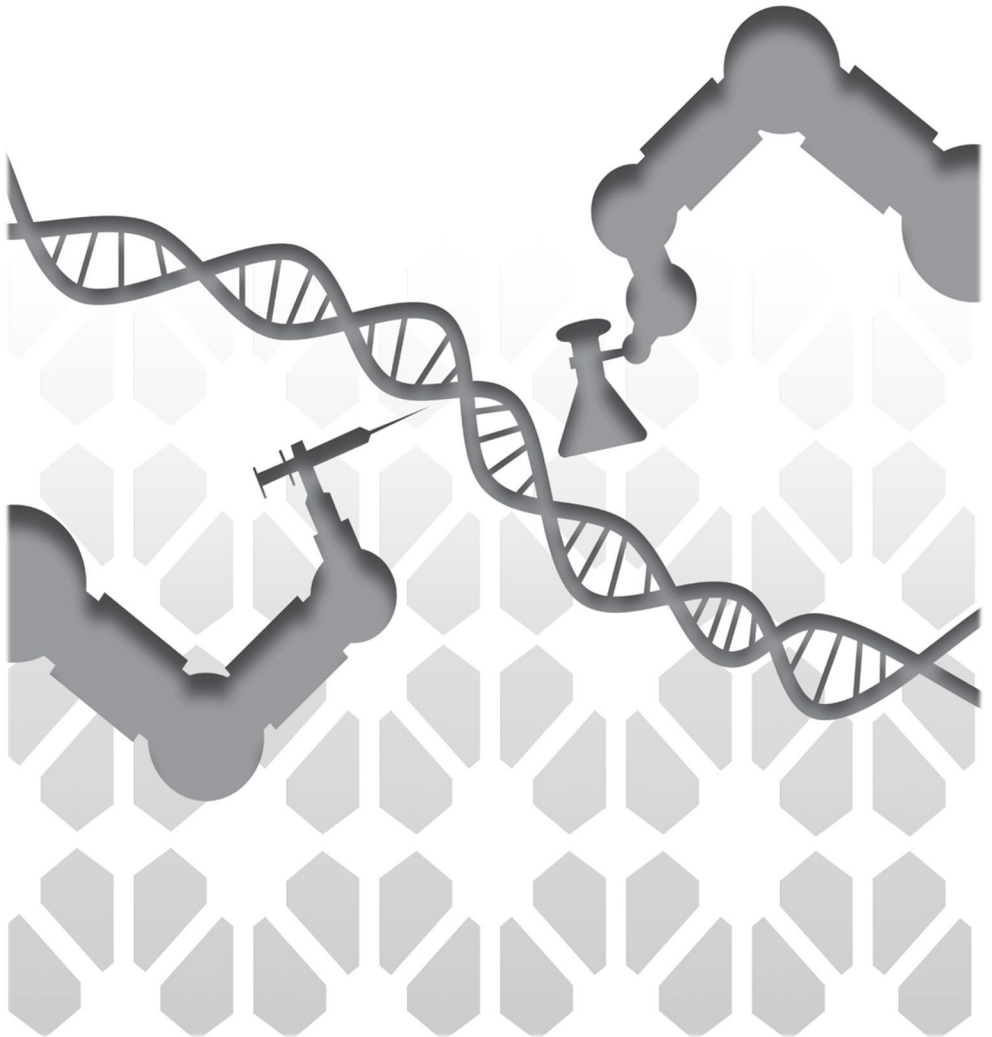


Table of Contents

Synthesis and activity 3,4-dihydropyrimidin-2-ones (thion)	37
The impact of the COVID-19 pandemic on the level of physical activity and the incidence of sleep disorders in women in the early postpartum period	38
The influence of oxidative stress on ketoprofen interaction with defatted human serum albumin	39
Biochemical and nanomechanical analysis of normal and cancer cells of the human gastrointestinal tract supplemented with antioxidant and treated with ROS by Raman and AFM imaging	40
Body water compartments and fat body mass in newborns of mothers with Gestational Diabetes Mellitus. Initial report	41
Bioinformatic analysis of mutations in the peptidylarginine deiminase gene from <i>Porphyromonas gingivalis</i>	42
Effect of simultaneous exposition to western diet and wheel running on the mitochondrial metabolic proteins in the frontal cortex and hippocampus of female rats	43
The scale of the mobbing problem in Poland and in the world	44
Vitamin D in the minds of the modern generation (adult Poles) - in the times of 'Covid-19' .	45
Palatable meal test as a way to show the nutritional behavior in mice fed with ketogenic diet – preliminary results	46
Different composition of ketogenic diet induced differences of ketone bodies metabolism in the mice's hippocampus and frontal cortex	47
The effect of combined drugs (diuretics + ACEI) on humoral and contact hypersensitivity reactions caused by macrophages	48

Synthesis and activity 3,4-dihydropyrimidin-2-ones (thion)

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Introduction: Recently, the number of publications on the chemistry of 3,4-dihydropyrimidin-2-ones (thiones) obtained by three-component condensation according to the Biginelli reaction has increased significantly. This is due not only to the preparative availability of 3,4-dihydropyrimidin-2-ones (thiones), but also to their manifestation of a wide range of pharmacological activity: analgesic, antibacterial, antihypertensive, etc., which makes further searches among them very promising, one of which is Monastrol (ethyl 6-methyl-4- (3-hydroxyphenyl) 2-thioxo-1,2,3,4-tetrahydropyrimidine-5-carboxyl). Monastrol is a biologically active derivative of the primary dihydropyrimidines. With the development of biochemistry, when the chemical components of organic structures began to be deciphered, it became clear how huge a role pyrimidines play in human life, since The pyrimidine moiety is part of many vital organic compounds, which has shown a completely new mechanism of anticancer action due to its specific effect on cell division (mitosis). The biological role of Monastrol and its derivatives has led to significant interest in its synthesis and is a 3-component one-pot synthesis based on the interaction of acetoacetic ether, thiourea and 3-hydroxybenzaldehyde, which allows avoiding waste from multi-stage purification and the formation of residues while observing eco-friendly conditions. As an antiprotozoal agent, it is used in drugs for the treatment and prevention of infections caused by protozoan parasites belonging to the genus leishmaniasis, affects the activity of urease, etc.

Results: Monastrol and its analog, oxomonastrol, differ from each other by replacing the sulfur atom present in monastrol with an oxygen atom in oxomonastrol. Oxomonastrol is cytotoxic only at the highest concentrations, without reducing cell proliferation and viability. No genotoxic damage or changes in mRNA levels were found.

Conclusions: Monastrol has a greater antiproliferative activity compared to oxomonastrol, and this effect is probably related to DNA damage caused by Monastrol and its possible bioactivation. These effects are associated with the presence of a sulfur atom in its structure.

Keywords: monastrol, oxomonastrol, pyrimidines

The impact of the COVID-19 pandemic on the level of physical activity and the incidence of sleep disorders in women in the early postpartum period

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Introduction: The period of pregnancy and puerperium is a time of many changes in the physical and mental health of women. During pregnancy, there are hormonal and anatomical changes in a woman's body that can lead to sleep disorders.

The aim: The aim of the work was to analyze the level of physical activity, sleep disorders and sleepiness in women in early puerperium in the period before and during the COVID-19 pandemic.

Materials and methods: The study was conducted among 514 obstetricians who were on the 1-8th day of childbirth, in the period from December to March 2020 (control group-Gr.Con.: n=252, mean age 30.7±4.58 years) and from May to September 2020 (Covid19 group-Gr.Cov19.: n=262, mean age 31.6±4.36 years). The research tools were the author's questionnaire, the Pregnancy Physical Activity Questionnaire, the Pittsburgh Sleep Quality Questionnaire and the Epworth Sleepiness Scale.

Results: Women from Gr.Cov19 had a higher level of sleepiness than in Gr.Con. ($p=0.008$), however, they had a lower risk of developing sleep disorders than women from Gr.Con. ($p=0.003$). The impact of the pandemic on the level of total physical activity was not noticed. During the pandemic obstetricians spent significantly less energy on passive rest ($p=0.038$), also lower than in Gr.Con. was the energy expenditure associated with movement ($p<0.001$). The occurrence of sleep disorders in Gr.Cov19 patients additionally intensified the above-mentioned relationship. Women with increased sleepiness from Gr.Cov19 also spent significantly less energy on passive rest ($p=0.005$) and transport ($p=0.022$), but significantly more on sports activity ($p=0.027$) than patients from Gr.Con. It was shown a tendency that obstetricians with increased sleepiness from Gr.Cov19. spent less energy to total physical activity ($p=0.053$).

Conclusions: The COVID-19 pandemic has a significant impact on the level of physical activity and the development of sleepiness in women in the early puerperium.

Keywords: physical activity during pregnancy, sleep problems at postpartum period, postpartum period during COVID-19 pandemic

The influence of oxidative stress on ketoprofen interaction with defatted human serum albumin

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Introduction: The oxidative stress affects all of us, regardless of age, gender, education or background. During the inflammation, reactive oxygen species produced in large amounts cause modification – oxidation, i.e. serum albumin – the most abundant, soluble in plasma, protein. The largest and most popular group of drugs with anti-inflammatory, analgesic and antipyretic properties are non-steroidal anti-inflammatory drugs (NSAIDs). The mechanism of their action is related to the inhibition of COX-1 or COX-2 enzyme activity, which stops the development of inflammation.

The aim: The aim of the study was to compare a non-steroidal anti-inflammatory drug (ketoprofen, KET) interaction with both defatted human serum albumin ((af)HSA) and its oxidized form ((oaf)HSA)).

Materials and methods: A modified form of defatted albumin has been obtained by the incubation with chloramine T at 37°C for one hour. In order to estimate the interaction of ligand with serum albumin, the studies were performed using UV/Vis and fluorescence spectroscopy. The (af)HSA/(oaf)HSA at 5×10^{-6} M in the presence of ketoprofen at 1×10^{-6} M - 10×10^{-6} M concentrations (λ_{ex} 275 nm, λ_{em} 295 nm) were analyzed.

Results: Ketoprofen interacts with oxidized serum albumin. The oxidation reduces the protein fluorescence intensity in the presence of ketoprofen.

Conclusions: The collected data confirmed the influence of oxidative stress on the structure of defatted human serum albumin and the interaction between the protein and ketoprofen. Oxidative stress accompanying inflammatory diseases, as well as the use of KETs suggest a monitored therapy and, if necessary, modification of the drug dose.

Keywords: human serum albumin, ketoprofen, non-steroidal anti-inflammatory drugs, fluorescence quenching method, oxidative stress

Biochemical and nanomechanical analysis of normal and cancer cells of the human gastrointestinal tract supplemented with antioxidant and treated with ROS by Raman and AFM imaging

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In recognition of importance of cancer in Poland and in the World to public health we conducted the research on medical diagnostics of cancer by Raman spectroscopy and imaging and AFM and on influence of reactive oxygen species (ROS) on cancer transformation based on nanomechanical and biochemical properties of human tissues and cells.

Tumor transformation is associated with activation of proto-oncogenes and/or inactivation of suppressor genes or abnormal cell differentiation. More and more data indicate that one of the most important factors responsible for the induction of tumor transformation are ROS. At the same time, ROS production is a natural part of oxygen metabolism. The balance between the production of ROS and the efficiency of antioxidant systems prevent oxidative stress and subsequent damage to important macromolecules such as DNA, proteins and lipids. Oxidative stress in cancer cells also includes inflammation and cytokine effects, intense metabolism, dysfunctions in the respiratory chain. ROS generation is generally a cascade of reactions which starts with the production of superoxide.

Spectroscopic and microscopic methods allow the fast, precise and unambiguous differentiation of healthy and cancerous biological samples. Moreover, a very important advantage of Raman spectroscopy is ability to identify many individual components of biological samples in one measurement that help in their differentiation. Based on Raman spectra cell structures such as the nucleus, mitochondria or cell membranes can also be visualized.

Statistically assisted analysis of Raman spectra and AFM data such as: stiffness, Young modulus shows that normal and cancerous human cells can be distinguished based on their unique vibrational and nanomechanical properties.

Keywords: colon cancer, Raman spectroscopy, colon cells, supplementation, oxidative stress, Raman imaging

Body water compartments and fat body mass in newborns of mothers with Gestational Diabetes Mellitus. Initial report

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Introduction: Disturbances in the physical development of the fetus and an increased risk of metabolic complications in postnatal life constitute a typical clinical picture of the syndrome of infant of diabetic mother. It is also known that metabolic disorders, including obesity, affect the distribution of water in the human body.

The aim: The aim of the study was to analyze body composition of newborns of mothers with Gestational Diabetes (GDM), compared to those of healthy mothers (non-GDM).

Materials and methods: A total of 70 newborns were examined. Body composition was measured with the non-invasive electrical bioimpedance method (BIA) during the hospitalization after delivery. Statistical analyses were performed with statistical significance level set at $p < 0.05$.

Results: Neonatal body composition in non-GDM and GDM groups did not differ significantly by birth weight (BW), total body water (TBW), extracellular (ECW) and intracellular (ICW) water and fat body mass (FBM) ($p > 0.05$), despite differences in mean values. Newborns of GDM mothers were found to have higher TBW and ICW, whilst FBM and ECW were lower in comparison to newborns of non-GDM mothers.

Conclusions: Body composition of newborns born to GDM and non-GDM mothers does not differ significantly, however might be affected by concomitant maternal diseases. Further research in bigger groups is needed

Keywords: body composition; newborns; gestational diabetes

Bioinformatic analysis of mutations in the peptidylarginine deiminase gene from *Porphyromonas gingivalis*

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Introduction: *Porphyromonas gingivalis* (Pg) is a key etiopathologic factor of chronic periodontitis (cPD). Latest interest is focused on peptidylarginine deiminase (PPAD), an enzyme that catalyzes deimination of arginine to citrulline in peptides. Recent evidence from in vitro models of critical role of PPAD in gingival cells infection encourages its more precise characterization at the genetic level.

The aim: Bioinformatic analysis of the PPAD gene expressed by Pg strains from cPD.

Materials and methods: Gingival crevicular fluid samples from 23 cPD patients and 8 healthy donors (Ctrl) were cultivated to obtain Pg subcultures. Pg was approved by 16S rRNA and PPAD PCR. PPAD coding sequences were amplified, cloned into pTZ57R vector and sequenced using Sanger method. Analysis of PPAD was achieved with the NCBI database, the BLAST and Microsoft Office.

Results: In total 51 nucleotide substitutions were identified in cPD and 31 in Ctrl. Nine missense and 35 synonymous mutations were found in cPD, while 2 missense and 22 synonymous mutations in Ctrl. One, identical polymorphic variant was found in 30% of cPD. In 86% of cPD with the polymorphism we detected the cytosine to thymine (C->T) substitution at position g.546 (G182G). The C->G substitution (synonymous) at g.948 position was present in all cPD donors, including those harboring the polymorphism. We also identified two novel missense mutations, the N291D in the proximity of the active site of PPAD resulting from the A->G substitution (g.871) and the S191F resulting from the C->T substitution (g.572).

Conclusions: The analysis of sequences obtained by us and those found in database indicates that genetic and amino acid sequence of PPAD differs between individuals with cPD, and may suggest the potential impact of specific mutations and/or novel polymorphic variant of PPAD on virulence of Pg. Our preliminary observation of PPAD sequences requires further characterization of its functional and clinical significance.

Keywords: *P. gingivalis*, peptidylarginine deiminase, periodontitis

Effect of simultaneous exposition to western diet and wheel running on the mitochondrial metabolic proteins in the frontal cortex and hippocampus of female rats

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Introduction: Recently, more attention has been paid to the contribution of an unhealthy diet to the development of the central nervous system. Western diet (WD)-induced adverse effects in the brain seem to be related to disturbances of brain energy metabolism. Growing evidence supports the role of physical activity as a brain and nervous system disease-preventing factor.

The aim: The goal of the study was to investigate the effects of simultaneous exposure to forced wheel running and WD on the cortical and hippocampal levels of mitochondrial proteins related to brain energy metabolism in the female rats.

Materials and methods: 9-weeks old female Long Evans rats (n=6) for 6 weeks received snacks typical for human WD alongside with standard rodent chow (WD group). During this time 5 animals were also subjected to forced wheel running (WD/EX group). Animals in the control (CTR) group received standard rodent chow and did not have access to running wheels (n=6). Western blot analysis was performed in samples collected from frontal cortices and hippocampi of the animals.

Results: We have observed a significant lower level of Acad9, which catalyzes a crucial step in fatty acid β -oxidation, in the WD ($p=0.0006$) and WD/EX groups ($p<0.0001$) in the frontal cortex, and in the exercised WD rats in the hippocampus (CTR vs. WD/EX: $p=0.02$), as compared to the appropriate control groups. We did not observe changes in cortical or hippocampal levels of Acat1 - enzyme that catalyzes the reversible formation of acetoacetyl-CoA. In the frontal cortex of rats from both groups fed with a WD we have reported a significant increase of the ATP5j level, (WD; $p=0.043$, WD/EX; $p=0.003$) as compared to the control.

Conclusions: Our results show that different directions of changes of studied enzymes under dietary and physical activity conditions. We conclude that our preliminary data provide a valuable basis for deeper investigation of changes in brain structure and function induced by western diet and physical activity.

Keywords: western diet, physical activity, energy metabolism, CNS

The scale of the mobbing problem in Poland and in the world

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Introduction: Mobbing is an activity consisting in persistent and long-term harassment or intimidation of an employee.

The aim: The aim of this study was to review the literature on the incidence of mobbing in the world and to compare it with the authors' own results.

Materials and methods: 30 people, including 18 women and 12 adult men, participated in the pilot study. the research method was an original survey.

Results: Among the respondents, 16 replied that they had personally encountered mobbing at work. And half of the respondents replied that they had witnessed such phenomena as: lowering the salary, humiliating, and forcing an employee to leave. The scale of mobbing occurs mainly in the following countries: Finland (15%), the Netherlands (14%), and the United Kingdom (14%).

Conclusions: The phenomenon has a negative impact on interpersonal relations in the workplace and the functioning of the workplace.

Keywords: bullying, mobbing, psychology, psyche

Vitamin D in the minds of the modern generation (adult Poles) - in the times of 'Covid-19'

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Background: Vitamin D is a group of fat-soluble secosteroids. In humans, the most important compounds in this group are vitamin D3 (also known as cholecalciferol) and vitamin D2 (ergocalciferol). Various institutions recommend different daily allowances for the oral intake of vitamin D. The Polish Food and Nutrition Institute recommends the following standards: adolescents and people over 60 years of age: 10 µg, safe level 5 µg. In the European Union, it is officially recommended to consume 5 µg of vitamin D daily. American scientific institution (Institute of Medicine, Food and Nutrition Board) recommends a daily consumption of 5 µg up to the age of 51, 10 µg at the age of 51-70 and 15 µg over 71 years of age.

The aim: The objective of the conducted research was examining vitamin D content in adults at the time of 'Covid-19'.

Methods & Materials: 30 people, including 17 women and 13 adult men, participated in the pilot study. The questionnaire contained 12 questions (4 questions HR, 10 single choice questions, 2 single choice that is 2 open-ended question). All questionnaires were subjected to statistical analysis.

Results: Among the respondents, 11 persons answered that they supplemented with vitamin D. Only 6 of the respondents started supplementing with vitamin D due to the COVID-19 pandemic situation in Poland.

Conclusions: The knowledge and supplementation with vitamin D in the respondents are insufficient, at the times in 'Covid-19'.

Keywords: vitamin D, adult Poles, 'Covid-19'

Palatable meal test as a way to show the nutritional behavior in mice fed with ketogenic diet – preliminary results

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Introduction: In recent years the ketogenic diet (KD) is becoming increasingly popular in the treatment of overweight. The KD is a very-low-carbohydrate and high-fat nutritional approach that induces metabolic shift to the use of the ketone bodies instead of glucose as a main energy source. For decades the KD has been employed to manage drug-resistant epilepsy, but recently it is increasingly considered as an alternative or add-on therapy in other diseases. The effectiveness of the KD in weight loss is often attributed to suppression of appetite. Although an inhibitory effect of ketosis on appetite is widely assumed. The effectiveness of the KD in weight loss is often attributed to suppression of appetite.

The aim: The main aim of our study is the evaluation of hormonal and neural mechanisms responsible for hunger and satiety regulation during nutritional ketosis are affected by metabolic changes associated with obesity. Therefore, in the preliminary results we evaluate the level of appetite, by food preference in mice fed with KD.

Materials and methods: C57BL/6N male mice were fed with ketogenic chow composed of fat of either animal origin for 5 weeks. The influence of KD on nutritional behavior was evaluated by the level of appetite by palatable meal test (PMT). The amount of palatable snack (cheese) was measured by fasted mice. Cheese was choosing in order to keep animals in nutritional ketosis.

Results: The results showed in KD-fed mice: weight loss; increase the level of beta-hydroxybutyrate; not statistic differences (t-test) in the level of appetite during PMT. To evaluate level of appetite we monitored cheese intake; eating and sniffing episodes; frequency of eating and sniffing; distance moved.

Conclusions: Despite, strong evidence supporting the use of KD for the treatment of obesity, there is a lack of consensus regarding the mechanisms underlying weight loss under nutritional ketosis. Among possible mechanisms, the reduction of appetite is predominantly considered through the literature.

Keywords: ketogenic diet, food preference, nutritional behavior, mice

Different composition of ketogenic diet induced differences of ketone bodies metabolism in the mice's hippocampus and frontal cortex

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Introduction: Ketogenic diet (KD) is a high fat and very-low carbohydrate nutritional approach which induces metabolic changes that mimic fasting, because during both, production and utilization of ketone bodies (KB) are enhanced. KD has been shown to be effective in managing drug-resistant epilepsy and other brain diseases. The rationale for the use of KD is based on its neuroprotective properties, but mechanisms responsible for these effects are not fully explained.

The aim: The goal of this study was to assess how the composition of KD affects the utilization of KB in the mice's brain.

Materials and methods: 9-10-weeks old male mice were divided into three groups and fed with standard rodent chow (SD - control) or one of two differently composed ketogenic chows (KA, KP) for 4 subsequent weeks. KDs were isocaloric and had a similar ketogenic ratio, but KA had higher content of animal-based fats and KP was enriched with fats of plant origin. Hippocampus and frontal cortex level of 3-hydroxybutyrate dehydrogenase 1 (BDH-1) and succinyl CoA: 3-oxoacid CoA transferase (SCOT/ OXCT1) was assessed by western blotting.

Results: The results show that the both ketogenic diets stimulated expression of hippocampal BDH-1 (one-way-ANOVA $F(2, 11) = 4.872, p=0,031$) and SCOT (one-way-ANOVA $F(2, 11) = 7.615, p=0.0084$). In the frontal cortex the ketone utilizing machinery was not as efficient and only the level of BDH1 was increased during feeding by KP diet (one-way-ANOVA $F(2, 11) = 4.725, p=0.0330$).

Conclusions: We conclude that our data provide a valuable basis for further investigation of changes in brain function involved in ketone bodies metabolism induced by both ketogenic diets.

Keywords: ketogenic diet, ketone bodies metabolism, hippocampus, frontal cortex, BDH-1, SCOT/ OXCT1

The effect of combined drugs (diuretics + ACEI) on humoral and contact hypersensitivity reactions caused by macrophages

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Introduction: The over-activated inflammatory responses of macrophages (Mph) likely increase the risk of hypertension development, while diuretics administered alone or in combination with hypotensive drugs may have the immunomodulatory effects.

The aim: We investigated the influence of these drugs on macrophage-mediated immunity in mice.

Materials and methods: CBA mice were treated i.p. with captopril (5 mg/kg) with or without hydrochlorothiazide (10 mg/kg) or furosemide (5 mg/kg) by 8 days. On the third day, mice were i.p. injected with mineral oil and 5 days later Mph were harvested to assess the generation of reactive oxygen species (ROS) and nitric oxide (NO). Mph were also pulsed with sheep red blood cells (SRBC) or hapten and transferred to naive mice for evaluation of their ability to induce humoral or contact hypersensitivity (CHS) reactions, respectively.

Results: Diuretics, when administered alone or with captopril, enhanced ROS, but decreased NO production by Mph. SRBC-pulsed Mph from mice treated with captopril combined with diuretics increased the secretion of antigen-specific antibodies by recipient B cells, while Mph of mice treated with hydrochlorothiazide or furosemide with captopril increased the number of antigen-specific B cells. Captopril reduced CHS ear swelling response, and this effect was augmented by diuretics.

Conclusions: Our results showed that diuretics with or without captopril modulate the humoral and allergic cell-mediated immune responses by affecting the function of Mph. Further studies should investigate the clinical effect of these observations.

Keywords: immunology, humoral response, contact hypersensitivity reaction, diuretics, ACEI, macrophages

**SESSION
OF ANAESTHESIOLOGY,
INTENSIVE CARE
AND EMERGENCY MEDICINE**

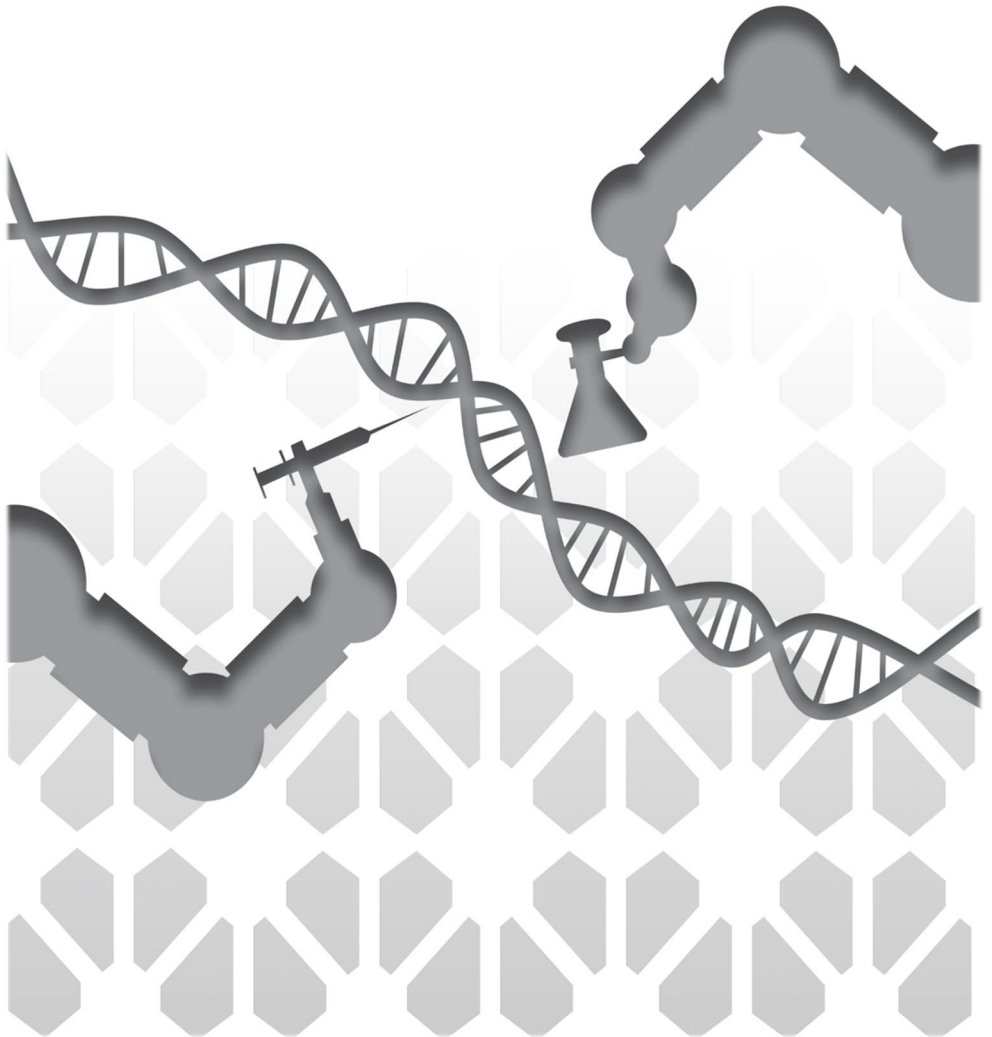


Table of Contents

Delirium prevention during perioperative period.....	51
Assessment of the influence of metabolic and respiratory compensation on treatment outcome in patients with acute respiratory failure due to exacerbation of previously diagnosed COPD - single center experience.....	52
Glycemic variability in critically ill	53
Enhanced Recovery After Surgery-Knowledge and Attitude of the surgical patients.....	54
Premedication in clinical practice in Poland – A questionnaire survey.....	55
Iatrogenic blood loss due to daily laboratory testing and the risk of subsequent anaemia in intensive care unit patients: case series	56
What Do We Know about Early Management of Sepsis and Septic Shock in Polish Hospitals? A Questionnaire Study	57
Attitudes towards death in women with a history of breast cancer.....	58
Comparison of the effectiveness of cardiopulmonary resuscitation among medical and non-medical students using a personal protective equipment for aerosol generating procedures	59
There is always a reason: investigating the causes of thrombocytopenia in critical illness....	60
ICU of the 21st century: hemodynamic monitoring by smartphone – preliminary report from a prospective comparative study.....	61
Anesthesia and analgesia resuscitation CT MRI change of brain after CPR	62
Readmissions to the Intensive Care Unit	63
Life sustaining treatment withdrawal in Polish Intensive Care wards – multicentre retrospective study.....	64
Influence of enteral and parenteral nutrition on diaphragmatic thickness in mechanically ventilated patients.....	65
Therapeutic plasma exchange as a rescue therapy for severe COVID-19: a case series	66
High intraoperative pulse pressure and its relationship with postoperative organ injury in a cohort of abdominal surgery patients.....	67

Delirium prevention during perioperative period

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Background: Delirium is a disturbance in attention, awareness and cognition with reduced ability to direct, focus, sustain and shift attention, and reduced orientation to the environment. It affects mortality, morbidity, length of hospital stay, cost of treatment and also distant outcomes of the patients.

The aim: The aim was to assess attitudes and clinical practice of specialists and residents of anesthesiology in terms of delirium prevention in the perioperative period.

Materials and methods: An anonymous e-based questionnaire was performed among 43 anesthesiologists, specialists (n=26) and residents (n=17). The answers were collected in January and February 2021. Answers to questions describing personal opinions were recorded using a 5-item Likert scale.

Results: We found significant differences between opinions regarding the influence of intraoperative control of fluid or electrolyte imbalance, blood pressure fluctuations and fluid therapy ($p<0.05$) as well as preoperative control of anemia and malnutrition ($p<0.05$) on the incidence of delirium. Subjects also assessed differently the type of surgery as the trigger of delirium ($p<0.05$). There was disagreement about treatment patients with dementia with acetylcholinesterase inhibitors during the perioperative period ($p<0.05$). No differences were noticed regarding pharmacological and non-pharmacological prophylaxis of delirium.

Conclusions: There are clear differences in awareness of delirium prevention in the perioperative period between specialists and residents. Both pharmacological and non-pharmacological methods of prophylaxis are used in a similar way by younger and more experienced anesthesiologist.

Keywords: delirium, prophylaxis, perioperative period, prevention

Assessment of the influence of metabolic and respiratory compensation on treatment outcome in patients with acute respiratory failure due to exacerbation of previously diagnosed COPD - single center experience

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Introduction: Patients with acute respiratory failure upon exacerbation of chronic obstructive pulmonary disease (COPD) are often referred to the intensive care unit (ICU) for respiratory support via invasive or non-invasive mechanical ventilation.

The aim: 1) To characterize patients with COPD admitted to ICU focusing on the applied strategies of mechanical ventilation (MV); 2) to assess if the dynamics of metabolic compensation affect the outcome of the MV implementation.

Methods: This retrospective study covered 47 COPD patients hospitalized in the ICU from 01.2018 to 10.2019 due to acute-on-chronic respiratory failure. The MV settings, arterial blood gas (ABG) tests, respiratory parameters on admission (adm), extubation (ext), discharge (dis), and ICU mortality were analyzed.

Results: The study group consisted of 47 patients (23 men (49%)/median age 68y, IQR 64-75). The median of MV time was 120 hours (IQR 72-186). SIMV was most frequently used during acute phase of illness, whereas PSV was typically applied during weaning from MV. The days-on-MV ratio correlated significantly with the PaCO₂adm-PaCO₂ext ($r=0.52$, $p=0.0002$). There was a weak but significant correlation between the PaCO₂adm-PaCO₂dis and mean ABG HCO₃⁻ concentration, reflecting the metabolic compensation mechanisms ($r=0.4$, $p=0.01$), followed by a significant difference in pH compensation between deceased patients (Me: 7.36; IQR: 7.32-7.38) and survivors (Me: 7.39; IQR: 7.37-7.42), $p=0.004$. Mean lactate concentration allowed for mortality prediction (AUC=0.708; $p=0.01$).

Conclusion: Efficacy of compensation of the respiratory and metabolic balance disorders must be cautiously monitored in order to ensure that time spent on MV will improve clinical outcome.

Keywords: acute respiratory failure; chronic obstructive pulmonary disease; respiratory and metabolic compensation; mechanical ventilation; respiratory care

Glycemic variability in critically ill

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Background: Non-diabetic hyperglycemia is a dangerous metabolic phenomenon and may occur in up to 38% of subjects treated in the intensive care unit. Inattentive treatment of glycemic disorders, causing its fluctuations and hypoglycemic episodes, is a serious health hazard promoting negative outcomes. Thus, glycemic variability has become important clinical prognostic marker.

The aim: The aim of our study was to assess the variability of glycaemia and its basic determinants, and to verify its relationship with mortality in patients hospitalized in a mixed ICU.

Materials and methods: The medical records of 37 patients hospitalized between 13.01.2020 and 29.02.2020 were analyzed prospectively. According to local protocol, insulin therapy was started when the blood glucose (BG) in two measurements was ≥ 200 mg/dL and the insulin dose was adjusted to maintain BG within the range of 140-180 mg/dL. The BG variability during the stay was assessed using two definitions, i.e. (1) the value of standard deviation (SD) from all the measurements performed and (2) the coefficient of variation (CV).

Results: Insulin was used in 28 (75.7%) subjects. There was correlation between the BG variability and daily insulin dose (SD: $R=0,559$; $p<0.01$; CV: $R=0,621$; $p<0.01$). The median energy dose was 7820 (IQR 2126-14274) kcal/day. There was correlation between the BG variability and the total energy daily dose (SD: $R=0,373$; $p=0.02$; CV: $R=0,364$; $p=0.03$). Glycemic variability was higher among patients in whom treatment with adrenalin ($p=0,0218$) or steroid ($p=0,0292$) was applied. The BG variability, expressed using SD, was associated with ICU mortality (ROC=0,806; 95%CI 0,643-0,917; $p= 0,0014$).

Conclusions: The BG variability in the ICU setting arises from the loss of balance between the supplied energy and the applied insulin dose, and may be associated with a worse prognosis.

Keywords: glycemic variability, glycemic control

Enhanced Recovery After Surgery-Knowledge and Attitude of the surgical patients

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Background: Enhanced Recovery After Surgery (ERAS) treatment program aims to improve perioperative care, surgery outcomes and postoperative recovery based on evidence-based clinical research implemented into daily practice. It combines multidisciplinary updates and guidelines for a variety of surgical procedures.

The aim: 1) To assess the knowledge and attitude toward ERAS' outlines, and 2) to evaluate their subjective relevance, among surgical patients.

Methods: This survey study was conducted from 10.2019 to 02.2020 based on a proprietary questionnaire. It included patients hospitalized in a surgical clinic in Katowice. The survey consisted of 20 questions referring to 16 key aspects of ERAS protocol. The answers were graded through a Likert-type scale.

Results: The study group included 52 consecutive patients (25 men, 48%, median age 60y, IQR 47-67). 70% of the respondents strongly agree with the importance of preoperative consultation and preparation. 48% strongly agrees on the readiness to increase physical activity before surgery. 67% would give up additional premedication in favor of earlier convalescence. 53% would disagree to undergo surgery with utilization of regional anaesthesia (RA). There is a significant relation between the attitude towards RA techniques and the level of knowledge possessed by the respondents ($p=0.005$), with 47% of them never acquainted with the benefits of RA.

Conclusion: Early preparation and detailed information on the upcoming procedure are of high importance to the patients. Patients are open to new standards of perioperative care, though many admit having unsatisfactory understanding of the ERAS guidelines' influence on their postoperative recovery.

Keywords: enhanced recovery after surgery, ERAS protocol, questionnaire study

Premedication in clinical practice in Poland – A questionnaire survey

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The aim: The aim of this study was to investigate clinical practice in terms of the premedication used by Polish anaesthesiologists, with an assessment of differences among surgical specialties as well as their compliance with the assumptions of the ERAS concept.

Methods: A cross-sectional questionnaire survey was performed between 12.2020 and 03.2021 in a group of 137 specialist and resident physicians administering anaesthesia to adult patients. An online invitation to participate in the study was addressed to more than 1,000 physicians employed with voivodeship, district, clinical and single-specialty hospitals in 16 voivodeships.

Results: The mean age of the respondents was 37 ± 10.67 years. 118 (86,1%) respondents used premedication in their everyday practice. 46 physicians (38.9%) used premedication in day-surgery procedures. Hospitals of 61 (44.5%) respondents had a clinic of anaesthesiology. Among doctors using premedication, 101 (85.6%) physicians applied selected recommendations of the ERAS protocol, while among doctors who do not use premedication, elements of ERAS were implemented by 17 (89.5%) physicians. The drug most frequently used in premedication was midazolam. 105 (89%) respondents used it on the day of the surgery. Apart from midazolam, anaesthesiologists most frequently used preemptive analgesia involving paracetamol (67 physicians;56.8%) and metamizole (48 physicians;40.7%). On the day of the procedure, pregabalin (20 physicians;16.9%) and gabapentin (21 physicians;17.8%) were also frequently administered. None of the physicians used all of the elements of ERAS in their preoperative approach.

Conclusions: Midazolam is still frequently used in premedication. Although none of the respondents used all of the ERAS protocol guidelines for anaesthesiology, physicians endeavour to implement it's elements gradually, also taking preemptive analgesia recommendations into account.

Keywords: premedication, ERAS, preoperative care

Iatrogenic blood loss due to daily laboratory testing and the risk of subsequent anaemia in intensive care unit patients: case series

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Background: Anaemia is associated with a wide range of negative outcomes. Diagnostic blood loss (DBL) may contribute to its occurrence. We aimed to evaluate DBL and its impact on haemoglobin (HGB) concentration and developing anaemia in the intensive care unit (ICU) patients.

Materials and methods: A study group comprised of 36 adult ICU patients. DBL during 7 consecutive, post-admission days was calculated. Anaemia occurrence was assessed using the WHO thresholds. Data on HGB and haematocrit (HCT) was subjected to analysis.

Results: Upon admission, 24 (67%) patients were diagnosed with anaemia, on the eighth day 29 (80%) subjects (with 6 new cases). The median volume of blood collected was 143.15 mL (IQR 121.4–161.65) per week. No differences in DBL were found between the subjects with newly developed anaemia and their counterparts ($p=0.4$). The median drop of HGB ($Hb\Delta$) was 18 gL⁻¹ (IQR 5–28) and the median drop of haematocrit ($Ht\Delta$) was 4.55% (IQR 1.1–7.95). There was no correlation between neither $Hb\Delta$ and DBL ($p=0.8$) nor $Ht\Delta$ and DBL ($p=0.7$). There were also no differences in $Hb\Delta/Ht\Delta$ when age, gender or the primary critical illness were taken into account for the analysis ($p>0.05$ for all). The 7-day fluid balance was associated with haemoglobin drop ($R=0.45$; $p=0.006$).

Conclusions: Anaemia is frequent in ICU patients. Diagnostic blood loss in our institution is acceptable and seems to protect patients against significant iatrogenic blood loss and subsequent anaemia. Dilutional anaemia may interfere with the results so before-after interventional research is needed to explore this interesting topic.

Keywords: anaemia, iatrogenic, blood loss, intensive care

What Do We Know about Early Management of Sepsis and Septic Shock in Polish Hospitals? A Questionnaire Study

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Background: Sepsis and septic shock are medical emergencies with a high risk of poor prognosis. We investigate the correspondence between Surviving Sepsis Campaign (SSC) guidelines and clinical practice in Poland, with special attention given to differences between ICU and non-ICU environments as well as regional variations within the country.

Materials and Methods: A web-based questionnaire study was performed on a random sample of 60 hospitals from the three most populated regions in Poland—Masovia, Silesia, and Greater Poland. A 19-item questionnaire was built based on the most recent edition of SSC guidelines.

Results: Sepsis diagnosis was primarily based on clinical evaluation (ICUs: 94%, non-ICUs: 62%; $p = 0.02$). There were significant differences between ICUs and non-ICUs regarding taking blood cultures for pathogen identification (2-times more frequent in ICUs) and having hospital-based operating procedures to adjust antimicrobial treatment to a clinical scenario (a difference of 17%). Modification of empiric antimicrobial treatment was required post-ICU admission in 70% of cases. ICUs differed from non-ICUs with regard to the methods of fluid responsiveness assessment and the types of catecholamines and fluids used to treat septic shock. The mean fluid load applied before the implementation of catecholamines was 25.8 ± 10.6 mL/kg. Norepinephrine was the first-line agent used to treat shock, and balanced crystalloids were preferred in both ICUs and non-ICUs.

Conclusions: Compliance with SCC guidelines in Polish hospitals is insufficient, especially outside ICUs. There is a need for education among healthcare professionals to reach at least an acceptable level of knowledge and attitude in this field.

Keywords: guidelines compliance comparison; intensive care unit; sepsis guidelines adherence; sepsis and septic shock management; Surviving Sepsis Campaign

Attitudes towards death in women with a history of breast cancer

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Background: Cancer remains the leading cause of death worldwide. Its treatment is multidirectional and comprises a plethora of medical procedures often requiring multiple hospitalizations. The fear of negative outcome has deleterious impact of the patients' mental state. Still, very little is known about attitudes towards death in people after a life-changing diagnosis.

The aim: We aimed to investigate attitudes towards death and their relation with the advancement of illness, the number and time of hospitalizations, religious beliefs and the social status.

Materials and methods: From January 2021 to March 2021, a web-based anonymous questionnaire was performed among women with a history of breast cancer, members of 'The Amazonki' association. We applied the DAP-R questionnaire that examines five different approaches towards death.

Results: Data from 70 women aged 50 ± 11 years were analyzed, 31 participants were hospitalized 2-5 times and 12 women had 6+ hospitalizations. The Approach Acceptance (AA) equaled 4.47 ± 1.56 pts, Escape Acceptance (EA): 4.46 ± 1.33 pts, Neutral Acceptance (NA): 5.58 ± 0.80 pts. The Fear of Death (FD) reached 4.80 ± 1.42 pts and Death Avoidance (DA): 4.33 ± 1.56 pts. Women still undergoing their oncological treatment showed lower FD results than those who already finished it. Lower FD was found in women who had children ($p < 0.05$). Higher AA was observed for 55 religious participants compared to 15 agnostic women ($p < 0.05$).

Conclusions: In women with a history of breast cancer, Neutral Acceptance and the Fear of Death approaches are the most pronounced. Religious beliefs and social status have impact on their attitudes toward death.

Keywords: death attitude, oncology, breast cancer

Comparison of the effectiveness of cardiopulmonary resuscitation among medical and non-medical students using a personal protective equipment for aerosol generating procedures

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Background: In coronavirus disease 2019 (COVID-19) pandemic the protection against infection is of paramount importance but the procedures preventing from it, may impact on cardiopulmonary resuscitation (CPR) quality.

The aim: We aim to evaluate personal protective equipment (PPE) for aerosol generating procedures (AGP) during CPR among medical and non-medical students.

Methods and materials: A single-blinded, crossover simulation study was conducted using Resusci Anne manikin. The participants were divided into 2 groups, medical and non-medical and organised in 7 pairs in each group. Each pair performed ten minutes manual CPR with compression-ventilation ratio 30:2 wearing PPE for AGP. The reference method was manual CPR wearing casual outfit along with surgical masks and latex gloves. Data about compression and ventilation were gathered using QCPR Training application form Laerdal Medical.

Results: The average chest compression fraction (CCF) among medical students using PPE was 82,14%; SD 1,77 and in casual outfit 83,57%; SD 2,63 ($p=0.1291$). Average CCF among non-medical students using PPE was 75,14%; SD 4,26; in casual outfit the average CCF was 74,28%, SD 2,7 ($p=0.5929$). Furthermore there is a significant decrease in average compression speed ($p=0.0305$), chest relaxation ($p=0.0148$), appropriate depth of chest compression ($p=0.0110$) and ventilation ($p = 0.0387$) among medical students in the PPE sample as compared to the casual outfit sample. The above dependence was not observed among non-medical students.

Conclusions: According to the results of this simulation study the use of PPE appears to have an impact on CPR leading to decrease of its quality, thereby worsening the

Keywords: CPR, COVID, resuscitation, students compress, PPE AGP, chest relaxation

There is always a reason: investigating the causes of thrombocytopenia in critical illness

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Background: Thrombocytopenia (TP) is one of the most frequent abnormalities in hemostasis in critically ill patients and may result in bleeding diathesis. The origin of TP in ICU patients is often difficult to determine. Apart from inherited type of TP, acquired low platelet count may result from decreased production of increased breakdown of platelets. In many clinical scenarios, TP cause is multifactorial.

The Aim: To investigate the frequency and most apparent causes of TP in the ICU patients.

Materials and methods: This retrospective analysis covered laboratory results and basic clinical data of 93 patients (40W/ 53M, aged 64 (IQR 54-69) years) who had platelet count <150000/ μ L during hospitalization in the ICU in 2019.

Results: TP occurred in 32.3% of all ICU patients in 2019, including 21% cases on admission and 11.3% during ICU stay. APACHE II score was 23 (IQR 16; 28) points. Mortality among patients with TP reached 59%. TP was more pronounced in patients with infections treated with antibiotics (45%) and those with serious bleeding (46%). Among antibiotics, cloxacillin had the greatest negative effect on platelet count. Although heparin solutions were used in 71% of subjects (and all patients with arterial line flushes), heparin-induced TP was suspected only in 2 patients.

Conclusions: TP occurs frequently in critical illness. Mortality in patients with TP is high. Precise assessment of whether an infection or antibiotic treatment is causing a decrease in platelet count requires further research

Keywords: thrombocytopenia, critical care unit, sepsis, bleeding

ICU of the 21st century: hemodynamic monitoring by smartphone – preliminary report from a prospective comparative study

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Background: Reliable haemodynamic monitoring of patients in critical conditions enables the adaptation of the therapy to a patient's current needs. However, each method used has potential limitations -substantive, technical and organizational.

The aim: The aim of the study was to compare the compliance of cardiac output (CO) measurements obtained by using the Capstesia™ (CS) smartphone app and the LidcoRapid™ (LR) uncalibrated monitor, both based on arterial pressure-based cardiac output (APCO).

Materials and methods: The study included 15 patients in the period 01-03.2020 who met the hemodynamic assessment criteria using APCO. The compatibility of the results of cardiac output (CO) obtained by both methods was assessed using the Spearman's rank correlation coefficient (R), the intra-class correlation (CCC) and the analysis of Bland-Altman curves (B-A).

Results: 70 pairs of measurements were made. The CCC for CO-CS was 0.98 (95% CI 0.95-0.99). In the B-A analysis, CO-CS values were on average 1.3L min⁻¹ lower (95% CI -4.5-2.0) than CO-LR. The correlation between CO-CS and CO-LR was moderate (R = 0.52; p = 0.04). After adjusting the results for the presence of the dicrotic notch on the pulse waveform, in the group of 8 patients with a visible dicrotic notch, the CO-CS and CO-LR values differed by only 0.1L min⁻¹ (95% CI -0.8-1 , 1), and the correlation between CO-CS and CO-LR was close to complete (R = 0.95; p = 0.003).

Conclusions: The CS application is a low-cost, simple and convenient alternative to CO measurement among patients with a physiological heart rate curve meeting the APCO evaluation criteria. Continuation of the research will allow to verify its usefulness in terms of parameters related to the assessment of susceptibility to fluid therapy.

Keywords: capstesia, haemodynamic monitoring, cardiac output

Anesthesia and analgesia resuscitation CT MRI change of brain after CPR

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Background: During cardiac arrest, the body changes slowly. Sometimes it takes more than a day to show the cardiac arrest in CT scan although MRI shows some symptoms. But in 24 hours during the time of happening slowly cardiac arrest, CT scans do not show any result. But at the time of CPR, the GWR (gray-white matter ratio) changes after cardiac arrest. Clinical case: Spinal or epidural anesthesia is a smooth process.

Case description: A 62-year-old male with Inguinal Hernia Patient without other diseases. The patient looks healthy but during spinal anesthesia, the patient has a cardiac arrest and after CPR patient was in a coma. The restoration of a patient's normal neurological function due to effective revival from cardiopulmonary arrest.

Discussion: After one day CT scan shows that the gray-white matter ratio (GWR) radiographic index of tissue changes hypoxic-ischemic encephalopathy after Cardiac arrest. Resuscitation from cardiac arrest (CA), patients face a high probability of death or survival in unresponsive wakefulness due to hypoxic-ischemic encephalopathy (HIE) [1, 2] Cerebral ischemia changes and MRI examination also necessary after 24 hours. Several prognostic tests such as EEG and neurological examination, CT/MRI are reported to predict poor outcomes with close to 100% specificity. Changes in cerebral ischemia; Senile brain changes, MRI examination if necessary and Mild inflammation of the two lungs, a slight expansion of the lower leaves of the two lungs, and partial thickening of the pleura on both sides. After 24 hours of CT Scan Small amount of emphysema on both sides of the chest wall. There was no obvious pleural effusion, and the local irregular thickening of the two thoracic membranes was observed. . A small amount of gas density was observed below the chest wall of both sides Next CT scan after 96 hours, clearly shows that cerebral changes, GWR changes, some gray matter shows with white part clearly shows the stroke. The two lungs are covered in a large blur, with the border unclear, with the lower left lung. CT scan of pulmonary artery shows the multiple air shadows were seen under the chest walls. No obvious embolism signs were observed in the pulmonary artery on both sides. A small amount of fluid accumulation in the chest and partial expansion of the lower part of the lungs. : Routine ECG Examination + ECG Vector Examination Check: Combined with conventional ECG and ECG vector, R-wave increment of anterior wall of sinus rhythm unconscious indoor conduction Delay part of T-wave change Reporter. The patient's pupil and limb movements are slightly more flexible than those of 124 hours, but still not awake. This noon, he underwent a tracheotomy and noticed partial bleeding from the ICU data. Conclusions: Still there is no way to awaken the patient from Coma. But during Coma the patients internally change happened that shown in MRI / CT scan. Changes body pathology is noticeable.

Keywords: Perioperative cardiac arrest, Resuscitation cardiac arrest, critical care

Readmissions to the Intensive Care Unit

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Background: Patients discharged from an intensive care unit (ICU) require a great level of care and are at higher risk of complications. Step-down or high-dependency units are not working properly in Polish healthcare system. It is therefore crucial to identify patients at risk of morbidity and mortality due to consequences of critical illness. Recognizing readmission patterns may allow to adjust discharge planning and therefore, diminish the prevalence of readmissions.

The aim: The aim of the study was to verify the prevalence and reasons of readmissions to the ICU, and the outcome of this unique group of subjects.

Materials and methods: This retrospective analysis covered 32 patients (F/M 17/15, aged $56,4 \pm 15,7$) who were readmitted to a mixed ICU between January 1, 2018 to December 31, 2020.

Results: Readmission rate was 3,6%. Among 32 patients, only 2 were re-admitted within 48 hours post-ICU discharge. Within the subjects who were re-admitted, 29 were primarily admitted from surgical wards (16 abdominal, 8 neurosurgical, 5 obstetrical/gynecological); 26 went reoperations. The primary reasons of readmission were: multiorgan failure due to sepsis (18), acute respiratory failure (11) or shock (2), other than septic. 5 patients required more than one readmission. Mortality in patients who were readmitted was 31%.

Conclusions: Surgical patients are at high risk of ICU readmission, mostly due to sepsis. They often require reoperations due to source control. Mortality of this specific group of patients is comparable to the overall ICU mortality.

Keywords: intensive care unit, readmissions

Life sustaining treatment withdrawal in Polish Intensive Care wards – multicentre retrospective study

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Background: There is a discrepancy in clinical practice concerning life-sustaining treatment limitation (LST) decisions in patients ≥ 80 years. There are no precise guidelines as to the definition of futile treatment and it is often a subject of public debate. We aimed to describe temporal changes in LST in the elderly population of ICU patients in Poland.

Materials and methods: 643 elderly intensive care patients (≥ 80 years old) (VIPs) old from 29 Polish intensive care units (ICUs) enrolled in the VIP1 and VIP2 studies in two distinct time periods – from October 2016 to May 2017 & from May 2018 to May 2019 respectively. The differences between study groups were analysed utilizing univariate statistics. assessed the relationship between the time of hospitalization and the odds of withholding or withdrawing LST while controlling for patients' age, sex, Sequential Organ Failure Assessment (SOFA), and Clinical Frailty Scale (CFS) scores in a multivariate logistic regression model. A p-value of 0.05 was accepted as a threshold of statistical significance.

Results: 643 patients (45% male) with a median age 84 years were enrolled. In 114 (18%) of patients the life-sustaining treatment was withdrawn. There were statistically more withdrawals in the year 2018-2019 ($p=0.035$). In the multivariable logistic regression model there were two significant predictors of LST – 5 point increase in SOFA score (OR=1.40, 95%CI: 1.07-1.84) and year of enrolment (OR=1.57, 95%CI: 1.00-2.46 for patients enrolled in 2018-2019). Age, gender, CFS or reason for admission were not significant predictors.

Conclusions: Polish clinicians were more likely to withhold or withdraw life sustaining treatment in patients ≥ 80 years old hospitalized in intensive care units in the years 2018-2019 than in 2016-2017. Our results suggest that several initiatives focused on end-of-life care undertaken in that time in Poland might have facilitated making decisions about limiting potentially futile therapy in critically ill patients.

Keywords: life-sustaining treatment limitation, intensive care, multicenter retrospective study

Influence of enteral and parenteral nutrition on diaphragmatic thickness in mechanically ventilated patients

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Introduction: Due to increased catabolism, critically ill subjects are exposed to respiratory muscles' loss. The atrophy of diaphragm fibers significantly affects its function and may lead to serious consequences such as prolongation of ventilator dependence and increased mortality. Hence, proper nutrition constitutes a cornerstone in prevention of muscle mass damage.

The aim: To investigate the influence of enteral and parenteral nutrition on diaphragmatic thickness in mechanically ventilated patients.

Methods: Using a bedside ultrasound examination we measured the thickness of diaphragm in the anterior axillary or midaxillary line bilaterally in 21 mechanically ventilated patients hospitalized in the ICU. Measurements were performed by 3 trained investigators, beginning on day 1 post-admission, and were repeated on day 3, 5 and 7 of hospitalization. Ventilatory parameters were recorded concurrently. Protein intake and caloric intake from enteral and parenteral nutrition were assessed.

Results and conclusions: Our study is still ongoing.

Keywords: diaphragmatic thickness, nutrition, mechanical ventilation

Therapeutic plasma exchange as a rescue therapy for severe COVID-19: a case series

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Background: Since COVID-19 pandemic outbreak, multiple promising treatment modalities have been suggested. Therapeutic plasma exchange (TPE) has been recently discussed as a possible supportive treatment for severe cases.

The aim: To investigate patients with severe COVID-19 who received TPE as an adjunctive treatment.

Materials & methods: This analysis included 5 patients admitted to the ICU between Nov 2020 and Feb 2021 due to severe COVID-19 and received TPE as an adjunctive rescue therapy due to critical illness. We investigated pre-hospitalization and hospitalization data, including clinical and biochemical changes over the course of treatment.

Results: The number of TPE sessions varied between 1 and 3. The median number of days between the onset of symptoms and initiation of TPE was 7 (IQR 3-8). Albumin solutions were used as replacement fluid in 4 cases. The volume of exchanged plasma over the course of one session was 4320 ± 408 mL. Apart from one episode of hypotension, no adverse effects occurred. An improvement was found in terms of LDH activities, D-Dimer concentrations and lymphocyte counts. 3 out of 5 patients died. The deceased were older (mean 59 vs 63) and had more comorbidities than the survivors (mean CCI 3 vs 6).

Conclusions: TPE could serve as an interesting rescue treatment modality for the severe COVID-19 cases, however, more confirmatory data regarding this matter is needed.

Keywords: therapeutic plasma exchange, COVID-19, critical illness

High intraoperative pulse pressure and its relationship with postoperative organ injury in a cohort of abdominal surgery patients

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Introduction: Hypoperfusion-related organ injury is a fairly frequent perioperative complication that increases mortality. Both intraoperative hypotension and hypertension have been reported to increase the occurrence of either acute kidney injury (AKI), myocardial infarction (MI) or stroke. However, intraoperative pulse pressure's (PP) impact on the latter complications remains relatively unknown.

The aim: To assess whether there is an influence between increasing intraoperative pulse pressure values and hypoperfusion-related organ injury.

Materials and methods: This is a cohort study in which patients who underwent abdominal surgery between 1 October 2018 and 15 July 2019 in university hospital in Katowice were included in the analysis. Pre- and intraoperative data, including blood pressure measurements, were acquired via medical charts. Pulse pressure thresholds were proposed basing on existing evidence regarding preoperative evidence on pulse pressure. Postoperative complications were defined as occurrence of either AKI, MI or stroke. Univariate and multivariate analyses were performed to assess PP's relationship with hypoperfusive organ injury.

Results: 508 patients were included in the analysis. Hypoperfusion was present in 38 (7.5%) cases. PP values above 65 mmHg onward were included in the multivariate statistical models. A model in which $PP > 90$ mmHg was included, had the best predicting value (AUC=0.852, 95% CI 0.82-0.88, $p < 0.0001$) in predicting hypoperfusive injury. Apart of PP, intraoperative hypotension, presence of chronic arterial hypertension and procedure duration were independently associated with postoperative complications.

Conclusions: High intraoperative pulse pressure may be associated with the occurrence of hypoperfusion-related organ injury. Due to paucity of data regarding this matter, the authors call for further investigations that would shed more light on the influence of high intraoperative pulse pressure and hypoperfusion of the vital organs.

Keywords: pulse pressure, intraoperative period, hypoperfusion

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SESSION OF BASIC SCIENCES

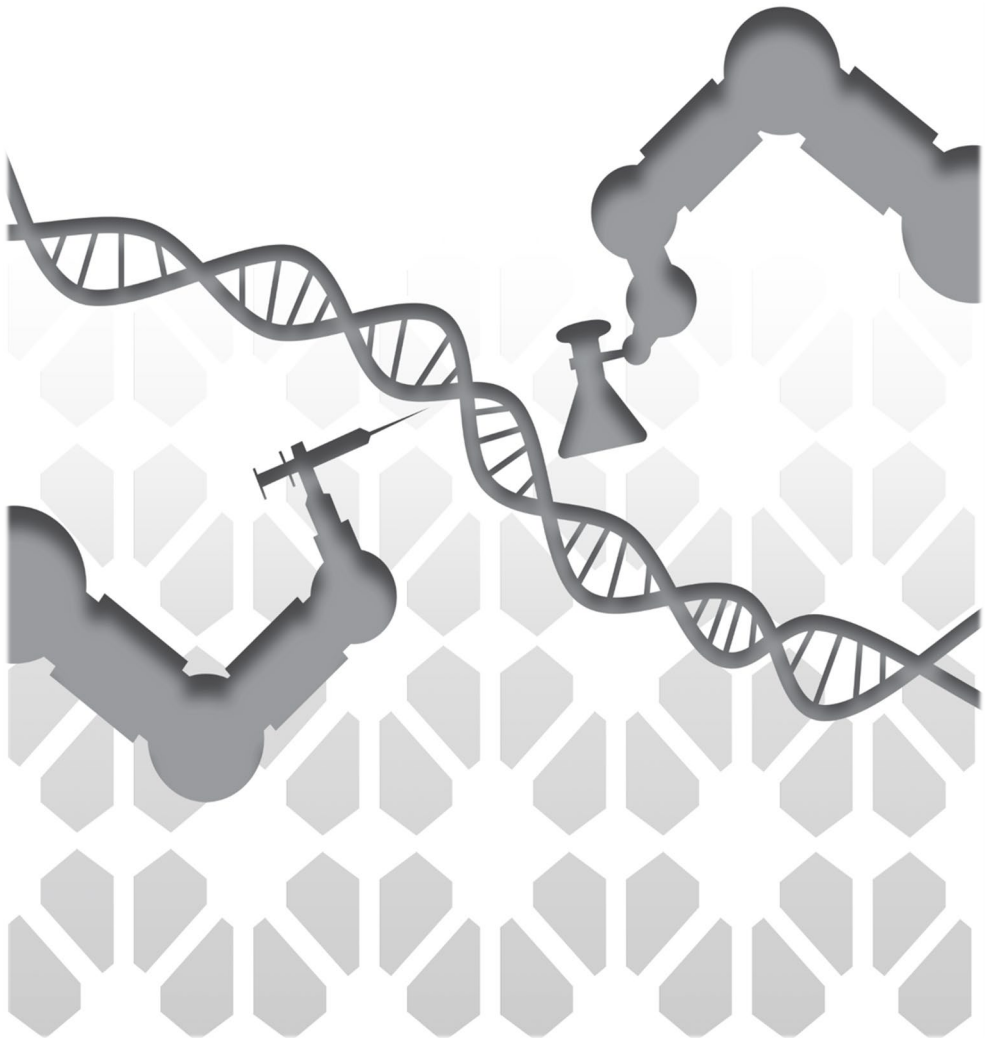


Table of Contents

Comparative study of antioxidant properties and total phenolic content of 6 plant extracts using DPPH method	71
Does antagonist and agonists of CB2R affect microarchitecture of stomach?- preliminary study	72
Assessment of ovarian reserve in the animal model of anorexia nervosa	73
Comparison of a non-alcoholic disinfection products for an effective and secure way to smartphone cleansing.....	74
The influence of β -cyclodextrin on the physicochemical properties of Japanese knotweed extract.....	75
Vitamin D and socioepidemiological habits in the student population	76
Comparison of bacterial strains cultured from medical students' stethoscopes in different wards	77
What except from ethanol can be harmful in alcohol?.....	78
Combined antifungal action of essential oils and synthetic antioxidant.....	79
The intensity of pain and paraesthesia under the influence of pressure stimuli.....	80
Biochemical aspect of obesity paradox in patients with non-ischaemic dilated cardiomyopathy (NIDCM). The role of leptin, adiponectin and TNFr1, TNFr2 receptors.....	81

Comparative study of antioxidant properties and total phenolic content of 6 plant extracts using DPPH method

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Introduction: Polyphenols are naturally occurring compounds found largely in the fruits, vegetables, cereals and beverages. As a source of antioxidant properties, they are used for prevention of cardiovascular; neoplastic, and neurodegenerative (e.g., Parkinson's and Alzheimer's) diseases. It also features antidiabetic, anti-aging and anti-inflammatory properties. Epidemiological studies have repeatedly shown an inverse association between the risk of chronic human diseases and the consumption of polyphenolic rich diet.

The Aim: The aim of the work was to assess the antioxidant activity of alcoholic and aqueous extracts of six plant and their total polyphenol content.

Materials and methods: The raw material consisted of examined of plant extracts was purchased in a local pharmacy. The antioxidant properties of the analyzed samples were determined with the use of the DPPH radical test (2,2-diphenyl-1-picrylhydrazyl radical). The extraction solvents used were 70% (v/v) and 96% (v/v) ethanol and water. The total polyphenols content of analyzed plant extract was tested by the Folin-Ciocalteu method.

Results: Significant differentiation of antioxidant activity and content of polyphenol compounds was found. The content of polyphenolic compounds ranged from 35.29 to 91.32 mg /100 ml of infusion. The deactivation capacity of DPPH was 25.3 to 89.8% of the initial amount of the radical by the tested plant extracts.

Conclusion: Extracts from dry green tea leaves are characterized by the high antioxidant activity, which suggests the possibility of using these plants as raw materials in the cosmetics and pharmaceutical industry.

Keywords: antioxidant, DPPH, radical scavenging activity

Does antagonist and agonists of CB2R affect microarchitecture of stomach?- preliminary study

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Background: It is believed that smoking can induce gastric cancer which is one of the most lethal tumors. Exposure of gastric cells to nicotine triggers molecular mechanisms responsible for tumor growth. Cannabinoid receptors located in the stomach can modulate gastrointestinal inflammation which is a crucial part of tumor progression. Studies have found that treating cancer cells with agonists of these receptors reduced development of different types of tumors. Changes in nuclear sizes have long been used in prognosis of cancer therefore it can indicate malignant changes in tissues.

The aim: The aim was to investigate the impact of CB2R agonists and antagonists on the size of the nuclei in the gastric mucosa which could indicate cancer development.

Materials and methods: For the experiment 30 male swiss mice were used. They were divided into four groups- one control and three experimental. Mice in all the experimental groups received intraperitoneally nicotine. Above that in other two groups, directly before nicotine, mice were given JWH133 and AM630, agonist and antagonist of CB2R respectively. After the laboratory phase, mice were decapitated and stomachs were collected. 5 µm thick slides were prepared and stained with hematoxylin and eosin. Afterwards, photos of the slides were taken which were used for histological measurements of nuclei of mucous membrane and at the end Statistica 13 was used to perform statistical analysis.

Results: Our study shows differences in the histological appearance of the stomach. Nuclei in the group treated with AM630 presented differences in sizes when compared to the group treated only with nicotine. We found that nuclei from the group treated with JWH133 did not show any statistically significant differences in size.

Conclusions: Nicotine is now accepted as one of the major components responsible for gastrointestinal disorders. Our study suggests that CB2R agonists may have a gastroprotective role in affecting gastric mucosa.

Keywords: gastric cancer, CB2R, JWH133, AM630, nicotine

Assessment of ovarian reserve in the animal model of anorexia nervosa

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Background: Anorexia nervosa (AN) is a widely prevalent eating disorder that often leads to life-threatening complications, including amenorrhea development and fertility problems. Ovarian reserve is impacted in AN due to hormonal axis dysregulation. The level of Inhibin B reflects follicle development. Thus, it might be considered as a marker of follicular pool in the ovaries.

The aim: The current study aimed to assess the ovarian reserve in activity-based anorexia (ABA) rats and control groups.

Materials and method: Female Wistar rats were divided into two groups: control (n=8) and activity-based anorexia group (n=8). Routine histology and immunolabelling have been performed for pathomorphological analysis of ovary tissue. Luteinizing hormone (LH) and follicle-stimulating hormone (FSH) levels have been measured in blood samples.

Results: The ABA group is characterized by a poor follicular pool and high expression of Inhibin B compared to the control group. There was no difference in LH blood levels between the two groups, while the FSH level was 4.5 times higher in ABA rats.

Conclusions: AN negatively influences fertility by hormonal misbalance and restriction of follicle's number. Potential pathophysiological links between AN and follicle development should be further explored

Keywords: anorexia nervosa, inhibin, rat, follicle, infertility

Comparison of a non-alcoholic disinfection products for an effective and secure way to smartphone cleansing

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Background: Smartphones are an essential tool especially among healthcare professionals. They could be a vector for pathogens transmission, which could increase infections rate. Frequent and effective disinfection of smartphones is recommended, especially during contact with a patient. However, majority of cleansing products contains alcohol, which could deteriorate smartphone fabric. Thus, a non-alcoholic detergent designed for delicate fabrics should be used.

The aim: Purpose of this laboratory study was to assess the antimicrobial and antifungal effect of 3 chosen non-alcoholic disinfecting products designed for delicate fabrics.

Materials and methods: A three easily accessible products were chosen (Velox Foam Prim, Surfa'Safe and Mikrozyd Sensitive Liquid) and were tested with use of three standard strains of microorganisms: *Staphylococcus aureus* ATCC 25923, *Escherichia coli* ATCC 25922 and *Candida albicans* ATCC 10231. The MIC was obtained with dilution method using a RPMI 1640 medium. MBC and MFC were obtained with dilution method, using an agar with 5% lamb blood.

Results: Analysis showed results for *S.aureus*: Velox Foam Prim - MIC 1:8192 and MBC: 1:512, Surfa'Safe – MIC 1:262144 and MBC 1:2048, Mikrozyd Sensitive Liquid - MIC 1:26214 and MBC: 1:32768. Towards *E.coli*: Velox Foam Prim - MIC 1:1024 and MBC: 1:128, Surfa'Safe - MIC 1:16384 and MBC: 1:2048, Mikrozyd Sensitive Liquid - MIC 1:32768 and MBC: 1:16384. Towards *C.albicans*: Velox Foam Prim - MIC 1:256 and MFC: 1:64, Surfa'Safe - MIC 1:8192 and MFC: 1:64, Mikrozyd Sensitive Liquid - MIC 1:131072 and MFC: 1:512.

Conclusions: Every tested product showed a bacteriostatic and germicidal effect. In every case the bacteriostatic/fungistatic was stronger than germicidal/fungicidal. Overall, the most effective antimicrobial activity was showed by the Mikrozyd Sensitive Liquid and the least effective by the Velox Foam Prim. The Mikrozyd Sensitive Liquid could be used to effective and safe for materials disinfection of smartphones.

Keywords: disinfection, smartphones, microorganisms transmission

The influence of β -cyclodextrin on the physicochemical properties of Japanese knotweed extract

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Background: β -Cyclodextrins (CDs) are cyclic-polymers that have the ability to form inclusion complexes with a wide variety of compounds and thus to increase their solubility. This may significantly enhance bioavailability and activity of active compounds which can be useful to improve the pharmacological properties of plant extracts.

The aim: The aim of this study was to estimate the impact of complexation of Japanese knotweed extract with β -CD on antioxidant activity, permeability through artificial membranes and dissolution rate.

Materials and methods: The extraction process was carried out using reflux extraction with 70:30 MeOH-H₂O solvent). The obtained liquid extract was lyophilized (Heto PowerDry PL3000 Freeze Dryer, Thermo Scientific) and then kneaded with cyclodextrins (e.g. β -CD) in a mortar in a 1:1 mass ratio. The ratio of resveratrol (RSV) to emodine (EMO) was determined by HPLC-DAD method. Dissolution study was performed by using paddle apparatus (Agilent 708-DS). Passive permeability of active compounds was examined in Parallel Artificial Membrane Permeability Assay (PAMPA). The antioxidant properties of the obtained extracts were assessed using the DPPH and CUPRAC methods.

Results: HPLC-DAD analysis showed the same quantitative ratio of RSV to EMO in the tested extracts (1:5). Lower antioxidant activity was determined in CDs system (DPPH IC₅₀ = 30.47 \pm 0.93 μ g/ml, CUPRAC IC_{0,5} = 30.16 \pm 2.86 μ g/ml) than for extract (DPPH IC₅₀ = 26.33 \pm 1.56 μ g/ml, CUPRAC IC_{0,5} = 24.26 \pm 0.90 μ g/ml). In dissolution study, RSV from the extract with β -CD exhibited faster dissolution than from pure extract and permeability was also higher from extract with β -CD (PRSV = 4,41 \times 10⁻⁶ cm/s and PEMO = 2,78 \times 10⁻⁵ cm/s for pure extract; and PRSV = 1,07 \times 10⁻⁵ cm/s and PEMO = 8,1 \times 10⁻⁵ cm/s for extract with β -CD).

Conclusions: This study confirmed that β -cyclodextrin connected with plant extract can improve solubility and permeability of plant active compounds what can be associated with solubilizing properties of various cyclodextrin.

Keywords: cyclodextrin, japanese knotweed extract, dissolution, permeability, antioxidant activity

Vitamin D and socioepidemiological habits in the student population

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Background: Vitamin D is a liposoluble vitamin that can be produced endogenously, but can also be taken into the body through various foods or supplements. It is very important for muscle and bone function, in the immune response and in glucose metabolism. In order to become active in the body, it is subject to hydroxylation; the first in the liver and the second in the kidney.

The aim: The aim of this study was to examine the values of vitamin D from a blood sample of a medical student in Foca.

Materials and methods: After a panel discussion on the importance of vitamin D, which was conducted among students, students were offered to freely test and determine the value of vitamin D in the blood. 36 male and female students responded to the invitation and testing. Vitamin D was determined from a venous blood sample. Today, fast and reliable immunochemical method is used in medical-biochemical laboratories, which uses precise measurement of electrochemiluminescence (so-called ECLIA) of the sample. Reference values are expressed in nmol / L; average values implying a sufficient amount of vitamin D in the serum are found in a wide range of mostly from 75-250. Also, the survey of all tested students included data related to family and socio-epidemiological information.

Results: Out of a total of 36 tested, there were 20 female students and 16 male students. In the group of female students, 16 female students had vitamin D deficiency, and 13 in the group of male students. 12 of them indicated that they had someone in the family who was previously diagnosed with vitamin d deficiency. 6 of them indicated that they had a family member who performed osteodensitometry (DEXA scan) which was characterized as osteopenia or osteoporosis. In all students with vitamin d deficiency, fish and seafood were consumed less than once a week. Also in the group of students with vitamin d deficiency, there are fewer active athletes, but also more cigarette users.

Conclusions: Vitamin D is necessary for the normal functioning of many organs and tissues in the body. Vitamin D deficiency must also be compensated by sun exposure, intake of fish and seafood or supplements.

Keywords: vitamin D, deficiency, students, osteoporosis

Comparison of bacterial strains cultured from medical students' stethoscopes in different wards

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Background: Medical students carry stethoscopes from year 3 onwards to practical classes every day. Most of them disinfect their stethoscopes after each patient, using disinfectant fluid or wipes. However, if stethoscopes are not correctly decontaminated, pathogenic bacteria can be transmitted through the stethoscope to the patient.

The aim: The aim of this work was to evaluate the presence and type of bacteria on the stethoscopes of students attending classes in different wards in 2 hospitals in Silesia.

Materials and methods: 64 samples taken from stethoscopes were obtained using sterile swabs and transport medium. 24 were swabbed in ICU, 18 in Internal, Autoimmune and Metabolic Diseases Department and 22 from Gastroenterology and Hepatology Department. All samples were cultured on Columbia, Chapman, MacConkey agars and BHI, enriched with 1% horse serum at 37°C for 24h. Isolated strains were identified in the automatic system - VITEK 2 Compact (bioMérieux, Marcy L'Etoile, France) by using appropriate cards. Drug resistance mechanisms were performed according to EUCAST.

Results: Out of 64 samples, 9 samples can be considered sterile, no presence of bacteria was found. 4 samples contained *Staphylococcus aureus*. In other samples bacteria from natural flora were found, but 3 of them were multidrug resistant.

Conclusions: Stethoscopes used by students can be considered as vectors of health-care associated infections (HAI) causative agents like *S. aureus*, *S. epidermidis* or other *coagulase-negative Staphylococci*.

Keywords: stethoscopes, bacteria, medical students

What except from ethanol can be harmful in alcohol?

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Background: In 2012 alcoholic beverages were recognized by International Agency for Research on Cancer (IARC) to agents directly carcinogenic to humans. Besides common knowledge of harmful influence of ethanol in alcoholic beverages to human organism, that drinks also contain other toxic compounds. Among them 5-hydroxymethylfurfural (HMF) can be featured. This substance forms during dehydration of reducing sugars or as a product of Maillard reaction. HMF have mutagenic, genotoxic, cytotoxic effect and also inhibits enzymatic activity.

The aim: The aim was the comparison of content of HMF in selected alcoholic beverages.

Materials and methods: In the research 7 different alcoholic beverages were analyzed on HMF content. Determination was performed by the UV spectrophotometric method from White using of Carrez solutions containing potassium ferrocyanide (I) and zinc acetate (II). The absorbance's of the samples were measured at 284 nm and 336 nm.

Results: The highest concentration of HMF was determined in Sheridan's Coffee liqueur (5,84 mg/100g of product and in eggnog liqueur 3,14mg/100g of product). Caramel beer contained 1,6mg/100g of product. The lowest concentrations, in the range from 0,1 to 0,3 mg / 100g of product, were determined in light beer samples.

Conclusions: HMF can be used as the factor of quality and freshness of sugar rich foodstuffs. The Codex Alimentarius Standard Commission set the maximum concentration for HMF in honey at 4 mg/100g of product. So far, a norm of HMF in other groceries has not been established. Subjected to test liqueurs contained more HMF than 4mg/100g of product. Beer: in comparison to another alcoholic beverages, seems to be a relatively safe product, due to low concentration of HMF. Consumption of considerable amounts of sweet alcoholic beverages, besides of commonly known harmful factors, may lead to more significant damage to human's health, due to HMF occurring in them.

Keywords: 5-hydroxymethylfurfural (HMF), alcoholic beverages, UV spectrophotometry

Combined antifungal action of essential oils and synthetic antioxidant

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Background: Among the possibilities to improve effectiveness of micosis treatment is the use of essential oils (EOs) and their combinations with other remedies. Synthetic antioxidant ethylmethylhydroxypyridine succinate (Mexidol) can be one of such additional agents.

The aim: The aim was to study the susceptibility of *Candida albicans* reference strain to 10 EOs and their combinations with Mexidol.

Materials and methods: The susceptibility of microorganisms was determined by the disk-diffusion method. Reference strain *Candida albicans* ATCC 10231 was used. Mexidol was applied on the sterile paper disks (1000 µg/disk). EOs (10µl) were applied on the clean disks or previously prepared disks with Mexidol immediately before placing on the Müller-Hinton agar surface in Petri dishes with a test-culture. The susceptibility of fungi to studied agents was judged by a growth inhibition zone greater than 10 mm. Testing was repeated 5 times. Digital material was statistically processed.

Results: Reference strain *Candida albicans* ATCC 10231 exhibits high susceptibility to EOs of the cinnamon and cloves, moderate susceptibility to EOs of the tea tree, rose, and wormwood, minimal susceptibility to EOs of the fir and sage, and no susceptibility to oils of the lemon, laurel, or eucalyptus. It demonstrates low susceptibility to Mexidol. Combining all EOs with Mexidol increases the susceptibility of *Candida albicans* to these agents with the most pronounced enhancing effect for the sage oil. It can be assumed that the antioxidant drug facilitates the distribution of EOs in lipid components of the cell wall and membranes of the fungi, increasing in such a way their membranotropic fungicidal action.

Conclusions: The ability of Mexidol to increase the susceptibility of *Candida albicans* to EOs may be a basis for the development of pharmaceutical compositions with these components, in which improved antifungal activity will co-exist with an antioxidant effect.

Keywords: essential oils, mexidol, antifungal action

The intensity of pain and paraesthesia under the influence of pressure stimuli

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Background: Experimental pain models are important aspects of pre-clinical studies. The cuff algometer is a common tool to induce pain and paraesthesia in laboratory settings. Pain intensity can be easily modified by modulating time and/or force of pressure of compression.

The aim: The aim of this study is to answer following questions:

Is cuff algometry a reliable method to induce pain?

What parameters of time and force of pressure are the most optimal to induce intense, but well tolerated pain and paraesthesia?

Materials and methods: Data from a group of healthy participants will be presented. Participants will be exposed to 2 measurement sessions. Each session will consist of 9 different stimuli: Stimuli of 100, 150, 200mmHg will be presented with 3 different durations (90, 120 and 150s). Two sessions will take place in the same day. The following data will be collected: Pain and paraesthesia intensities measured by using COVAS (Computerised Visual Analogue Scale), arm girth, skin conductance, pain quality measured by the McGill questionnaire.

Data collection of this project is still ongoing due to the delay caused by the COVID-19 pandemic. Results will be presented at the International Medical Congress of Silesia 2021.

Conclusions: This project allows us to provide reliability data of pain and paraesthesia in the laboratory setting. Results from this study will inform future experiments with experimental pain induction, e.g., offset analgesia.

Keywords: pain, paraesthesia, cuff algometer

Biochemical aspect of obesity paradox in patients with non-ischaemic dilated cardiomyopathy (NIDCM). The role of leptin, adiponectin and TNFr1, TNFr2 receptors

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Background: Despite the documented negative impact of obesity on the risk of developing cardiovascular diseases, researches in recent years have shown that adult patients with NIDCM and underlying obesity have a better prognosis than the population with normal BMI. It is known as the "obesity paradox". Among different factors likely responsible for this phenomenon, it is worth emphasizing the cardioprotective role of leptin and lower levels of adiponectin. The influence of the soluble receptors TNFR1 and TNFR2 is also significant. The first one is responsible for pro-inflammatory response and apoptosis, while the latter is associated with angiogenesis and tissue repair.

The aim: The present study investigated a correlation between the concentrations of: leptin, adiponectin, TNFR1, TNFR2 and BMI values in patients with NIDCM.

Materials and methods: We recruited 95 patients aged 50.3 ± 17.5 years with NIDCM who were diagnosed using WHO criteria. Concentrations of adipokines and soluble TNF receptors have been measured using ELISA tests. Patients have been divided into two groups based on BMI values using WHO criteria:

Group 1: Normal BMI.

Group 2: Overweight and obesity.

The obtained data were correlated with clinical and laboratory parameters.

Results: In obese NIDCM patients, leptin level was statistically significantly higher ($p < 0.01$) when compared to patients with normal BMI. We have observed a decrease of adiponectin levels in patients from group 2 in comparison to group 1. In group 2, TNFR1 concentration was significantly lower than in group 1, whereas TNFR2 has shown an upward tendency. Furthermore the statistically significant decrease of NT-proBNP level in obese NIDCM patients ($p < 0.05$) has been documented.

Conclusions: The observed changes in adipokines and TNF receptors levels indicate a different, significant role of these parameters in NIDCM patients depending on BMI. Evaluation of mechanisms of this action could lead to our understanding of how obesity affects the heart and permit of novel approaches to treat heart disease.

Keywords: non-ischaemic dilated cardiomyopathy, obesity paradox, adipokines, leptin, adiponectin, TNFR1, TNFR2

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SESSION OF COVID-19

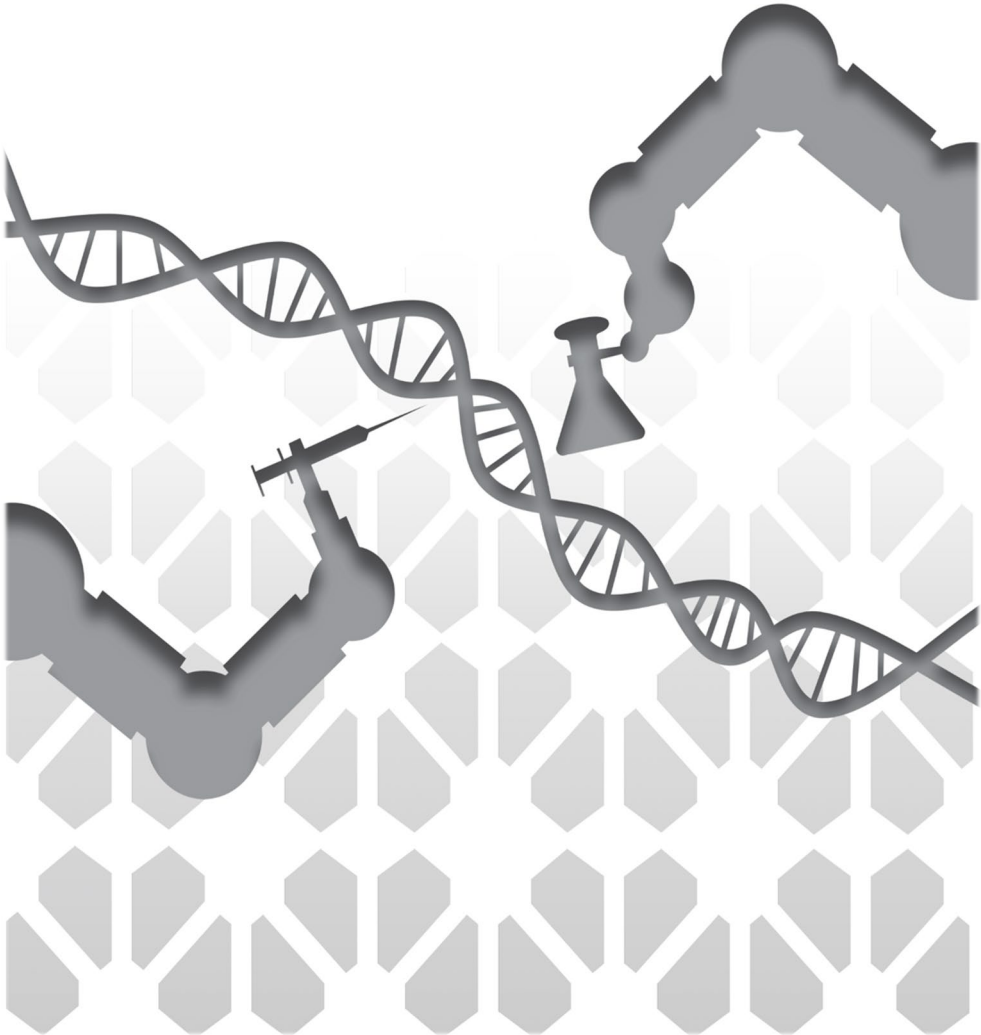


Table of Contents

Mucocutaneous disease in children with Pediatric Multisystem Inflammatory Syndrome Associated with COVID-19	85
COVID-19 – Growing threat that scares us less and less	86
Are the medical students more prone to COVID-19? Serological assessment of SARS-CoV-2 antibodies levels	87
Prone position in COVID-19 – case series	88
COVID-19: postinfectious hypercoagulable state as a probable cause of basilar artery occlusion	89
Continuous temperature monitoring system for persons in quarantine and hospitalized patient.....	90
Fungal coinfections in severe COVID-19	91
Haemoptysis as a complication after SARS-CoV-2 infection - case report	92
Relapse of autoimmune hepatitis in a patient after COVID-19: a case report.....	93
Thrombocytopenia after COVID-19 in patient with HIV/HCV coinfection	94
Profile of patients with diabetes hospitalized in the era of COVID-19 and before it	95
Coronavirus disease 19 in patient after kidney transplant due to granulomatosis with polyangiitis – case report	96
An elderly patient diagnosed with low symptomatic COVID-19 during rituximab-based immunotherapy due to follicular lymphoma - a case report	97
Therapeutic plasma exchange as a successful therapy for severe COVID-19: a case report ..	98

Mucocutaneous disease in children with Pediatric Multisystem Inflammatory Syndrome Associated with COVID-19

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Background: Mucocutaneous disease in children with Pediatric Multisystem Inflammatory Syndrome Associated with COVID-19.

Pediatric multisystem inflammatory syndrome (PMIS) is a new entity in children reported worldwide as a complication of previous SARS-CoV-2 infection. It is caused by a patient's immune system dysregulation about 4 weeks after COVID-19 infection.

The aim: The objective of this publication is to describe mucocutaneous disease in PMIS and its impact on the course of PMIS and the patients' treatment.

Materials and methods: A literature search on PubMed was performed on 1 March 2021. MIS-C patients were identified from published case reports and published case series. From 20 papers related to PMIS, identified 1271 cases between (March 2020 – June 2020). The meta-analysis was performed with the Statistica program.

Results: Mucocutaneous manifestations of PMIS are not itching and spreading polymorphous rash and/or mucositis, erythema, retiform purpura, targetoid and urticarial skin patterns, along with acral edema, swollen red cracked lips, tongue papillitis and bilateral non-suppurative conjunctivitis. Sometimes, patients have a peringual desquamation or a desquamation throughout fingertips. PMIS patients with mucocutaneous disorder have less frequent pediatric intensive care unit admission as well as lower levels of inflammatory markers (vis PMIS patients without rash). Children with PMIS most often have rash peripherally distributed, in contrast to COVID-19 patients – rash is usually distributed on a face.

Conclusions: Laboratory trends observed in PMIS patients with rash may prognosticate a less severe course of the disease. Most of children are asymptomatic with COVID-19 infection consequently skin manifestations may be helpful to distinguish between PMIS and COVID-19 or any other infections.

Keywords: mucocutaneous disease, pediatrics, PIMS, COVID-19

COVID-19 – Growing threat that scares us less and less

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Background: More than a year has passed since the beginning of the COVID-19 pandemic. Since then, a large part of the population is accompanied by a constant fear of getting infected, fear for their relatives and their own future. The media constantly floods us with the statistics of morbidity and death. While all of this is being done with the best of intentions to contain the spread of SARS-CoV-2, it also causes a prominent negative impact on people's mental health.

The aim: The aim of the study was to estimate the level of fear of COVID-19 among students of various faculties from all over Poland. The study has been conducted by using a two-part, anonymous questionnaire. Each participant was asked to complete three subsequent versions at three different time points of the pandemic. The first part required general information, collected data on exposure to COVID-19 infection and disease statistics among respondents and their relatives and included a subjective assessment of the actions taken in relation to the pandemic. The second part consisted of multiple relevant research questionnaires, whereby each approach included Fear of COVID-19 Scale (FOC). The third part also included the Brief COPE questionnaire.

Results: The median FOC score obtained by the participants (N=283) presented moderate decrease – part 1 = 14.92 ± 4.86 ; part 2 = 14.53 ± 4.65 ; part 3 = 13.52 ± 4.69 ($p < 0.001$). When sorted by different categories, each of the examined groups presented similar outcomes, but with divergent patterns of scoring throughout the study. Results of Brief COPE (N=283) were 26.99 ± 4.61 for avoidant method of coping versus 34.06 ± 5.23 for approach one ($p < 0.001$).

Conclusions: There are various reasons explaining the decline in sense of fear of COVID-19, the positive ones, such as getting vaccinated and healthy coping methods, and the negative ones, such as for instance paying less attention to media coverage of pandemic.

Keywords: COVID-19, fear of COVID

Are the medical students more prone to COVID-19? Serological assessment of SARS-CoV-2 antibodies levels

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Background: SARS-CoV-2 is a virus that leads to the COVID-19. Medical students, due to their hospital-based education, belong to the group of high-risk of infection.

The aim: The aim of the study were: (1) to evaluate the risk factors, (2) serologically assess the levels of SARS-CoV-2 antibodies and (3) to investigate disease symptoms presented in the medical students.

Materials and methods: The study was conducted within the medical experiment: "Prevalence, populational course and risk factors of SARS-CoV-2 infection in Upper Silesian Agglomeration in 2020", financed by Medical Research Agency and was divided into 2 parts: a serological semi-quantitative measurement of SARS-CoV-2 antibodies level and a questionnaire survey. The inclusion criteria were: (1) student of faculty of medicine on Medical University of Silesia involved in the experiment and (2) age group: 20-25 years of age. The measurement of antibodies level was based on ELISA method. The questionnaire survey included 15 questions concerning: basic demographic information, contact with suspected/ confirmed case of COVID-19, test for COVID-19 and disease symptoms in 2020.

Results: The study group consisted of 30 people, of these were men 33.3% and 66.7% women. The mean age was 22.2 ± 1.0 . The median level of SARS-CoV-2 antibodies were not reactive for IgM class (0.18 ratio [0.13;0.27]), whereas for the IgG class, the median level was: 0.19 ratio [0.13;0.31] and the results of 3.3% of the study group were uncertain and of 10.0% were positive. Contact with person of suspected COVID-19 was declared by 16.7% and with confirmed case by 6.7% of study group. The most common disease symptoms reported by study group were: rhinorrhoea (33.3%), headache (26.7%), general fatigue (26.7%) and sore throat (26.7%).

Conclusions: Despite the higher risk of SARS-CoV-2 infection, the students of the medical faculty were not serologically confirmed with COVID-19, nor with COVID-19 related symptoms.

Keywords: COVID-19, SARS-CoV-2, students

Prone position in COVID-19 – case series

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COVID-19 is a new disease that has changed our lives. The disease has a highly variable course. Patients suffering from COVID-19 might progress to severe hypoxemia, respiratory failure and acute respiratory distress syndrome (ARDS) typically within 7–10 days from the disease onset. The prevalence of ARDS among COVID-19 patients has been reported to be up to 17%. In the search for an effective treatment, a good result was obtained using a very simple technique. The prone position is a well-known and effective technique for treating severe hypoxemia in ARDS patients. Prone positioning, through redistribution of hydrostatic pressure and reduction of infiltration and atelectasis focus in the lungs, has a positive effect on the effectiveness of gas exchange, especially in patients with persistent hypoxia in spite of oxygen therapy. We present case series of patients admitted to ICU with COVID-19 who developed ARDS and were ventilated in a prone position.

Keywords: COVID-19, prone position

COVID-19: postinfectious hypercoagulable state as a probable cause of basilar artery occlusion

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Background: Latest data shows that Covid-19 infection can lead to neurological complications in up to one third of cases. Although its association with acute ischemic stroke (AIS) is not well understood, the infection-induced hypercoagulable state is thought to play a pivotal role in the etiology of brain ischemia. To date, there is, however, no solid evidence that postinfectious hypercoagulable state can directly lead to cerebral arteries occlusion causing AIS.

Case description: We present a 29-year-old patient admitted to the Neurology Clinic with the diagnosis of posterior circulation AIS caused by basilar artery (BA) occlusion that was treated with mechanical thrombectomy. Early neurological improvement, with nearly complete resolution of deficit was observed. Post-treatment MRI showed minor multifocal ischemic changes in the area of the cerebellum, pons and cerebral peduncle. The cerebral event was preceded by an episode of fever and anosmia that had resolved about 2 weeks earlier. Based on the aforementioned symptoms and positive IgM and IgG antibodies Covid-19 infection was retrospectively diagnosed.

In carotid doppler ultrasonography multiple microemboli were noticed. Despite extensive diagnostic work-up, including 48-hour cardiac rhythm monitoring, carotid ultrasound bubble test for right-left shunt, transthoracic and transesophageal echocardiography, head and neck angiography, hypercoagulability panel, no other apparent cause than post-Covid 19 hypercoaguable state detected.

Conclusions: Covid-19 infection is thought to cause a plethora of systemic complications. Some of them could be explained by hypercoagulability. There is, however, no solid evidence that it could be a sole cause of the large cerebral vessel occlusion. Our case indirectly show it be a possible scenario.

Keywords: COVID-19, acuteischemicstroke

Continuous temperature monitoring system for persons in quarantine and hospitalized patient

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Background: Body temperature is one of the basic vital parameters that we can evaluate the patient's condition. Measurements should be made with the use of appropriate equipment and skills. In addition, it is often a procedure that must be carried out periodically along with the keeping of appropriate documentation. The whole process requires the involvement of a large amount of medical personnel, resources and cooperation of patients.

The aim: A solution that can help is to automate the temperature measurement procedure by the remote supervision system presented in this study.

Materials and methods: The system consists of a sensor in the form of a patch placed on the patient's chest that transmits measurements via Wi-Fi. The measurements are then automatically analyzed and archived. If the threshold values are exceeded, notifications are sent via the application. Access to current data and history is done with the help of the application. Each sensor has the ability to personalize and assign an identification number to the patient's data.

The system is addressed to hospitalized patients, people in quarantine and for home users, nursing of disabled people and parents who care for children.

Results: The solutions used today are burdened with large errors due to the use of low-class devices and incorrect measurement technique. In the presented solution, the measurement is carried out using the contact method with a precisely placed sensor with an accuracy of 0.1 C °.

Keywords: temperature, measurement, IoT, patient, monitoring, quarantine

Fungal coinfections in severe COVID-19

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Background: Coinfections and supra-infections in COVID-19 patients constitute serious health hazard and have tremendous impact on mortality. Fungal infections are rare in the ICU patients but also correlate with a compromised outcome.

The aim: We aimed to investigate the prevalence and clinical course of fungal infections in COVID-19 critically ill subjects.

Results: 15 out of 32 (47%) patients with severe COVID-19 hospitalized between 10/2020 and 01/2021 in the ICU developed coinfections of fungal etiology (M/F 12/3, aged 62 ± 10 y). All subjects were coinfecting by bacterial cultures. Fungal infections were caused by *C. albicans* (73%), *C. glabrata* (13%), *C. dubliniensis* (13%), *Aspergillus spp.* (13%) and *C. krusei* (7%). 3 patients developed coinfection with more than 1 type of fungus. Fungal infections developed 1 day (IQR 1-5) post-ICU admission. Median candida score was 0 (IQR 0-1) points. 67% infections were of pulmonary origin, 27% came from both blood and urine samples and 13% from anal swabs. 36% of *C. albicans* cultures were resistant to azoles. Most common comorbidities in patients with fungal infections were obesity, hypertension and diabetes type 2 (all in 47% of subjects), followed by atrial fibrillation and ischemic heart disease (in 20%). Mortality reached 80%. Those who survived were younger ($p < 0,01$) and had no more than one chronic disease ($p = 0,04$).

Keywords: COVID-19, Fungal co-infection

Haemoptysis as a complication after SARS-CoV-2 infection - case report

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Background: The ongoing pandemic caused by coronavirus SARS-CoV-2 is a serious worldwide challenge for health care systems. Early symptoms include fever, cough, shortness of breath and decreased exercise tolerance. However, new signs of this disease are being reported. Number of bleeding disorders in patients with COVID-19 is increasing in clinical trials. Therefore, it is difficult to diagnose properly less representative symptoms of this disease.

Case description: The case describes a 61-years old female patient, who was admitted to the Hospital for the diagnosis of hemoptysis. At that time patient reported episodes of hemoptysis occurring for 3 days, accompanied by deterioration of exercise tolerance and dry cough. In 2016, patient was diagnosed with chronic bronchitis with symptoms of dry cough and mucus expectoration. In addition, in December 2020, the patient suffered from SARS-CoV-2 infection. During the hospitalization in January, the physical examination revealed edema on both lower limbs. Laboratory tests showed a slight increase in D-dimers [0.71 µg/ml], and the chest X-ray - an intensified drawing of the lung's stroma, which corresponds to changes after a viral infection. Bronchofiberscopy revealed a slightly fragile mucosa and small amount of mucous discharge in the lumen of the bronchi. Single colonies of Staphylococcus epidermidis were also visualized in the culture of the bronchial secretion. Based on the clinical picture, it was decided to use antibiotics, as well as anti-hemorrhagic and antitussive drugs. During her hospital stay, the hemoptysis gradually disappeared, and the patient was discharged home in very good clinical condition.

Conclusions: Clinical picture and performed laboratory tests showed that hemoptysis was most likely caused by respiratory tract inflammation during SARS-CoV-2 infection. Presumably, hemoptysis may be one of the later complications after COVID-19 infection in patients with chronic bronchitis.

Keywords: COVID-19, coronavirus SARS-CoV-2, haemoptysis, chronic bronchitis, blood coagulation disorders

Relapse of autoimmune hepatitis in a patient after COVID-19: a case report

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Background: The onset of the COVID-19 pandemic surprised the whole world and took a heavy toll on many aspects of people's life. The impact of the SARS-CoV-2 virus on the course of other diseases remains an important issue.

Case description: Autoimmune hepatitis (AIH) is a rare chronic liver disease of unknown cause. It is considered that AIH may be triggered by viral infections, xenobiotics and psychological stress. We report a case of a 43-year-old man, with medical history of controlled autoimmune hepatitis, who was diagnosed with COVID-19 after positive RT-PCR test. The course of the disease was mild with such symptoms as fever, diarrhea, anosmia, ageusia, myalgia and cough. After the recovery from SARS-CoV-2 infection, major abnormalities in liver function tests (LFT) were noticed including elevated liver enzymes, anty-SLA, ASMA and ANA 2 antibodies and hypergammaglobulinemia suggesting severe hepatic impairment with HCV and HBV infections excluded. Appropriate pharmacological treatment was instituted, and more tests were scheduled as well, including the bloodwork and the transient elastography (FibroScan). During the follow-up visits the condition of the patient improved, which was visible in blood test results and led to reduction of steroids and immunosuppressant doses. In the following months his LFT results got back to the normal range.

Conclusions: This case shows the potential complication after recovering from COVID-19. It is thought that SARS-CoV-2 may exacerbate or even cause a recurrence of some autoimmune diseases. In this regard, the viral infection could result in the relapse of autoimmune hepatitis.

Keywords: COVID-19, autoimmune hepatitis, liver

Thrombocytopenia after COVID-19 in patient with HIV/HCV coinfection

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Background: Thrombocytopenia is a common disorder in HIV-infected patients. Usually, it is caused by peripheral platelet destruction. In patients with chronic HCV infection thrombocytopenia may result from an autoimmune process or inhibition of liver thrombopoietin production. Also, thrombocytopenia can be observed in patients with COVID-19 due to mechanisms that has not been explained yet.

Case description: We present 42-year-old patient coinfecting with HIV/HCV since 1996. He has been receiving antiretroviral treatment (ARV) irregularly. He has never suffered from thrombocytopenia or leukopenia before.

In 2020 he has been infected with SARS CoV-2 without any clinical symptoms. Several weeks later he was admitted to the intensive care unit (ICU) because of post-traumatic bleeding to the brain. During his stay in ICU, he stopped ARV. His platelet count was low but still within normal limits.

In February 2021 he was diagnosed with thrombocytopenia. Platelet count was 9 G/L, HIV-1 RNA plasma viral load was 215111 copies/ml and CD4 lymphocytes level was 234 cells/ μ L. He started ARV with bictegravir, emtricytabin, alafenamid, tenofowir. On admission to our department, he presented slight symptoms of haemorrhagic diathesis on abdomen, upper and lower limbs. He was given a platelet transfusion and his platelet count got down to 6 G/L and the day after to 4 G/L. We started treatment with prednisone 2x40mg. During the next 2 weeks platelet count ranged from 8 to 12 G/L. Symptoms of haemorrhagic diathesis disappeared. In the third week in control nasopharyngeal swab for SARS CoV-2 PCR we got positive result, but patient had no clinical symptoms. He was moved to the department for COVID-19 patients with normalisation of platelet count within the next 5 days.

Conclusions: HIV/HCV-positive patients with confirmed SARS CoV-2 infection can be asymptomatic.

Regular check-ups of the platelet count may be necessary in HIV / HCV coinfecting patients even several months after infection with SARS CoV-2.

Keywords: COVID-19, thrombocytopenia, HIV

Profile of patients with diabetes hospitalized in the era of COVID-19 and before it

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Background: COVID-19 pandemic affects all aspects of life. Contrary to COVID-19 pandemic diabetes (DM) is not an infectious epidemic and it seems interesting whether the profile of hospitalized patients with DM differs in COVID-19 era and before it.

The aim: To assess the profile of patients admitted to the Department of Internal Medicine and Diabetology in Zabrze in times of COVID-19 pandemic and before it.

Materials and methods: Data of all patients with DM hospitalized between April and December 2019 (non-COVID era) have been compared to the ones hospitalized between April and December 2020 (COVID-19 pandemic).

Results: There were 147 DM patients hospitalized in the mentioned above period in 2020 and 305 ones in 2019. Firstly, we compared the clinical characteristics of patients in those two time periods. One of the most significant differences was the duration of hospitalization (6.9 ± 2.4 days in 2019 vs 8.3 ± 4.1 days in 2020; $p=0.0002$). As the indicator of a long hospital stay we determined >7 days as 7.6 days was a cut-off point for a mean time of hospitalization in 2019 and 2020. Univariate analyzes were conducted separately for 2019 and 2020 and they revealed that in 2019 factors associated with longer hospital stay were HbA1c, older age, hypertension, macroangiopathy and chronic kidney disease and in 2020 these were HbA1c, age, hypertension, diabetic retinopathy. Regression model analysis revealed that in 2019 only HbA1c value (OR: 1.37; 95%CI: 1.20-1.56; $p<0.0001$) and age (OR: 1.02; 95%CI: 1.01-1.03; $p=0.006$) were independently associated with the duration of hospitalization and in 2020 these were HbA1c value (OR: 1.27; 95%CI: 1.08-1.48; $p=0.004$) and the presence of proteinuria (OR: 2.55; 95%CI: 1.08-5.99; $p=0.01$).

Conclusions: In the COVID-19 pandemic era twice more patients with DM were hospitalized. Regardless of the pandemic, the hospitalization duration was related to DM metabolic control.

Keywords: COVID-19, diabetes

Coronavirus disease 19 in patient after kidney transplant due to granulomatosis with polyangiitis – case report

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Background: Granulomatosis with polyangiitis (GPA) is a multisystem disease that can affect any organ, but most commonly affects the upper and lower airways and kidneys. Coronavirus disease 19 (COVID-19) is an acute respiratory disease that mainly affects the respiratory tract. In patients with COVID-19 acute kidney injury is often observed.

Case description: The case study presents the COVID-19 infection in a 33-year-old man with GPA. After a GPA diagnosis in the year 2006 he underwent a kidney transplantation due to a fast progression of chronic kidney disease. Since then, he has been on immunosuppression drugs including cyclosporine A, mycophenolate mofetil and prednisone. In November 2020 the patient started complaining of fatigue, dyspnea, fever, and a cough. Multiple RT-PCR tests for SARS-CoV-2 were positive. The dose of mycophenolate mofetil treatment was reduced from 2000 mg to 1000 mg per day and the dose of prednisone was increased from 15 mg to 30 mg per day. A chest CT scan was done. Beyond typical COVID-19 radiographic findings, consolidations caused by GPA (compared to previous chest CT scans) did not progress. Transplanted kidney's function remained stable. The following serum creatinine concentrations were observed: before COVID 19 infection - 106 $\mu\text{mol/l}$, during infection - 119 $\mu\text{mol/l}$ and after - 98 $\mu\text{mol/l}$. A post-treatment X-ray image depicted a stable or even possibly improved state of the patient's lungs.

Conclusions: Despite COVID-19 and the modification of immunosuppressive therapy during the patient's COVID-19 infection, neither the progression of GPA nor dysfunction of the transplanted kidney were observed.

Keywords: COVID-19, granulomatosis with polyangiitis

An elderly patient diagnosed with low symptomatic COVID-19 during rituximab-based immunotherapy due to follicular lymphoma - a case report

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Background: Follicular lymphoma (FL) is an indolent lymphoma that may progress to a highly aggressive form requiring immunochemotherapy (ICTH). Most currently used regimens utilize rituximab, an anti-CD20 monoclonal antibody, which may affect the clinical course of the novel coronavirus (SARS-CoV-2) infections (COVID-19). Here we describe the first case of a mildly manifested COVID-19 during ongoing oncological treatment, without significant deterioration after rituximab administration.

Case description: A 74-year-old female with an enlargement of her right palatine tonsil was diagnosed with FL following tonsillectomy and started ICTH according to the R-CVP (rituximab, cyclophosphamide, vincristine, prednisone) regimen. At home, before the 4th cycle, she developed non-specific symptoms (excessive fatigue, loss of appetite and nausea), misdiagnosed as adverse effects of chemotherapy. Unexpectedly, interim PET-CT scan, performed shortly before rituximab administration, revealed previously nonexistent pulmonary changes, potentially of infectious etiology. SARS-CoV-2 infection was confirmed in a nasopharyngeal swab performed the following day. Despite rituximab infusion, the patient remained oligosymptomatic and was discharged home for self-isolation. Having reached a negative SARS-CoV-2 status before the subsequently scheduled regimen, the patient successfully received 6 cycles of R-CVP regimen and is awaiting her next PET-CT scan at the time of this report. Further medical treatment will be implemented after obtaining the results of this imaging.

Conclusions: Our case shows that rituximab-based immunotherapy due to FL may have no evident negative effect on the COVID-19 clinical course.

Keywords: COVID-19, SARS-CoV-2, follicular lymphoma, rituximab, case report

Therapeutic plasma exchange as a successful therapy for severe COVID-19: a case report

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Background: Critical course of COVID-19 can be associated with acute respiratory failure (ARF), multi-system organ failure and cytokine release syndrome. Here we present a case of severe COVID-19 patient admitted to intensive care unit in whom therapeutic plasma exchange (TPE) was performed.

Case description: A 52-year-old previously healthy female presented in the emergency room with acute dyspnea and a 5-day history of myalgia, fever and cough. RT-PCR assay confirmed COVID-19 and HRCT displayed a high level of lung opacity that exceeded 75% of total lung area. During an initial hospital stay, she received oxygen support together with the administration of remdesivir. After 24-hour stay on internal disease ward, ARF worsened and the patient experienced oxygen desaturations to 60-70% despite maximal oxygen flow. Therefore, she was admitted to the ICU (admission SOFA=10 pts; ~50% probability of death) and received multimodal treatment, consisting of deep sedation, prone positioning, neuromuscular blockade, catecholamine support, anti-platelet and anti-coagulation drugs. Despite the implementation of the above-mentioned treatment modalities, the P/F ratio remained low: ~200 mmHg. Therefore, the medical team decided to introduce a rescue therapy of TPE, on the second day of ICU stay. The patient underwent 3 sessions of TPE with 24-hour interval. A single session comprised of 4200 mL of plasma replaced with 3% albumin solution. During TPE, the patient experienced one episode of hypotension and one subtle hemorrhage from central vein cannula. A clear improvement in both clinical (P/F ratio increase and extubation) and biochemical (CRP, D-Dimers and LDH) targets was observed. After the third session of TPE, the patient was able to breathe spontaneously, receiving only oxygen support of 2 L/min. She was discharged from ICU on the eighth day.

Conclusions: TPE could stand as an interesting adjunctive treatment for critically ill COVID-19 patients. More confirmatory data is needed.

Keywords: therapeutic plasma exchange, COVID-19, critical illness

SESSION OF COVID-19 II

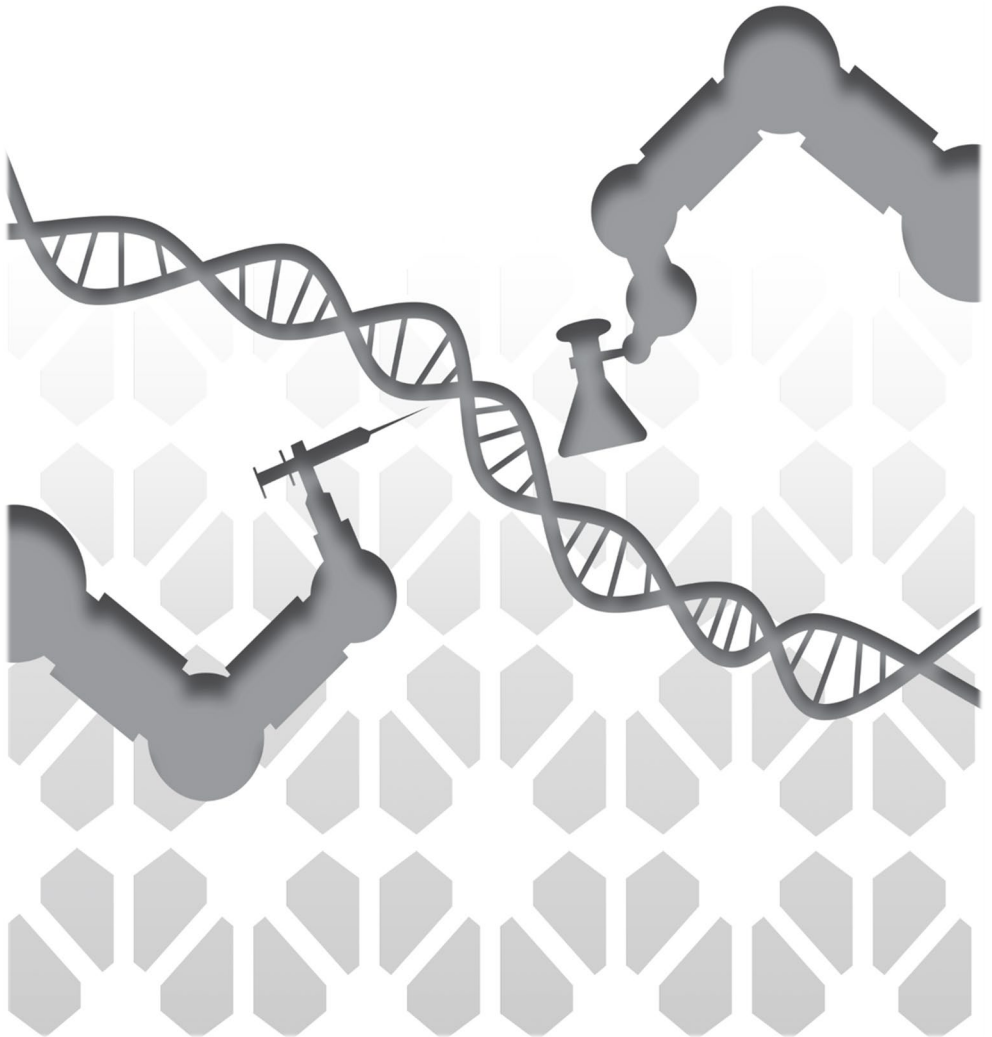


Table of Contents

Assessment of stress levels among dental students at Jagiellonian University Medical College during the Covid-19 pandemic.....	101
How physically active were Polish university students during COVID-19 pandemic?.....	102
Ocular complaints from students during COVID-19 pandemic	103
The effects of sexual activity on immune status in COVID-19 susceptible individuals.....	104
Comparison of preventive healthcare before and during the COVID-19 pandemic in the Polish population	105
Students adherece to the guideline on proper face masks use during COVID-19 pandemic	106
The impact of the SARS-CoV-2 virus pandemic on the mental health of psychiatric patients	107
Ocular manifestations in patients with COVID-19	108
The effect of general COVID-19 patients' conditions on second infection	109
Selected lifestyle elements of medical and non-medical university students before and during the COVID-19 pandemic	110
The evaluation of e-learning at medical universities in Poland by students during the SARSCoV- 2 pandemic.....	111
Assessment of COVID-19 impact on patients life quality during and after illness	112

Assessment of stress levels among dental students at Jagiellonian University Medical College during the Covid-19 pandemic

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Background: The education of dentists is associated with high level of stress among students. This problem has been observed in many countries over several dozen years and has significantly intensified over the last year due to the COVID-19 pandemic. The inability of students in this time to work with patients, and the consequent lack of training of their manual and soft skills, is the primary factor affecting the students.

The aim: The aim of this study was to discover the factors that induce the most stress, and to determine whether, and in what way, the pandemic has increased the stress level.

Materials and methods: The survey was carried during the exam period of winter 2021 among all 330 Polish students at the Dental Program, Jagiellonian University Medical College. The Dental Environmental Stress questionnaire (DES) was used. The research was approved by the bioethics committee. The results were assessed with statistical analysis software.

Results: A total of 251 students agreed to take part in the research. The year of study was found to be crucial: students in higher years also deal with stress arising from patients and the associated risks of the pandemic. Students in first and second year do not work with the patients and have more on-line classes, so the level of stress they experience during education was lower.

Conclusions: During the COVID-19 pandemic, the levels of stress experienced during dental education significantly increased.

Keywords: stress, dental student, dental education, DES, COVID-19 pandemic

How physically active were Polish university students during COVID-19 pandemic?

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Background: The COVID-19 pandemic and the governmental restrictions influenced every domain of life. University classes transitioned to online- learning. Staying at home and closure of gyms could have changed Physical Activity (PA) of students and led to being largely inactive.

The aim: To assess how physically active were students of Polish universities during an average week of the pandemic.

Materials and methods: We designed an online survey and shared it via different social media channels (from 22nd February 2021 to 16th March 2021). It contained questions from IPAQ- Short Form and one author's question. We collected data from 1491 Polish students, 1200 met the study conditions (77,25% females, 22,25% males, 0,5% did not specify gender). 49,75% were medical university students. We measured BMI index and level of physical activity for every person. We calculated walking, moderate, vigorous, and total MET-min/week and grouped students into 3 categories: low, moderate, and high PA.

Results: 33,17% (n=398) of students were in low, 41,42% (n=497) in moderate and 25,41% (n=305) in high PA category. Average sitting time was 9,27 h. Average BMI was 22,26 kg/m². 11,5% (n=138) participants were underweight (BMI<18,5), 69,91 % had normal weight, 14,67% (n=176) were overweight (BMI≥25,0) and 3,92% (n=47) obese (BMI≥30,0). Medical university students had higher PA (p<0,1). Correlation between higher BMI and lower total MET-min/week value was not statistically significant (p>0,1). 71,92% (n=863) reported that the pandemic negatively influenced their PA level, 8,25% (n=99) did not see any changes and 19,83% (n=238) noticed a positive impact.

Conclusions: Over 30% of Polish students did not meet the criteria to be classified as 'moderate' which is defined as accumulating a minimum level of activity. Students spent most of the day sitting. Most of them saw negative changes in their PA during the pandemic. This can lead to a higher risk of chronic health conditions in the future.

Keywords: physical activity, COVID-19 pandemic

Ocular complaints from students during COVID-19 pandemic

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Background: During COVID-19 pandemic students were obliged to switch to online learning. Long time spent in front of electronic screens is one of the risk factors of dry eye disease. Thus, our aim was to evaluate ocular symptoms presented by Polish students during the pandemic.

Materials and methods: The original questionnaire was distributed to currently studying Polish students in November 2020. 368 questionnaires were collected and analysed.

Results: During pandemic online learning and screen entertainment time extended on average by 4 hours and 40 minutes respectively. Only 8% students admitted having no ocular symptoms and 77% reported deterioration in previous ocular complaints. Reported symptoms included pain/discomfort of the eyes, itchiness, dryness, red eyes, feeling gritty particles under eye lids, blurred vision. Actions such as using eye drops, having breaks from studying to have distant vision, consultation with an ophthalmologist, using warm and cold compresses or none of these efforts were undertaken by 45%, 42%, 8%, 7%, 19% students, respectively. Nonmedical students reported worsening of previous symptoms more often than medical students ($p<0.05$). Correlation was observed between the number of new/intensified symptoms and the change in screen learning time ($r=0.17$, $p<0.05$).

Conclusions: Eye complaints are prevalent in the population of students. During the pandemic these symptoms intensified which may be caused by the elongation of the screen time. There is a need for better education about ocular hygiene to improve visual clarity and awareness about risk factors of DED.

Keywords: dry eye disease, eye complaints, students, online learning, COVID-19

The effects of sexual activity on immune status in COVID-19 susceptible individuals

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Background: COVID-19 disease causing severe acute respiratory disease is becoming more prevalent worldwide and spreading very rapidly with quietly high mortality rates among patients in those countries with high infection rates which are more susceptible to infection due to lack of adequate facilities, in addition to physicians and healthcare workers.

The aim: A descriptive, survey-based, cross sectional study was conducted among 16000 participants aged > 18 years old from 33 countries .

Materials and methods: The survey was conducted as an online survey distributed for the general population in 33 countries for four months.

Results: The majority of the people after being in contact with the patients in group 1 (Who have sex > 3 times a month) (76.6%) were not infected and even the infected people were in mild cases in comparison with group 2 (Who have sex < 3 times a month) who have approximately half to half for infected to non-infected people (40.43%).

Conclusions: The findings in this study are suggestive of protective role for the sex in COVID-19 infection despite the way of having sex and the age of the person. The sexual activity as it increases, the immunity status becomes more competent to deal with pathogens and this explains lower incidence of disease among those who have sex > 3 times a month in comparison with those who have sex < 3 times a month.

Keywords: COVID-19, sexual activity, imune system, susceptible individuals

Comparison of preventive healthcare before and during the COVID-19 pandemic in the Polish population

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Background: Preventive healthcare has a beneficial effect on the general health of the society. Through immunization against infectious diseases, disease screening, identifying risk factors and regular check-ups it is possible to prevent or detect the disease on early stage and reduce its negative effects. COVID-19 pandemic has affected many areas of our life.

The aim: The aim of the study was to evaluate the situation of preventive healthcare and screening program after announcement the epidemiological threat status due to the SARS-CoV-2 infection (14 March 2020) compared to the state before.

Materials and methods: The study included 136 respondents (100 women and 36 men) in aged 18 to 80. The research tool was an author's online questionnaire which included demographic questions and 35 questions comparing preventive healthcare before and during the COVID-19 pandemic. The results were developed using MS Excel and Statistica 13.3.

Results: During the pandemic, the number of people who have not performed any preventive medical check-ups increased from 11 (8.1%) to 47 (34.5%). 52 (38.2%) of respondents admitted to contact with the health service less frequently since announcement the pandemic. 58.8% surveyed encountered difficulties in signing up to a specialist. 16 (69.6%) respondents, out of 23 who wanted to purchase the recommended vaccines, noted difficulty with buying them due to the lack of vaccines in pharmacies. 69 (50.7%) surveyed indicated willingness to vaccinate against COVID-19. During the pandemic 47 (34.6%) respondents took dietary supplements in additional amounts.

Conclusions: The availability of preventative healthcare during COVID-19 pandemic was limited compared to the state before. The goal of limited access to healthcare was to avoid the increase of infections. It is significant to diagnose and treat disease on early stage because it usually gives the best prognosis. For this reason, patients should be encouraged to perform self-examinations and use medical mobile services if any disturbing symptoms occurred.

Keywords: pandemic, healthcare, prevention, vaccinations, COVID-19, check-ups, self-examination

Students adhere to the guideline on proper face masks use during COVID-19 pandemic

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Background: Covering the mouth and nose became ubiquitous during COVID-19 era.

The aim: To evaluate students' adherence to international guideline on face masks use.

Materials and methods: This study was a survey created with Google® Forms which included questions of WHO guidance on face masks use. The data were collected between 1st and 7th of October 2020 and analysed with Chi-square test and logistic regression analysis.

Results: responses were obtained from 1173 students. Only 3 students (0.3%) were fully compliant with all WHO criteria with significant difference ($p < 0.001$) between medical and non-medical students. Strict covering of the nose and mouth was most commonly complied criterion (81.2%); avoidance of touching the mask appeared to be the most difficult criterion to comply with (2.8%). Sensitive skin and itch predisposed to the lack of adherence to criterion - strict covering of the nose and mouth (OR 0.7, $p = 0.001$ and OR 0.58, $p = 0.0007$, respectively).

Conclusions: The adherence of university students to all WHO guideline on the correct use of face masks is very low. Medical students seem to be more compliant with these recommendations.

Keywords: face masks, COVID-19, sensitive skin, itch, atopy

The impact of the SARS-CoV-2 virus pandemic on the mental health of psychiatric patients

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Background: World Health Organization (WHO) announced the pandemic of the novel SARS-CoV-2 coronavirus on March 11, 2020, warning of rising infections in the world. The COVID-19 disease has a significant impact on the physical health of millions of people (as of 04/04/2021, there were over 131 million confirmed infections worldwide). Hence the question - what mark it will leave on people's mental health?

The aim: The aim of this work was to investigate the impact of the SARS-CoV-2 virus causing the pandemic of COVID-19 disease on the mental health of psychiatric patients.

Materials and methods: Our work consisted in collecting anonymous questionnaires among patients of psychiatric clinics suffering from various psychiatric diseases. Patients were asked to fill in the questionnaires themselves. Data on the age, sex and years of study of patients were collected, and the survey consisted of 17 questions about the mental health of patients, including one open-ended question. The questions concerned, among others, the impact of the pandemic on the functioning of patients at home and work, as well as the possible change in disease symptoms or the appearance of new ones, and the course of pharmacological and psychotherapeutic treatment.

Conclusions: The results allow to evaluate the impact of the COVID-19 pandemic on the mental health of psychiatric patients. We hope that results of this work will be able to help deal with the consequences of the COVID-19 pandemic, but there is no doubt that further research in this area is necessary.

Keywords: covid-19, psychiatric symptoms, mental health

Ocular manifestations in patients with COVID-19

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Background: The course of COVID-19 infection may be asymptomatic. In our work, we would like to discuss ocular complains in SARS-CoV-2 infection.

The aim: The aim of our study was to define the frequency duration and intensification of ocular manifestations during COVID-19.

Materials and methods: All data was collected from electronic questionnaire, using Google Forms, of people who have been infected with COVID-19 between March and December 2020. The study included 1133 responses, out of which 91% of women and 9% of men. The study group consisted of people aged from 10 to 85 years. In our analysis, we considered following aspects: the age of participants, gender, BMI, type of test, the severity of infection symptoms, the onset of ocular manifestations, the presence of a visual impairment and vision correction. The correlations were verified using Spearman's rank correlation coefficient.

Results: According to the survey's results, ocular manifestation was detected in 47,3% patients. The most common symptoms were pain of eyeballs 23,3%, burning eyes 18,3%, eye redness 11,9%. 30,2% of the respondents had 1 eye symptom, 22,5% 2 eye symptoms, 19,8%, 3 eye symptoms, 11,8% and 15,7% 4 and more than 4 eye symptoms. Additionally, the more eye symptoms reported by respondents, the more they persisted after infection, as a complication ($p=0$, $r=-0,37$). Ocular manifestation in 64% of respondents coexisted with ageusia and in 79% with anosmia. The duration of eye symptoms: less than 1 week 56%, between 1 and 2 weeks 27%, over 2 weeks 17%. 21% of respondents were consulting ocular symptoms with doctor. The method of vision correction has no effect on severity of ocular symptoms ($p=0,3$). Chronic disease has no effect on onset of ocular symptoms ($p=0,5$). There is no correlation between BMI and intensity of ocular symptoms ($p=0,45$).

Conclusions: Ocular manifestations in patients with COVID-19 are common, but not specific. Ophthalmologists should be very careful in every case of ocular complains during COVID-19 pandemic.

Keywords: ocular manifestation, COVID-19, pandemic

The effect of general COVID-19 patients' conditions on second infection

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Background: SARS-CoV-2 immunity includes both cell-mediated and humoral responses, but its defensive function as well as conclusive viral clearance from re-infection is unclear.

Two papers showed a reinfection among the patients after their recovery, the authors explained the cases as an inflammatory rebound caused by an inadequate immune response may serve as an alternative explanation for clinical symptom recurrence.

Materials and methods: A cross sectional study conducted as an online survey among 23 patients who have recovered from COVID-19 disease and then experienced the same symptoms again after a while depending on the real time – Polymerase chain reaction (rt-PCR) test for the infection and the recovery.

Results: The study involved 23 patients who have been tested positive for COVID-19 again after their recovery (tested negative). All of them had no travel history or any contact with travelers from outside Iraq to exclude the possibility of infection with a different genomic sequence.

The mean of the duration of the first infection is 15.47 ± 3.98 , while the mean of duration of the second infection is 13.34 ± 0.93 .

There was a correlation between the duration of the 1st infection and the 2nd infection. There was no correlation between the duration of the 2nd infection and the age, gender, diabetes, hypertension or ICU admission

Conclusions: The probability of COVID-19 reinfection is high since the inflammatory rebound triggered by an insufficient immune response cannot be refused or authorized and can serve as an alternate reason for the recurrence of clinical symptoms in certain patients.

Keywords: COVID-19 reinfection, Immunity to COVID-19, real time – PCR test, SARS-CoV-2 immunity

Selected lifestyle elements of medical and non-medical university students before and during the COVID-19 pandemic

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Background: The SARS-CoV-2 pandemic has changed the way people live around the world. Negative emotions caused by studying and working remotely, isolation and the related limitation of contact with close people, may affect the frequency of using stimulants, reduce physical activity and deteriorate the quality of sleep. Analyzing individual elements of the lifestyle before and during the COVID-19 pandemic allows for a wider diagnosis of the problem and the implementation of appropriate preventive and educational measures.

The aim: The aim of the study was to compare selected lifestyle elements of medical and non-medical university students before and during the COVID-19 pandemic.

Materials and methods: The survey was conducted among 435 Polish and Turkish students using the proprietary questionnaire. The study group was divided according to the type of university, students of medical (n = 196) and non-medical (n = 239) universities. The results were compiled using Microsoft Office 2019 and Statistica 13. The Wilcoxon test was used to investigate the differences between selected lifestyle elements before the pandemic and during the pandemic. The p-value of less than 0.05 was considered statistically significant.

Results: Students of non-medical universities showed more differences in lifestyle compared to the period before the pandemic than students of medical universities. Both among medical and non-medical students, statistically significant differences were observed between the amount of alcohol consumed, drug use, smoking, and the type of physical activity.

Conclusions: In the case of students of non-medical universities, statistically significant differences were also observed between the type and amount of alcohol consumed and the amount of time spent on physical activity, compared to the period before the pandemic

Keywords: pandemic, COVID-19, stimulants, students, lifestyle

The evaluation of e-learning at medical universities in Poland by students during the SARSCoV- 2 pandemic

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Background: The COVID-19 pandemic outbreak in March 2020 affects our society in any dimension. Polish medical universities have been forced to make educational changes to ensure continuity of learning.

The aim: The aim of the study was to ask the students how they evaluate the different forms of e-learning.

Materials and methods: 722 medical students fulfilled online survey.

Results: Lectures were held only via the Internet (96.10%), as were seminars (85.53%). The form of clinical classes took place largely in the stationary form (45.37%) and online at 40%. The level of satisfaction with the remote form of lectures was very good (59.67%) and good (18.70%). The students' opinion of the seminars was similar, (very good 25.20% and good 26.02%). Students' opinion was significantly different in the clinical classes (very bad 27.64% and bad 35.28%).

Students evaluated significantly better classes that took place in a stationary form, compared to online classes (43.3% of neutral opinion and 25.91% of good opinion vs. 32.36% and 27,48%, respectively). 53.98% of the participants chose that it is easier to pass the exam during the pandemic and 26.18% chose it is as demanding as before the pandemic. 71.06% of respondents think that the current situation will lead to worse preparation for the profession. Unfortunately, 27.3% of students learned less during the pandemic and had to spend more time on self-studying (21.713%).

In the opinion of 55.28% of the participants, the universities did not undertake all the measures they could to maintain a high level of education.

Conclusions: This analysis is of great importance in the aspect of further teaching with the use of e-learning techniques. The organization of clinical classes need to be tailored to ensure a suitable level of practice knowledge. Medical universities need to rearrange their abilities to use all available technological equipment and human resources to improve the educational effects

Keywords: COVID19, pandemic, education, medicine, e-learning

Assessment of COVID-19 impact on patients life quality during and after illness

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Background: In December 2019 in the city of Wuhan, information about a new strain of coronavirus called SARS-CoV-2, has emerged. This virus causes an illness of the respiratory system called COVID-19, which led to the WHO declaring a global pandemic on the 11th of March 2020. The major symptoms include fever, shortness of breath, dry cough, fatigue, back pain, loss of sense of smell and/or taste, sore throat and general muscle ache. In more severe cases respiratory failure, frequently leading to hospitalization or possible death. COVID-19 can show no symptoms during its presence, although the risk of associated complications is equal in both cases. The most common complications include headache, sleeping problems, tachycardia, and myocarditis.

The aim: The major aim of our research was to reveal subjective impressions of COVID-19 patients during and after recovery knowing about their preexisting conditions as well as factors which may have affected the recovery process. This kind of knowledge may allow for better prognosis in particular cases.

Materials and methods: The research was done with the help of an online survey, provided by the LimeSurvey system. The survey was distributed via Facebook among groups of patients, who are either undergoing or have recovered from COVID-19. The including criteria were declaration of contamination and the survey being fully answered. The study group consisted of 495 people (22% male). The survey was provided with full anonymity.

Results: After analyzing the survey results, we can observe many correlations between preexisting conditions, age, lifestyle, as well as many other variables and complications which prevail after the recovering form COVID-19 and rehabilitation.

It was established that the probability of complications among patients with asthma is much higher than in case of people who don't suffer from asthma ($p=0,0002$), in case of autoimmune diseases ($p=0,0001$) and in case of high blood pressure ($p=0,0000$).

The study has shown that 37% of patients have suffered from complications after undergoing COVID-19. The survey allowed us to reveal the major health issues that patients experienced, as well as measure their scale. The collected data will allow us to provide a better care and treatment for those who are post COVID-19.

Keywords: SARS-CoV-2, COVID-19, survey, complication

SESSION OF DERMATOLOGY AND ALLERGOLOGY

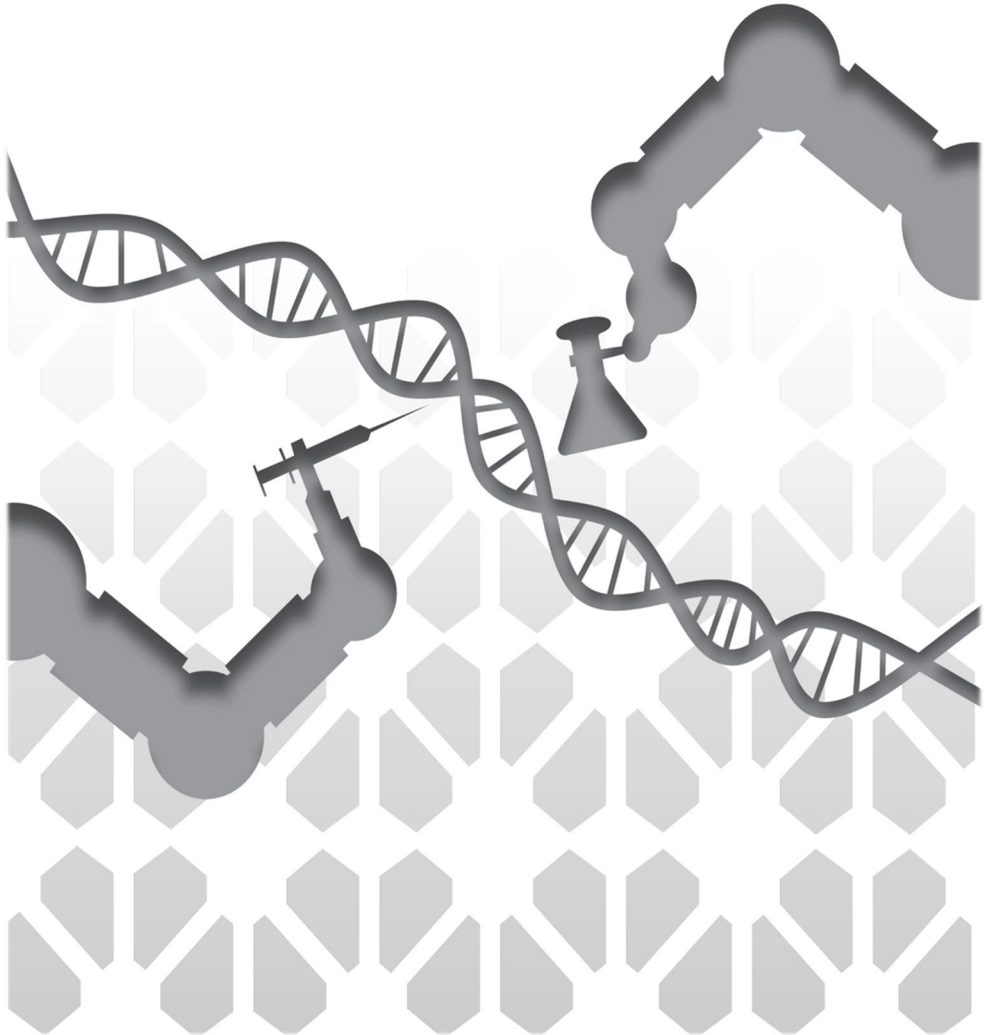


Table of contents

Hairdressers' Knowledge of Scalp Melanoma	115
Awareness of students of the Medical University of Silesia about the use of substances of plant origin supporting the treatment of acne vulgaris	116
The use and effectiveness of chemical peels in the treatment of acne vulgaris in the patients' assessment.....	117
Brachioradial Pruritus – Rare but possible diagnosis	118
Diagnostic challenges of autoimmune bullous disorders.....	119
Changes in expression pattern of genes related to leptin in keratinocytes exposed to LPS and adalimumab	120
A iatrogenic Kaposi's sarcoma after cytostatic therapy in a patient with an advanced mamma carcinoma	121
Use of growth factors in cosmetology	122
Tissue Hemostasis is Shifted Toward Thrombogenesis in the psoriatic palques	123
Influence of the usage of respiratory protection measures on the condition of acne-prone skin.....	124
Effect of the SARS-CoV-2 infection on the progression of atopic dermatitis	125

Hairdressers' Knowledge of Scalp Melanoma

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Background: Melanoma consists of neuroectodermal melanocytic cells and mainly affects people who have the fair skin phototype. In recent years there has been a significant increase of melanoma cases in the world. It is caused by frequent and excessive exposure to natural and artificial UV radiation. Melanoma of the head and neck area is quite high in both sexes. The scalp is an area of the body invisible to the patient, so the changes that present themselves in this location are not quickly recognized.

The aim: The objective of this study is to verify the general knowledge of melanoma among hairdressers and to ascertain the frequency of lessons that focus on detecting neoplastic changes of the scalp in hairdressing schools and trainings.

Materials and methods: The survey was conducted at the turn of 2020, in both online and paper formats. It consisted of 35 questions about the individual completing the questionnaire, as well as detailed questions about their general knowledge regarding malignant melanoma.

Results: One in every three hairdressers is unaware that melanoma is a malignant neoplasm, and slightly more than half of respondents discussed the topic of neoplastic changes in hairdressing schools. One in every five hairdressers participated in the hairdressing course during which the topic of melanoma was considered, although over 80% of hairdressers would like to learn more about it. Hairstylists are aware that melanoma can appear on the scalp, but only about 15% of them have heard of a clinically proven neoplasm in this location.

Conclusions: Hairdressers knowledge about scalp melanoma is very important because they are the "first link" in recognizing suspicious changes in this area. Hairdressing schools and trainings should place greater emphasis on transferring knowledge about neoplastic lesions of the scalp, where the topic of melanoma is rarely discussed. Greater awareness and some kind of cooperation between hairdressers and doctors can save someone's life.

Keywords: scalp melanoma, hairdressers

Awareness of students of the Medical University of Silesia about the use of substances of plant origin supporting the treatment of acne vulgaris

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Background: Plant-derived substances are often used to reduce acne lesions, both in cosmetic preparations for home and professional care. It is important to build awareness of the effectiveness of their use among medical students.

The aim: The aim of the study is to assess the awareness of students of the Medical University of Silesia about the use of substances of plant origin supporting the treatment of acne vulgaris. The work is also aimed at examining the level of knowledge about the causes of acne vulgaris, acne-prone skin care activities and the properties of substances of plant origin used in cosmetology.

Materials and methods: The survey was conducted in 2021. The study group consisted of 130 students of the Medical University of Silesia (66 students of medicine and 64 students of pharmacy). The analysis of the results was made with use of Microsoft Excel and StatSoft STATISTICA v. 13.3.

Results: Based on the research, it was concluded that the students of the Medical University of Silesia are highly knowledgeable about the use of plant-derived substances supporting the treatment of acne vulgaris. The surveyed group of medicine students has greater knowledge both about the causes of acne vulgaris and about the care activities. The conducted research also shows that the level of knowledge of pharmacy students about the effects of substances of plant origin is greater than that of medicine students.

Conclusions: The presented results indicate a significant role of medical university education in providing knowledge about the proper use of substances of plant origin in acne-prone skin.

Keywords: acne, awareness, education, plants, skin.

The use and effectiveness of chemical peels in the treatment of acne vulgaris in the patients' assessment

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Background: Acne vulgaris is a dermatosis with a complex etiopathogenesis which to varying extent of the severity affects up to 100% adolescents and increasingly impacts grown-ups as well. Due to a diverse clinical picture, the therapy involves multiway action. One of the most effective therapeutic methods are chemical peels which inhibit the development of acne lesions at various levels.

The aim: The aim of the study was to analyze the use and effectiveness of chemical peels in the treatment of acne vulgaris.

Materials and methods: A survey research was conducted in which 100 people of different ages took part. The research was based on the proprietary questionnaire consisting of 24 questions. The results were collected by Google documents and analyzed in Google sheets.

Results: The survey results show that chemical peels therapy has many advantages. The interviewees decided to undergo the treatment with hydroxy acids both during and after dermatological treatment and what is more, some of them chose it as an alternative method. Hardly anyone started the treatment immediately after the problem appeared. The most frequently seen changes were reduction of seborrhea, reduction of inflammatory and non-inflammatory lesions as well as the general skin tone and condition improvement. The respondents positively assessed the feelings during the procedure. Exfoliation, skin redness and facial burning were observed after the treatment.

Conclusions: Chemexfoliation is an effective and willingly chosen method of treating acne vulgaris and its complications in the shape of scars and hyperpigmentations.

Keywords: chemoexfoliation, chemical peels, acne vulgaris, hydroxy acids, acne vulgaris treatment

Brachioradial Pruritus – Rare but possible diagnosis

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Background: Brachioradial pruritus is a specific subtype of neuropathic pruritus that affects mostly women (over 70% of patients are Women). It characteristically involves the proximal lateral forearm of middle-aged women and the itching is quite intensive. Most often there are no cutaneous signs. The pathophysiology probably involves Cervical spine disease, C5-C6 radiculopathy and UV exposure. It is more common in fair-skinned females, is exacerbated by exposure to bright sunlight or ultraviolet radiation. Diagnosis is difficult due to limited number of described cases. We present a Woman with brachioradial pruritus.

Case description: The patient was a 61-year-old woman who presented with pruritus localized over her biceps and dorsal forearms. The patient had been suffering from this condition intermittently for about 6 years but symptoms worsened in the last 3 months. Firstly She was referred to Neurologist and dermatologist for this issue - no neurological abnormalities were found. During the treatment She received: lidocaine and diphenhydramine but it haven't provided any relief. Then we did skin biopsy – but no abnormalities were found. Then we suspected brachioradial pruritus – (patient had a history of tanning bed use) to confirm the diagnosis we did MRI of cervical spine – degenerative disease of the spine was found which further confirmed our initial diagnosis. We tried gabapentin (slowly titrating to reach 400 TID) which helped control our patient symptoms.

Conclusions: Brachioradial pruritus can be difficult condition to diagnose and may need many different specialistic consultations before receiving final diagnosis. It should be suspected in females aged between 40 – 50 With degenerative changes in their cervical spine, and symptoms of pruritus in their dorsal forearms.

Our case shows that these patients can often be misdiagnosed and can unnecessary undergo many medical procedures (biopsies etc.) “Ice pack” test can be used as an easy diagnostic tool.

Keywords: Pruritus, brachioradial

Diagnostic challenges of autoimmune bullous disorders

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Introduction: The diagnosis of autoimmune blistering skin disorders is a challenge for clinicians as the clinical manifestation is frequently not a characteristic one.

Case description: A 53-year-old female patient was admitted because of itchy erythematous lesions with blisters and bullae over the entire body. Some lesions showed herpetiform pattern. The differential clinical diagnosis included bullous pemphigoid, IgA bullous disease and pemphigus herpetiformis. The diagnosis of bullous pemphigoid was based on indirect immunofluorescence (presence of IgG antibodies against dermo-epidermal zone, skin split demonstrating IgG antibodies attached to the roof of artificial blister), ELISA (antibodies against BP 180 antigen) and direct immunofluorescence (C3C deposits along the basement membrane). The patients were successfully treated with systemic methotrexate and topical corticosteroids.

Conclusions: The presented case underlines the importance of detailed immunological examinations in the diagnosis of autoimmune blistering disorders.

Keywords: bullous pemphigoid, autoimmune blistering disorders

Changes in expression pattern of genes related to leptin in keratinocytes exposed to LPS and adalimumab

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Introduction: Psoriasis as a disease caused by pro-inflammatory cytokines is characterized by increased expression of leptin, TNF- α as a tumor necrosis factor and the interleukins IL-12/23, IL-6. Adalimumab, TNF- α monoclonal antibody plays an important role in the treatment of psoriasis of varying severity.

The aim: The aim of the study was to evaluate the efficacy of adalimumab in the expression of leptin-related genes in keratinocyte cells that had been exposed to lipopolysaccharide A.

Materials and methods: The material is human keratinocyte (HaCaT) culture treated with 1 $\mu\text{g/ml}$ lipopolysaccharide A (LPS) for 8 hours to induce inflammation, followed by 8 $\mu\text{g/ml}$ adalimumab for 2.8 and 24 hours compared to control (cells untreated with substances). The techniques used are mRNA microarray and RTqPCR.

Results: Out of the 38 mRNAs associated with the leptin pathways, the largest differences in the expression pattern in the keratinocyte cell lines exposed to LPS, LPS and adalimumab compared to the control culture (untreated cells) were observed for leptin and its receptors ($p < 0.05$). Under the influence of adalimumab, even in the shortest time of exposure to the drug, a decrease in the expression of the analyzed genes was noted, both in comparison to cells with LPS induced inflammation and those that were not treated ($p < 0.05$).

Conclusions: Adalimumab modulates the expression pattern of leptin-related genes and proteins exposed to LPS in keratinocytes.

Keywords: adalimumab, LPS, leptin, molecular marker, mRNA

A iatrogenic Kaposi's sarcoma after cytostatic therapy in a patient with an advanced mamma carcinoma

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Background: Kaposi's sarcoma (K.S.), described by Kaposi Mór in 1872, is a multifocal mesenchymal neoplasia which affects mostly the skin. There has been four epidemiological forms described: classic K.S. (Mediterranean), endemic K.S. (African), K.S. appearing during HIV infection and iatrogenic K.S..

Background: In our present case we have a rare encounter with the iatrogenic K.S. during the treatment with cytostatics. We want to present the case of a 74-year-old woman diagnosed with invasive ductal breast cancer, stage IV. She followed a treatment with a combination of cytostatics for 8 months and subsequently found the appearance of multiple pink-purple-colored tumorous formations which had a hard consistency. They appeared on the upper and lower limbs bilaterally and where clinically as well as histologically confirmed to be K.S.. As the K.S. can occur in different clinical forms, we have a broad spectrum of differential diagnostics to be made including angiosarcoma, angioma, spindle cell melanoma and so on.

Conclusions: The appearance of K.S. in patient's suffering from a carcinoma in an advanced stage and treated with cytostatics, is rare. Therefore, it is important to underline it's existence through the rare cases that can be found, to enhance early diagnosis in other patients.

Keywords: Kaposi sarcoma, iatrogenic, mamma carcinoma, HHV8-associated malignancies.

Use of growth factors in cosmetology

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Background: Growth factors are molecules that are naturally located in human body. They have impact on growth, diversity and proliferation of epidermis and dermis cells.

The aim: The aim of this research is to present function which growth factors can fulfil in skin recovery and regeneration process.

Results: The correlation between growth factors and treatment of skin malfunction has been noticed. Additionally aesthetic medicine and cosmetology treatments are described in this research. Also, cosmetics that are containing growth factors are presented in this work.

Keywords: growth factors, cosmetology, PDGF

Tissue Hemostasis is Shifted Toward Thrombogenesis in the psoriatic plaques

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Background: Psoriasis is a common autoimmune disease of unknown etiology. Recently, much attention has been paid to evidence that local hypercoagulable state is important contributing factor to the development of inflammatory skin diseases.

The aim: The aim of this study was to characterize the local hemostasis in the affected skin of patients with psoriasis.

Materials and methods: Skin biopsies of psoriatic plaques were obtained from 73 consecutive patients (48M, 25F, average age 45 years) with at least one year history of the disease. The studied patients had not received any specific systemic treatment for at least 4 weeks before the biopsy was done. As a control, normal skin biopsies were obtained from 16 healthy subjects. For immunohistological study, En-Vision method (DAKO EnVision Kit ®/ Alkaline Phosphatase detection system) and monoclonal antibodies anti-tissue factor (TF), anti-thrombomodulin (TM) and anti-von Willebrand Factor (vWF) were used. All these molecules were assessed semi-quantitatively in the frozen sections.

Results: Clinically, Body Surface Area index ranged between 1 to 90% and Psoriasis Area Severity Index score was from 1.6 to 47. Immunohistochemistry revealed redistribution of TF antigens from the upper to lower layers of the epidermis as compared to the control. In addition, TF was uniformly and moderately expressed on capillary endothelial cells of the plaque sections in 43 out of 73 patients (58.9%). TF expression was collaborated with down-regulation of TM in psoriasis in comparison to the healthy control where TM was predominantly present in the stratum spinosum. The vWF immunoreactivity of the psoriatic microvessels within dermis was significantly higher than observed in the control subjects ($P < 0.001$). In the current study, there was no relationship among the expression of TF, TM and vWF expression versus the PASI and BSA (NS).

Conclusions: A local procoagulable state found in psoriatic plaques suggests a significant role of local tissue hemostasis in pathogenesis of the disease. If these findings indicate another potential target for therapeutic approach in patients with psoriasis needs further elucidation.

Keywords: psoriasis, immunohistochemistry, thrombogenesis, tissue factor, thrombomodulin, von Willebrand factor

Influence of the usage of respiratory protection measures on the condition of acne-prone skin

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Background: Due to the increase in the frequency of acne exacerbations in the population, it was decided to look for a relationship between the severity of changes and the general obligation to cover the mouth and nose.

The aim: The aim was to show a positive correlation between the use of respiratory protection and the exacerbation of acne or the appearance of it de novo, and to find potential factors that have an impact on the severity of changes, such as the time of wearing the mask, material, etc. It was conducted with the use of a survey consisting of multiple and single choice closed questions, as well as open questions.

Results: The study showed a positive correlation between the use of protective equipment and the increased severity of acne lesions in the population. This especially applies to maculopapular lesions and its degree depends on the frequency and type of protection. More frequent wearing of masks causes greater exacerbation of lesions, while longer wearing does not have such a large impact on the deterioration of the skin condition. The reasons for such changes are seen in the advent of specific conditions between protective agents and the skin and in the physical impact on the skin of the materials. This link was noticed between masks made of natural fibers and synthetic. The use of protective agents made of natural raw materials causes the lesser exacerbation of the skin condition than masks composed of synthetic fibers. The focus was also on other factors that may affect, inter alia, disinfection of the face before and after wearing the mask, but they have not been shown to significantly affect the severity of acne lesions.

Conclusions: To sum up, it has been shown that the use of masks notably contributes to the deterioration of the skin condition by intensifying acne lesions and increasing the formation of such lesions de novo.

Keywords: acne, masks, covid-19, ance Mechanica, acne-prone skin, pandemic

Effect of the SARS-CoV-2 infection on the progression of atopic dermatitis

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Background: Atopic dermatitis (AD) is a disease of complex etiology. Its pathophysiology consists of immune-mediated reactions that lead to skin lesions of varying severity. Depending on the severity of the symptoms treatment of AD includes skin care, topical agents and in severe cases immunosuppressive therapy. With the outbreak of the COVID-19 pandemic, the question of whether SARS-CoV-2 infection carries significant consequences in the course of hypersensitivity diseases has become a recurrent issue.

Materials and methods: A retrospective analysis of 8 cases of adults aged 18 to 52 years with AD who developed COVID-19 infection was performed. Men represented 87.5% of the patients, median age was 34 years. During active infection, AD skin symptoms were exacerbated in 2 cases, relieved in 3, and no change was observed in the remaining 3 patients. Patients in whom exacerbation of skin symptoms was observed after SARS-CoV-2 infection had a history of mild AD. AD remission occurred in patients with a history of severe AD. There were 5 patients hospitalized for COVID-19, including 2 treated with cyclosporine, 1 taking Encorton, and 2 treated with topical preparations only. Patients treated with methotrexate did not require hospitalization.

Results: The results obtained during the retrospective analysis of the presented cases show, that the course of atopic dermatitis can present a variation from severity of symptoms to no significant effect on the patient's skin condition. However, it remains interesting that no significant effect of immunosuppressive therapy on the severity of COVID-19 progression was demonstrated.

Keywords: atopic dermatitis, SARS-CoV-2, COVID-19

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SESSION OF DIETETICS AND NUTRITION

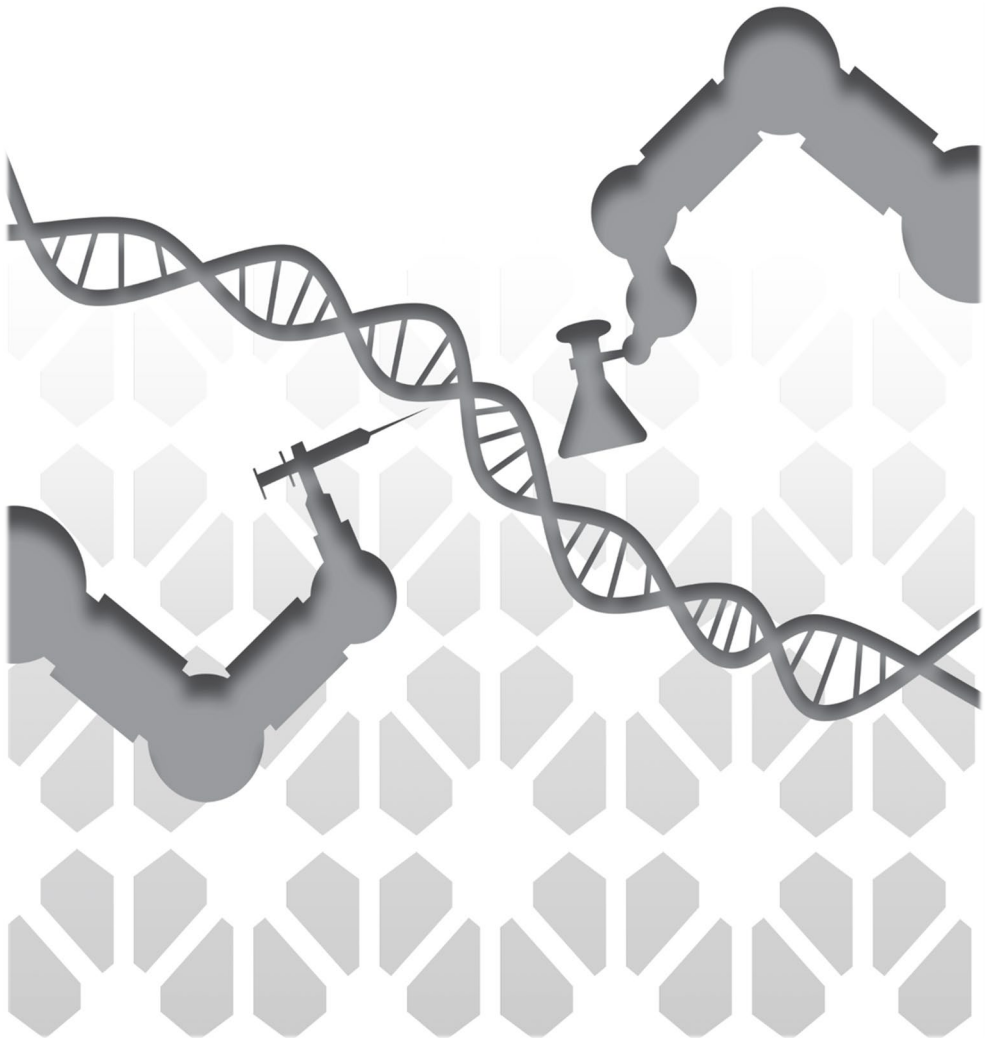


Table of contents

Severely obese children. Effectiveness of behavioral therapy in outpatient clinic.....	129
Nutritional status assessment in patients undergoing gastrointestinal surgery.....	130
Eating habits of people practicing speed skating.....	131
Gluten is everywhere. Pediatric patients with celiac disease and their families’s knowledge about gluten-free diet.....	132
Eating habits of adolescents with normal and abnormal body weight.....	133
Health awareness among parents of preschool children about the amount of sugar in their children's diet – a survey	134
“Superfoods” and dietary supplements during COVID-19 pandemic: what we believe in and how accurate it is.....	135

Severely obese children. Effectiveness of behavioral therapy in outpatient clinic

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Background: Childhood obesity is an important global public health problem, since the prevalence of obesity in children and adolescents has increased worldwide. Moreover, according to the Childhood Obesity Surveillance Initiative of the WHO over 60% of children who are overweight before puberty will be overweight in early adulthood. In many countries one in four obese children was severely obese. The behavioral therapy of obesity includes lifestyle modification and support from dietitians and psychologists.

The aim: The aim of the study was to assess the effectiveness of behavioral therapy in childhood obesity in the metabolic outpatient clinic.

Materials and methods: The retrospective study involved 579 obese children who were admitted to the Metabolic Outpatient Clinic in Katowice between January of 2016 and December of 2019. For the analysis the following data were collected: age, sex, BMI z-score and anthropometric measurements. Children with BMI z-score $+2SD$ or more were classified as obese. Children who entered therapy were divided into two groups: the non-severely obese (n-SO) group with SD 2-2.99 and the severely obese (SO) group with SD >3 .

Results: Out of 579 children 49.4% were in severe obesity range. There were more boys in the SO group (58.82%) than girls (40%) ($p<0.01$). 424 of the patients started behavioral therapy, while 155 of them did not. In both cases groups were similar in number of SO and n-SO. Therapy was started at a lower age by children with SO compared to n-SO ($p<0.01$). Before therapy the SO group had a mean BMI zscore of 3.92 and the n-SO group had a mean BMI z-score of 2.53. After therapy the SO group had a mean BMI z-score of 3.5 and the n-SO group had a mean BMI z-score of 2.22. The decreases in BMI zscore in both groups are statistically significant ($p<0.01$).

Conclusions: Behavioral therapy in severely obese children is effective. The most important thing is to properly motivate patients and their families to start therapy and sustain it.

Keywords: childhood obesity, severe obesity, BMI z-score, behavioral therapy, outpatient clinic

Nutritional status assessment in patients undergoing gastrointestinal surgery

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Background: Patients undergoing gastrointestinal (GI) surgery present a high risk of malnutrition. It can be caused by many factors, e.g. pain, eating disorders or even the treatment itself.

The aim: The aim of our study was to analyse the nutritional status and the risk of malnutrition in patients undergoing GI surgery.

Materials and methods: Medical records from patients admitted to the Department of Digestive Tract Surgery in Katowice between February 2019 and February 2021 have been examined. Data from 106 patients - 62 men and 44 women - aged $61,28 \pm 14,38$ have been gathered. Seventy two (67,92%) of them had a history of cancer. Their nutritional risk assessed according to Nutritional Risk Score 2002 (NRS 2002) have been determined, and prognostic nutritional index (PNI) was calculated as $10 \times$ serum albumin + $0.005 \times$ total lymphocyte counts.

Results: Even though the vast majority of patients are not underweight (median BMI = 24,15; 55 (51,89%) patients have the perfect BMI and 34 (32,07%) of them are overweight), their PNI (median= 33,12) show that most of them are in a high risk of malnutrition. Ninety three of 106 subjects have PNI value too low (<45), which worsens their prognosis. Poor NRS correlates with poor albumin level (Chi² $p=0,013$); old age correlates with worrisome PNI results (U-Mann Whitney Test $p=0,03$).

Conclusions: Most patients undergoing GI surgery are at nutritional risk. NRS 2002 and PNI are good indicators, whereas BMI is not a good indicator of the nutritional status.

Keywords: nutritional status, malnutrition, gastrointestinal, surgery

Eating habits of people practicing speed skating

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Background: For every sportsmen, a properly balanced diet is one of the most important aspects of sport success. It affects good regeneration, immunity and progress in the particular discipline.

The aim: The aim of the study was to check eating habits of people practicing speed skating.

Materials and methods: The study included a group of 19 speed skaters (13 men and 9 women) at the age from 17 to 33 years old. Nutritional data was obtained by proprietary survey questionnaire created in the GOOGLE forms application. The survey contained 28 questions: 27 single-choice questions and one multi-choice question.

Results: Fish consumption a few times a week was declared by 15% of respondents, 21% declared intake of milk and fermented products more than once a week. Almost half of respondents (47.4%) consume grain products, 68.4% consume more than 3 meals per day and 84% eat their first meal within an hour after waking up. About 37% intake more than 2 servings of vegetables per day, 68.4% respondents eat eggs as a separate meal a few times a week. High percentage of participants declared drinking at least 2l of water per day (80%). On training days respondents change their nutrition habits. They intake significantly more carbohydrates (89%), drink more water (84.2%), they increase the number of meals (21.1%), the intake of protein (52.6%) and fats (15.8%).

Conclusions: Nutrition habits in speed skaters team are not appropriate enough. Consumption of vegetables in this group is particularly low. The amount of grain products, fish, milk and fermented products declared by the majority of respondents is inadequate as well. The most satisfactory aspects are the daily number of meals and daily consumption of water.

Keywords: speedskating, eating habits, intake

Gluten is everywhere. Pediatric patients with celiac disease and their families's knowledge about gluten-free diet

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Background: Celiac disease is a multisystem immunological disorder which is caused by the consumption of gluten in genetically susceptible individuals. The gluten-free diet is the only effective treatment available for celiac disease, but it is not always easy to follow for both, pediatric patients and their parents.

The aim: The study aims to examine awareness and adherence to gluten-free diet among parents of pediatric celiac patients.

Materials and methods: Material was collected using the self-designed questionnaire. The respondents pediatric patients diagnosed with celiac disease using gluten-free diet and their parents.

Results: Total of 52 responders (73% females, 27% males), aged from 3 years to 17 years were included. The average age of children was $11,4 \pm 3,6$ years and mean age of diagnosis of celiac disease was $5,6 \pm 3$ years. 59,6% of patients have other autoimmune diseases. Celiac disease runs in families in 23% of patients. 84,6% of parents assessed they know a lot about a gluten-free diet, but only 32,7% of parents were able to correctly select all products containing gluten from the product group. 67% of parents claimed that they always give their kids products labeled gluten-free, but all responders found certified gluten-free food expensive. 46% of patients reported symptoms when they fail to follow a gluten-free diet. As many as 23,1% of children eat gluten several times a month and 1,9% of them eat it several times a week. 63% of parents affirm that their children know a lot about gluten-free diet.

Conclusions: A gluten-free diet can be a real challenge for both patients and families. Further, public education about the diet of people suffering from celiac disease is crucial to eliminate accompanying symptoms, reduce complications and improve the general condition of patients.

Keywords: pediatrics, diet, celiac disease

Eating habits of adolescents with normal and abnormal body weight

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Background: Both overeating and emotional eating, as also dietary restrictions are factors that predispose to the eating disorders. These disorders may affect people of various body weight, but the group particularly vulnerable to their occurrence are adolescents. The analysis of the above behaviors allows to assess the scale of the problem and enables the implementation of preventive measures, including nutritional education.

The aim: The aim of the study was to investigate eating habits among adolescents and verify whether there are any differences in eating habits between adolescents with normal and abnormal body weight.

Materials and methods: The study was conducted in the 2020 among 337 post-primary school students from the Silesia voivodeship. The study group have been divided by BMI for adolescents with normal (n=228) and abnormal body weight (n=109). A standardised questionnaire "My eating habits" was used as a research tool. To examine the differences between eating habits person with normal and abnormal BMI using the Chi-squared test. The p-value of less than 0.05 was considered statistically significant.

Conclusions: The eating habits of adolescents with normal and abnormal body weight are mostly varied. Adolescents with normal body weight compared to people with abnormal body weight, are willing get rid of unnecessary calories after having a large meal and eat often, although they not hungry, while people with abnormal body weight compared to people with normal body weight generally would prefer to weigh less than now.

Keywords: eating habits, body weight, adolescents

Health awareness among parents of preschool children about the amount of sugar in their children's diet – a survey

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Background: According to the statement of the Polish Society of Gastroenterology and Hepatology, free sugar consumption among children over 2 years should not constitute more than 5% of daily energy requirement.

The aim: Evaluation of conscious nutrition among children with an emphasis on the presence of sweet products in their diet.

Materials and methods: The survey was conducted among parents of preschool children in the Silesian Voivodeship; in two Primary Healthcare Centers and in three kindergartens. The questionnaire consisted of 13 single and multiple choice questions. There were 264 respondents and the largest group among children was 5 and 6 years olds. Furthermore, the research study was extended by interactive activities for preschool children to educate them about healthy eating.

Results: 70% of respondents answered affirmatively to the question about reading ingredients labels on the products given to children. However, when questioned about the maximum amount of sugar in children's diet, most respondents (61%) do not know how much sugar their children can consume per day. It was 58% among respondents with higher and secondary education and 70% among respondents with lower education. 77% of respondents admitted to serving sweet snacks between main meals, out of whom 81.5% answered that they served 1 or 2 snacks.

Conclusions: Parental awareness of the amount of free sugars in their children's diet is insufficient. Educational campaigns promoting healthy eating may help change children's eating habits in the future.

Keywords: children's diet, free sugars

“Superfoods” and dietary supplements during COVID-19 pandemic: what we believe in and how accurate it is

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Background: Recently there has been a significant increase in interest in so-called “superfoods” - natural, unprocessed products that contain ingredients profoundly beneficial for humans' health (ex. goi berries or avocado).

The aim: The aim of the study was to analyze the consumption of superfoods and other dietary supplements before and during COVID-19 pandemic in Polish population.

Materials and methods: The survey was performed nation-wide by the Internet among adult Poles. Study questionnaire included 43 questions concerning consumed superfoods and use of drugs and dietary supplements during the COVID-19 pandemic.

Results: A total of 496 respondents (299 women), mean age 34.5 ± 14.5 years were included. Among the study group 6.3% was diagnosed with underweight, 61.1% with normal weight, 23.8% with overweight and 8.9% with obesity. 72.0% of responders use food supplements during a pandemic COVID-19, and before 72.4%. The most popular used food supplements were vitamin C and multivitamin preparations. There was a significant increase in vitamin D supplementation during COVID-19 pandemic (from 48.8% to 61.5%, $p < 0.01$). No difference in inosine pranobex use was observed. 42.7% of respondents were not familiar with superfood definition. Garlic, broccoli, oranges, parsley, and Cruciferae vegetables were the most popular superfoods indicated by respondents. Among herbal preparations the most popular were Sambucus nigra and chamomile.

Conclusions: During the COVID-19 pandemic the supplementation of vitamin D in Polish population significantly increased.

Keywords: COVID-19, dietary supplements, superfoods, vitamin D, pharmaceutical preparations

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SESSION OF GYNECOLOGY AND OBSTETRICS

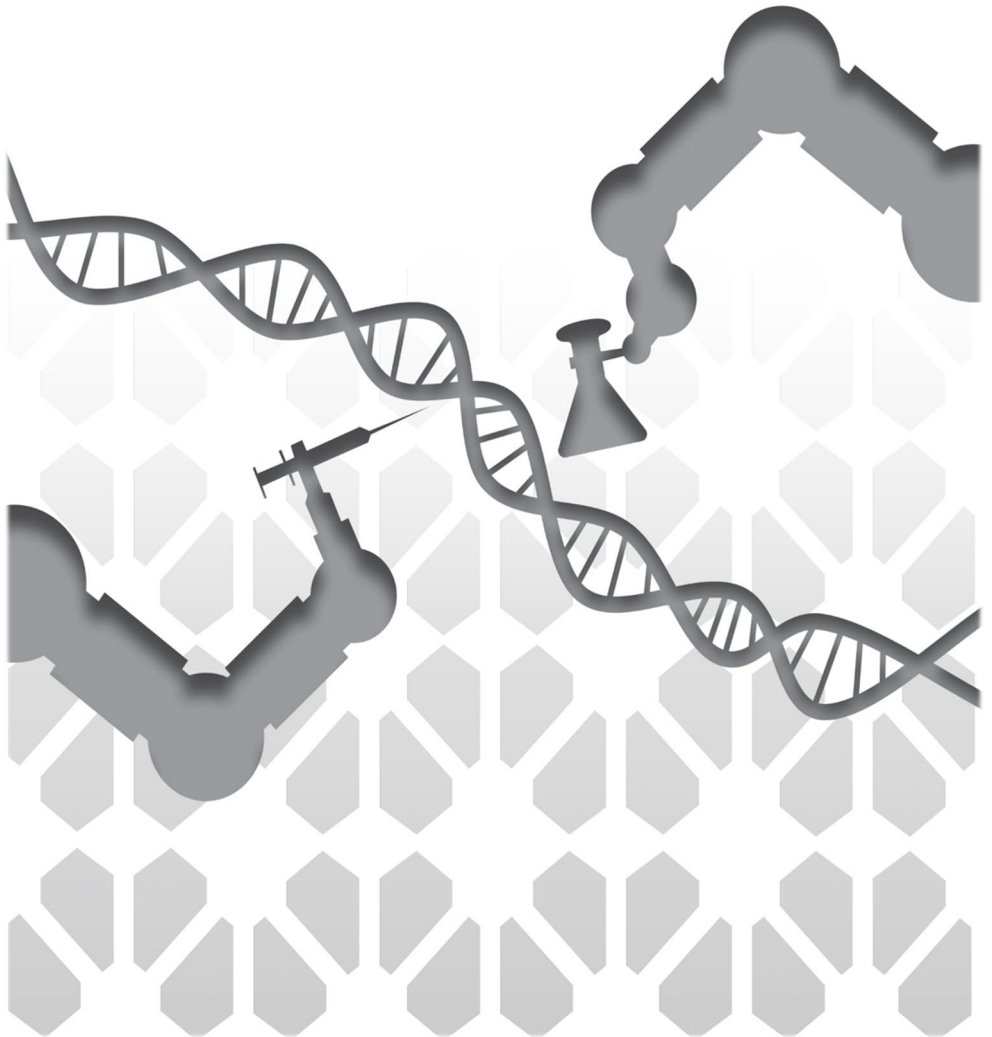


Table of contents

What has an influence on women's awareness of physical activity during pregnancy?.....	139
Does fear have big eyes? Concerns of pregnant women and the risk of URI and pregnancy complications.....	140
A 25 Year Old Woman with Giant Ovarian Cyst.....	141
Assessment of the level of women's knowledge about HPV infection and influence on cervical cancer.....	142
Women's hygiene during menstruation.....	143
Impact of vaginal dryness on postmenopausal women.....	144
The prevalence and risk factors of postpartum depression in women giving birth in 2019 - 2021.....	145
Side effects of first oral contraceptive pills among young women.....	146
A problem ignored: knowledge of medical students about resuscitation in pregnancy.....	147
Why do Polish Women choose hormonal contraception? - a Cross-Sectional Study.....	148
The menstrual cycle at the time of the plague.....	149
Differences in expression profile of leptin and its receptors in endometrial cancer.....	150
One moment only Cognizance and attitudes towards umbilical cord blood stem cell banking among women.....	151
Awareness of women of reproductive age on dietary folic acid supplementation.....	152
Obesity in pregnancy and childbirth-an assessment of women's knowledge.....	153

What has an influence on women's awareness of physical activity during pregnancy?

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Background: Nowadays, a healthy lifestyle gains more and more popularity, women try to lead an active life, also while being pregnant. Despite the available sources of information, does the women's knowledge about a physical activity is appropriate?

The aim: The point of our research was to assess women's knowledge about indications for physical activity, types of activities which are allowed and their impact on the course of pregnancy.

Materials and methods: The original online questionnaire was collected from 458 Polish women in January and February 2021. The survey contained questions concerning basic demographic data and physical activity during pregnancy as well as a test checking the knowledge. The data was statistically analysed using the program "Statistica 13".

Results: The mean test result was 73% (95% CI 72.2-74.3). 42% of women were pregnant when filling in the survey and they achieved better test results than women who were not pregnant ($p < 0.05$). Antenatal classes attendance was declared by 25% and this group had higher test scores than the other which did not participate in ($p < 0.05$). We observed statistically significant differences between groups divided by educational background, age, number of children, self-assessment of knowledge of the subject as well as whether they had an interview about physical activity with OBGYN or not and who initiated the conversation ($p < 0.05$). 30% of respondents talked with their OBGYN about physical activity during pregnancy. There were no significant differences in test scores between women with different lifestyles, activity level during pregnancy and marital status as well as time since last birth, weight and BMI ($p > 0.05$).

Conclusions: There is a need for a better education regarding physical activity during pregnancy. It could be obtained from the antenatal classes and/or the talk with a gynaecologist. We would like to encourage gynaecologists and obstetricians to start a conversation about physical activity during pregnancy with their patients as soon as it is possible.

Keywords: pregnancy, physical activity, healthy lifestyle

Does fear have big eyes? Concerns of pregnant women and the risk of URI and pregnancy complications

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Background: Urinary tract infections (UTIs), is the presence of pathogens in the urinary tract above the bladder sphincter. UTIs are the most common bacterial infection in pregnancy. This is due to anatomical, physiological conditions. Any UTIs in pregnant women requires antibiotic therapy to prevent maternal and neonatal complications.

The aim: The aim of this study was to assess the concerns of pregnant women, and the risk of developing UTIs and its complications during pregnancy.

Materials and methods: The study was conducted nationwide via the Internet among women who have given birth or are pregnant. The original questionnaire contained 47 questions on sociodemographic, clinical data, knowledge and prevention, and possible complications of UTIs during pregnancy. The inclusion criterion was current or past pregnancy.

Results: The study group included 1375 women who were pregnant (512, 37.2%) and those who had already given birth (863, 62.8%). Mean age 28,5±5,3 .During pregnancy, ZUM occurred in (623, 45.3%), among them (36, 4.8%) have a diagnosis of nephrolithiasis. Women with a pre-pregnancy history of UTI at a frequency >3 times per year have significantly increased concerns compared to women without UTI before pregnancy (77% vs 41%, p<0.001). History of miscarriage (57% vs 50%, p=0.03), as well as higher education level (53% vs 48%, p=0.05), correlated positively with the presence of anxiety, while a history of childbirth reduced anxiety (47% vs 58%, p<0.001) relative to pregnant women. Women with heightened anxiety took more preventive measures (34% vs 25%, p<0.001), and greater willingness to self-treat (34% vs 27%, p<0.001). A history of episodes of UI during pregnancy presumably influenced the increased number of preventive actions taken (62% vs 55%, p=0.02).

Conclusions: Urinary tract infection is a common but preventable cause of pregnancy complications. It is associated with anxiety, stress for the pregnant woman about the child's well-being and health.

Keywords: bacteriuria, urinary tract infection during pregnancy,

A 25 Year Old Woman with Giant Ovarian Cyst

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Background: Giant ovarian cysts are defined as tumors that exceed 10 cm in diameter. They are a rare phenomenon due to the availabilities of imaging methods and advancement of modern diagnostics.

Case description: Here we describe a case of a giant cyst which appeared to be a primary mucinous carcinoma of the ovary. Case presentation: A 25-year-old woman presented with progressive abdominal distention. On ultrasonography an enormous structure filled with fluid prevented evaluation of the pelvic cavity. The MRI revealed a cystic tumor with septa (12x12x13 in size) that probably originated from the right ovary. The image of other pelvic structures was unclear as they were compressed by fluid and tumor. Patient was scheduled for an exploratory laparotomy with the extent of surgery consistent with the surgical protocol for ovarian cancer. A giant multiloculated cystic mass measuring 40× 30× 30 cm (30 kg of weight) involving the right ovary was observed. On histopathological examination, the cyst was confirmed as mucinous carcinoma of the ovary. Patient underwent a right ovarian cystectomy with surgical biopsy of the left ovary. Only tumor marker elevated was cancer antigen 19-9. During a subsequent hospitalization in December 2020, the patient was referred for follow-up chemotherapy.

Conclusions: This clinical case should draw the attention of the public to the importance of the early diagnosis of cysts in the pelvic cavity, because delayed diagnosis of ovarian cysts may worsen the patients' prognosis. The purpose of this article is to point out that this cyst may be a primary mucinous carcinoma of the ovary. Large ovarian cysts need to be diagnosed for faster diagnosis and implementation of appropriate treatment.

Keywords: abdominal giant cyst, ovarian cysts / pathology,

Assessment of the level of women's knowledge about HPV infection and influence on cervical cancer

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Background: Cervical cancer is one of the most common cancers in women. A link between infection with oncogenic HPV types and the occurrence of cervical cancer has been proven. Proper prophylaxis in the form of regular cytology and HPV genotyping as well as widespread vaccination reduces the incidence of this type of cancer in women.

The aim: The purpose of this study is to determine the level of women's knowledge about HPV, its association with cervical cancer and the preventive measures women can take to prevent this cancer.

Materials and methods: The study group consisted 770 female respondents, mean age 28.8 ± 10.45 years were included. A self-administered questionnaire of 49 questions was used that included questions about sociodemographic data and knowledge of risk factors for HPV infection, its symptoms and consequences, and methods of prevention and detection. Inclusion criteria: female sex, age 18-70 years, accommodation, education, knowledge about HPV.

Results: The results of the questionnaire show that despite many educational programs and events aimed at raising awareness about cervical cancer prevention up to 13% of women surveyed have never heard of the human papillomavirus and 34.2% do not know what diseases are caused by HPV infection. There was observed significant correlation between accommodation and regular attendance on gynecologist appointments which was higher among citizens of city over one hundred people ($p=0,035$). 69.72% of women are not aware of the possibility of using a highly sensitive test - HPV genotyping - for cervical cancer prevention. Additionally, 93.48% of the female interviewers have never had or do not know of this test being performed on them. Over 85% of women who are aware of HPV are not vaccinated, 45% of them avow not feeling threatened by the disease as the main reason. Among those who have heard about HPV, 67.7% get their knowledge about HPV infection and its consequences from mass media (Internet, TV). As many as 75.38% of the surveyed women assessed their knowledge of cervical cancer risk factors and prevention as insufficient or did not know anything about these issues.

Conclusions: The survey conducted shows that women's knowledge of the human papillomavirus and its association with the occurrence of cervical cancer is unsatisfactory. Prophylactic measures taken by women are inadequate and knowledge about them is also limited.

Keywords: HPV, prevention, cervical cancer, vaccination

Women's hygiene during menstruation

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Background: Women's hygiene during menstruation plays an important role in the prevention of urogenital infections. When it's right, it can prevent many diseases. The concept of women's hygiene during menstruation includes not only frequent change of personal hygiene measures, but also washing of intimate areas or washing hands before and after changing hygiene products.

The aim: Women's hygiene during menstruation and the means used to it have changed over the years.

Conclusions: Nowadays women have an easy access and a large selection of intimate hygiene products. Examples of such agents are tampons, disposable and reusable sanitary pads, menstrual cups, intimate hygiene fluids and others. The purpose of our work was to check the hygiene of women during menstruation. The questionnaire was shared on a social networking site.

Keywords: hygiene, menstruation, intimate hygiene measures, women

Impact of vaginal dryness on postmenopausal women

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Background: Menopause is a physiological process that every woman is going to experience during her lifetime, however in some women, it has potential to lead to various pathological complications. These complications and menopause itself can lead to symptoms of vulvovaginal atrophy, which include vaginal dryness, and can have a profound impact to interpersonal relationships, quality of life, and sexual function.

The aim: The aim of the research is to find out the prevalence of vaginal dryness in postmenopausal women, its impact on quality of life and sexual life.

Materials and methods: 78 postmenopausal women aged 54 – 84 were surveyed in three different GP practices in Latvia. The questionnaire was carried out between January 2021 and February 2021. An anonymous questionnaire was used. Microsoft Excel 2010 and IBM SPSS 26 Statistics were used for data collection and statistical processing. Chi Square and Fisher's Exact tests were used for data analysis.

Results: 78 postmenopausal women aged 54 – 84 participated in the study, with an average age of 65,17 (SD 7,47) years. The average menopause age was 50,13 (SD 2,55). The prevalence of vaginal dryness was 52.6% (41/78) of postmenopausal women. Of these women sexually active were 63,4% (26/41). The prevalence of sexual dysfunction such as decreased sexual desire was found in 92,7% (38/41) of which 73,7% (28/38) had slightly decreased sexual desire, but 26,3% (10/41) had dramatically decreased sexual desire, reduced well-being during sexual relationships to 63,4% (26/41), difficulty, or inability to reach orgasm to 48,8% (20/41), painful intercourse (dyspareunia) to 2,4% (1/41) of women with vaginal dryness symptoms. 95,1% (39/41) of women with symptoms of vaginal dryness thought that this symptom decreases their quality of life.

Conclusions: More than a half of women in postmenopause had vaginal dryness, therefore decreased sexual quality and life quality that plays an important role in women's well-being.

Keywords: vaginal dryness, postmenopause

The prevalence and risk factors of postpartum depression in women giving birth in 2019 - 2021

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Background: Postpartum depression as a serious psychiatric disorder is one of the most common complications after childbirth. It has a negative impact on both the mother and the child. Unfortunately, postpartum depression and its risk factors are still under-researched and under-diagnosed problems among women. In the picture of postpartum depression there are typical symptoms appearing in the course of clinical depressive episodes, which by limiting the woman's life activity and her loss of interest in the newborn, may lead to disturbances in their relationship and, consequently, to abnormal development of the child.

The aim: The aim of this study was to assess the prevalence of mood disorders in the perinatal period, including postpartum depression, and to analyze risk factors that may predispose to these disorders.

Materials and methods: The study group consisted of 316 women who gave birth between 2019 and 2021. The study was a questionnaire-based survey. Questions pertained to potential risk factors for mood disorders or postpartum depression. Sociodemographic data and information about the course of pregnancy and childbirth were also collected. Statistical analysis was composed using Statistica and Excel.

Results: Among the respondents, 5.3% declared doctor-diagnosed postpartum depression. 77.6% of the women experienced postpartum mood disorders (including crying and excessive sleepiness). Depression was diagnosed in 6.8% of the women who declared mood disorders.

Conclusions: Based on the results, the predisposing factors for mood disorders are lack of breastfeeding and experience of an unpleasant situation during childbirth. In addition, it was shown that women with higher education are more likely to suffer from postpartum depression.

Keywords: postpartum depression, mood disorders, pregnancy, risk factors

Side effects of first oral contraceptive pills among young women

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Background: Oral hormonal contraceptives (OCs) are one of the most widely used pills, especially among healthy women as a way to prevent pregnancy. They also have other therapeutic properties, nevertheless, some women complain of side effects.

The aim: The aim of this study was to analyze the prevalence of side effects caused by usage of first oral contraceptives among women aged 18-35 and further compliance depending on the side effects.

Materials and methods: The retrospective study was performed in 296 women aged 18-35 via an online survey regarding their experience with oral contraception. The survey was distributed on Internet forums and students' groups from February to March 2021.

Results: 62% respondents used OCs as a way to prevent pregnancy, and 51,7% of them experienced side effects. Meanwhile 38% of respondents used them due to other medical conditions and side effects occurred in 43,4%. Most frequent side effect was fatigue and malaise. However, the most intense one was intermenstrual bleeding and spotting and the most burdensome was mood lability. 39% of women who experienced side effects in their first 3 months of use decided to continue taking their prescribed contraceptive pills. However, among a group without side effects 55% of women decided to continue. Majority of respondents didn't have any lab tests done before having been prescribed OCs (64,5%).

Conclusions: Side effects were the most common reason to discontinue or to change the type of OCs. Majority of them are mild side effects of little medical relevance. In counseling a greater attention should be drawn to ordering lab tests before prescribing OCs and informing a patient about side effects that worsen quality of life.

Keywords: contraceptives, side effects

A problem ignored: knowledge of medical students about resuscitation in pregnancy

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Background: The ability to perform basic life support is a crucial skill for any medicine graduate. During the studies a great emphasis is put on preparing future doctors for this extremely stressful situation, but there is one part of this topic that is being constantly ignored – performing CPR (cardiopulmonary resuscitation) on pregnant women. The trend towards postponing pregnancy until age 35 and older is continuing, so the number of resuscitations in pregnancy might be on the rise. The aim of our study was to examine what current medical students know about basic life support performed on pregnant patients.

The aim: To answer this question, we conducted an online survey among the group of 302 current medical students in Poland. It consisted of a short questionnaire about responders' personal data and subjective assessment of their knowledge about CPR in pregnancy, whereas in the second part they had to provide answers to 11 single – choice test questions. The responders could receive 1 point for each question, 11 points overall. The mean of the results was 3,74 points.

Results: 226 (74,8%) of the responders find performing CPR on pregnant women as more stressful than performing CPR on a non-pregnant victim. Only 70 (23,2%) responders assessed their theoretical knowledge of resuscitation in pregnancy as good. The mean of the results in this group was 6,03 points. 175 (57,9%) of the responders believe that their practical skills are not enough to perform CPR on pregnant women and their average score was 2,94 points. Only 87 (28,8%) responders think that their university classes prepared them to perform CPR on pregnant patients, however 285 (94,4%) of our respondents expressed interest in expanding knowledge on this particular subject.

Conclusions: Our results revealed that the knowledge of medical students about resuscitation in pregnancy is insufficient. This topic should not be ignored in order to provide the best possible care for pregnant women. Proper education of medical students is crucial.

Keywords: resuscitation, pregnancy, CPR

Why do Polish Women choose hormonal contraception? - a Cross-Sectional Study

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Background: The latest data from the Central Statistical Office showed a shift in contraceptive methods choice in the population of Polish women. A steady increase in contraceptive prevalence, usage of condoms and hormonal contraception has been observed.

The aim: The aim of this study was to investigate indications for hormonal contraception, which type of contraceptives prevails and whether sociodemographic, health care characteristics and current COVID-19 pandemic have an impact on it.

Materials and methods: A cross-sectional survey was conducted among 1009 Polish women, aged 15-69, past and current hormonal contraceptive users. An anonymous questionnaire was distributed online. Surveyed women were divided into two groups: the birth control group and the other indication group. Descriptive statistics and logistic regressions analysis were used. Categorical variables were compared using the chi-squared test.

Results: Of 1009 women involved in the study, 774 women were current and 235 were past hormonal contraceptives users. The most common indications for taking hormonal contraception were respectively: birth control, dysmenorrhea, irregular menstruation, acne and heavy menstrual bleeding. Regardless of an indication, the prevailing form of hormonal contraception was combined oral contraceptive pill. The main reason for discontinuation was side effects. COVID-19 situation had an impact on the contraceptive decision of only 8% of respondents. Birth control group (n=860) and other indication group (n=149) do not differ in terms of age, income, education and having children. Women in the birth control group less often suffered from chronic illness, declared to be single and stated not to have or have sex less than couple times a month. One-third of birth control group used condoms as an additional form of contraception.

Conclusions: Combined oral contraceptive pill is widely used by Polish women as a birth control and as a treatment of numerous gynecological conditions.

Keywords: contraception, pill, survey, polish women

The menstrual cycle at the time of the plague

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Background: The menstrual cycle recurs on a monthly basis and has its characteristics, which are affected by external factors. The pandemic influenced the lifestyle of many women, which may result in fluctuations in the menstrual cycle.

The aim: The study aims to examine the impact of the lockdown due to the COVID-19 pandemic on the menstrual cycle of female medical sciences students.

Materials and methods: An interactive self-designed questionnaire (including anthropometric and social parameters as well as questions related to lifestyle changes), consisting of 49 questions was used. Inclusion criteria: female sex, age between 18 and 35 years, medical sciences student status. Exclusion criteria: pregnancy, breast-feeding, disorders of female reproductive tract, endocrine disorders, psychiatric disorders, coagulopathies, use of contraceptives, use of certain medicines.

Results: Total of 612 female respondents, mean age 21.8 ± 2.0 years were included. There were no statistically significant changes in the mean lengths of the menstrual cycle and period during the lockdown compared to the time before. 36.9% of participants who declared having irregular menstrual cycles before the isolation, began to menstruate regularly in the pandemic. 34.8% of women who did not suffer from dysmenorrhea before, reported it during the lockdown ($p < 0.001$). 34.1% of participants observed a change in the intensity of menstrual pain at the time of the isolation. 40.5% of respondents experienced premenstrual syndrome symptoms more often, comparing to the time before the pandemic. 42.3% of women noticed more frequent perimenstrual exacerbations of dermatoses. A surprising finding is that 24% of those who previously had regular menses, experienced irregular periods during the pandemic.

Conclusions: Menstrual cycle changes, which occurred in the pandemic can contribute to an increase in the number of women consulting a physician. Knowledge of the scale of the phenomenon may assist in selection of treatment method and implementation of effective prophylaxis.

Keywords: menstrual cycle, isolation, period

Differences in expression profile of leptin and its receptors in endometrial cancer

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Background: Endometrial cancer development is mediated by abnormal cell growth along the path of uncontrolled cell proliferation, excessive activation of signaling pathways and mRNAs activity.

The aim: The aim of this study was to determine the changes of genes leptin-related which are expressed for different grades of endometrial cancer cells.

Materials and methods: The study material consisted of tissue samples and whole blood collected from 30 patients with endometrial cancer (study group; G1 = 15; G2 = 8; G3 = 7) and 30 without neoplastic changes (control group). The molecular analysis included the use of the microarray technique and RTqPCR.

Results: Out of 38 mRNAs related to leptin, 16 mRNAs were differentially expressed in endometrial cancer compared to the control at $p < 0.05$. A Tukey's post-hoc test indicated that the number of mRNAs differentiating each endometrial cancer grade from the control was as follows: G1 vs. control, 6; G2 vs. control, 6; and G3 vs. control, 4. Expression of analyzed genes were Expression of leptin and its receptors increased with the degree of differentiation of endometrial cancer (G1> G2> G3; $-3.5 < FC < 3.5$) compared to control.

Conclusions: There is an increase in the expression of leptin-related genes with the degree of grades endometrial cancer, which may making it a potential diagnostic marker.

Keywords: endometrial cancer; proliferation; mRNA

One moment only Cognizance and attitudes towards umbilical cord blood stem cell banking among women

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Background: Pregnancy and labour is a very special moment in many ways, such as being the only opportunity to collect umbilical cord blood as a source of stem cells. The use of stem cells in therapy has been known in medicine since the 1980s and the array of treatments based on it has grown since, with research pointing to even more possibilities in the future. What is important to establish is whether this broadening of opportunities is followed by an increase in knowledge and awareness of stem cells banking.

The aim: The aim of the study was to investigate women's opinion and knowledge regarding stem cells and umbilical cord blood banking

Materials and methods: 408 women were involved in the study. We have constructed an online questionnaire with the purpose of collecting respondents' personal data and opinions on the use and collection of umbilical cord blood. The final part of the questionnaire consisted of a set of questions aimed at testing the knowledge of the procedure of banking stem cells of those women who were aware of it. Statistical analysis was performed with Statistica 13.3.

Results: Out of the surveyed, 368 (90.2%) knew what "stem cells" are. 343 (84.1%) women were aware of the possibility of obtaining cells from cord blood and banking them. The OB/GYN was found to be less frequent source of knowledge (7.2%) compared to the Internet (35.7%). The average test result was 2.74 points out of 10. The most frequently correctly answered (71.7%) question pertained to the safety of the procedure to the mother and newborn. Only 7 surveyed were able to estimate the number of diseases treatable with stem cells. 260 (75.8%) women want to know more and 300 (87.50%) considered the subject important enough to warrant extra attention.

Conclusions: The level of cognizance of the subject of stem cells among respondents is very low, however, the study shows that a significant majority of women is willing to increase it and is aware of the importance of the subject given umbilical cord blood collection being a one-time opportunity.

Keywords: pregnancy; stem cells; umbilical cord blood, knowledge

Awareness of women of reproductive age on dietary folic acid supplementation

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Background: Folic acid is an essential element in the prevention of fetal birth defects. Its adequate supplementation, as well as its proper beginning, has a significant impact on reducing the incidence of birth defects.

The aim: The aim of the study was to assess the current level of knowledge of women using social media about the necessity of dietary folic acid supplementation throughout the reproductive period.

Materials and methods: The questionnaire study included 2543 female social media users of reproductive age. The women's knowledge about the necessity of folic acid supplementation throughout the reproductive period was checked. Statistical analysis was performed using Statistica program and chi2 test.

Results: It was found that more than 97.6% of the respondents know about the necessity of taking folic acid during pregnancy, but only 40.1% of the respondents consume folacin throughout the reproductive period. Women aged 18-19 and with primary education showed much lower knowledge of vitamin B9. The most frequently cited source of knowledge about folic acid was the doctor, social media, and among the youngest women, school and the internet. In our study, 77.4% of respondents were able to correctly identify natural reservoirs of folic acid with the vast majority citing green vegetables.

Concluions: There is a disproportion between the knowledge of women of reproductive age about folic acid and its use in practice. This problem is most pronounced among the youngest women and those with primary education, so there should be an increased focus on folate awareness in schools and on social media.

Keywords: folic acid, pregnancy, congenital defects

Obesity in pregnancy and childbirth-an assessment of women's knowledge

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Background: The epidemic of obesity among pregnant women has many health implications, both for the mother and the fetus, what can be a challenge for contemporary perinatal care.

The aim: The aim of the study was to assess the knowledge of Polish women about obesity in pregnancy and childbirth.

Materials and methods: In the questionnaire survey posted on social media 303 women took part. The questionnaire consisted of 23 questions about demographic data and obesity impact on pregnancy and childbirth.

Results: For 53.1% of the respondents the internet is the main source of information about obesity. 64.7% of women admitted that they don't know from what values of BMI obesity is diagnosed in pregnancy. Most of the respondents noticed that the obesity may have an impact on fertility and woman who is planning pregnancy should reduce her body weight. 84.2% of women believed that an obese pregnant patient should exercise and eat healthily. Most of the respondents correctly indicated that obesity increases the risk of gestational diabetes and pregnancy-induced hypertension-92.7% and 80.5% respectively, while the awareness of the less frequent complications was low. 46.2% of women didn't know what dose of folic acid is recommended for women with obesity. Only about half of women believed that obesity may affect the credibility of an USG and CTG. 60.1% of women stated that the perception of fetal movements by an obese woman can be weaker. 79.5% of women said that an obese woman's child is at higher risk of obesity in adulthood. 29.4% of the respondents didn't know how obesity affects the success of natural delivery. Only 37.3% of women correctly answered the question about the risk of perinatal depression. Only 57.8% of women pointed bad eating habits as the main cause of obesity in pregnancy.

Conclusions: Women's knowledge about the obesity in pregnancy is not satisfactory. Medical professionals can use the internet to share knowledge especially in younger age groups.

Keywords: obesity, pregnancy

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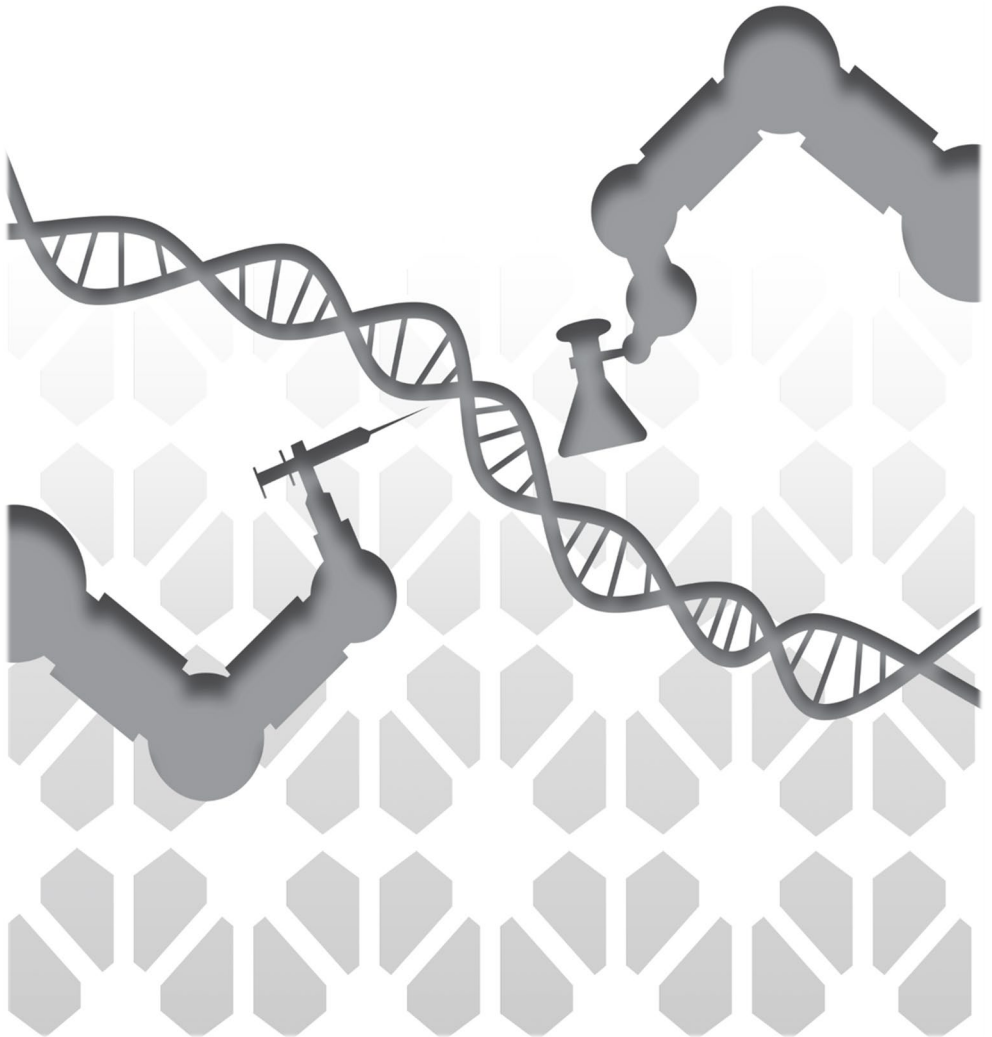


Table of contents

Characterization of <i>Clostridioides difficile</i> hospital outbreak in 33 beds Internal Ward of district hospital, Southern Silesia.....	157
Spermatogenesis Stimulation and Sperm Activation by Direct and Gradual Electrical Shocks on the Testis of Infertile Men	158
Second allo-HSCT due to relapsed AML - inter-transplant correlations of laboratory tests and their impact on remission time.....	159
Allogeneic hematopoietic stem cell transplantation for relapsed and refractory Hodgkin's lymphoma: a single center experience with 23 patients	160
Are MC4R gene variants related to metabolic syndrome?	161
Quantitative myocardial blush evaluation correlates with infarct size and systolic left ventricle function in patients with type 2 diabetes and STEMI	162
Evaluation of the focal changes in liver in patients with alveolar echinococcosis treated with albendazole.....	163
Hematopoietic stem cell transplantation as a therapeutic option for patients with lymphoblastic lymphoma – comparison of effectiveness and safety	164
Assessment of bone metabolism and the risk of bone fractures in obese men	165
Primary central nervous system lymphoma: response to front-line chemotherapy	166
Risk factor associations with cardiovascular disease among 1944 patients with diabetes mellitus: Data from one Diabetology Centre in the Silesia Region, Poland	167
The impact of cancer-related pain on patients' daily living	168
Co-infection by DNA virus in post-kidney transplant patients	169
Sodium bicarbonate therapy in patients after kidney transplantation with metabolic acidosis	170
Neurowilson without hepatic involvement : A rare case study	171

Characterization of *Clostridioides difficile* hospital outbreak in 33 beds Internal Ward of district hospital, Southern Silesia

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Background: *Clostridioides difficile* is Gram-positive, spore-forming bacterium responsible for antibiotic-associated diarrhea and life-threatening pseudomembranous colitis. *C. difficile* is an emerging healthcare problem over the world. In Poland, in 2017 the incidence of CDI was 30.4 per 100,000 inhabitants (22.7 in 2016), 11,667 cases were diagnosed and 88.1% of patients were hospitalized (NIZP-PZH data). In 2019 *C. difficile* was the main etiological factor of epidemic outbreaks in hospitals. A large percentage of *C. difficile* isolates, especially belonging to hyperepidemic rybotypes are resistant to fluoroquinolones, cephalosporins, clindamycin and erythromycin.

The aim: The aim of this study was to characterize the genetic and antibiotic resistance profile of *C. difficile* strains collected from hospital outbreak in 33 bed Internal Ward of distinct hospital, Southern Silesia.

Materials and methods: Eighteen stool samples were collected from patients with antibiotic-associated diarrhea between January – February 2019 and 16 *C. difficile* strains were isolated. Biochemical identification was confirmed using the ANC card in an automatic system VITEK 2 Compact. The strains were frozen at -80°C in Microbanks until use. MIC value was determined with E-test on Brucella Blood Agar plates with vitamin K and hemin, results were interpreted according to EUCAST v. 10.0, 2020 DNA was isolated from 16 *C. difficile* strains and the presence of 7 genes: *gluD*, *tcdA*, *tcdB*, *cdtA*, *cdtB*, 16SDNA, *ermB* was determined using multiplex PCR and electrophoresis.

Results: All isolated strains were sensitive for vancomycin, metronidazole and piperacillin with tazobactam. Fifty percent of strains were resistant to chloramphenicol, 87,5% - to moxifloxacin, penicillin, erythromycin and clindamycin, 81,3% of isolates were resistant for rifampicin. All isolated 16 strains were resistant for imipenem. In mPCR all strains demonstrated presence of toxin A gene, only 2 strains demonstrated lack of toxin B and binary toxin genes, only in 3 *C. difficile* strains *ermB* gene responsible for erythromycin resistance was absent. In the hospital outbreak under study, most of the *C. difficile* strains demonstrated multidrug resistance profile MDR (resistance to 3 and more antibiotics). One strain, resistant to erythromycin lacked the *ermB* gene, 2/16 strains demonstrated different drug resistance and molecular profile suggesting other than hospital origin.

Conclusions: Further studies are required including genotyping of the tested strains to determine infection transmission and analysis of infection control methods in this hospital to prevent new hospital outbreaks.

Keywords: *Clostridioides difficile*, outbreak, antibiotic resistance

Spermatogenesis Stimulation and Sperm Activation by Direct and Gradual Electrical Shocks on the Testis of Infertile Men

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Background: Infertility was reported in approximately 15% of all heterozygous couples, with male infertility accounting for nearly half of the cases. This typically occurs due to low sperm production, irregular sperm function, or the blockage of sperm delivery. Many factors may play a role in causing infertility among men, with the main ones being an acute or chronic illness, accidents, and lifestyle choices.

Materials and methods: In our randomized controlled single-blind clinical trial, 90 infertile male subjects were diagnosed with either oligospermia, Hypospermia, asthenozoospermia, or necrozoospermia. Semen samples were obtained via participant masturbation with examination performed to assess semen count, volume, and motility. Participants were then administered five milliamps of electrical shock through the implantation of the Testes' shocker. The final patient checkup was performed fourth months post-intervention. Data was collected and compared between (before and after) semen analysis.

Results: Findings indicate improvement in the count, volume, and motility of the patient's sperm after electrical shock treatment compared to the control group. By using ANOVA-test, there were statistically significant differences between the first seminal analysis results. All other results were found to be independently correlated.

Conclusions: Our study demonstrated that using a painless, convenient at-home device could significantly improve sperm motility and count. This device can be utilized to tackle the significant issue of infertility in a cost-effective, safe and efficacious.

Keywords: infertility, electrical shock, sperm activation, semen analysis

Second allo-HSCT due to relapsed AML - inter-transplant correlations of laboratory tests and their impact on remission time

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Work's tutor: Dr Karolina Chromik

Background: Acute myeloid leukemia (AML) is a serious neoplasm of the hematopoietic system. One of the most effective treatment remains allogeneic hematopoietic stem cell transplantation (allo-HSCT). Despite the higher success rate of this procedure in recent years, disease relapse is still often encountered. One solution can be a second allo-HSCT procedure, however a durable remission usually cannot be achieved, and further investigation of different risk factors is required.

The aim: The aim of the study was to investigate the correlation between the results of laboratory tests and the time of remission as well as to compare the results obtained during the first and second allo-HSCT performed due to AML.

Materials and methods: The study group consisted of 25 patients (16 females and 9 males) who underwent two procedures of allo-HSCT, with an average age of 45,5 (24-68) years at the time of first diagnosis. They were retrospectively analyzed at the base of their medical histories.

Results: Amongst lab test results, the significant correlation appears between bilirubin level and time to relapse (0.43; $p < 0.05$) as well as GGTP and time to relapse (-0.58; $p < 0.05$). Furthermore, there is a correlation between GGTP levels after the first and second allo-HSCT (0.48; $p = 0.15$). Otherwise, the correlation between other parameters (e.g., complete blood test, creatinine) and time to relapse is statistically insignificant, as well as mortality and time to relapse.

Conclusions: Our results may suggest that the lower the level of GGTP is (therefore the better function of the liver), the more positive is the outcome of allo-HSCT. Moreover, if the GGTP level is elevated during the first allo-HSCT, it is also raised during the second one. Another conclusion is that higher bilirubin levels did not impact graft taking. This can be explained by frequent blood transfusions and increased red blood cell rotation. Further investigation of other risk factors that influence the outcome of allo-HSCT, especially the second one, is needed.

Keywords: AML, allo-HSCT, second allo-HSCT, relapse

Allogeneic hematopoietic stem cell transplantation for relapsed and refractory Hodgkin's lymphoma: a single center experience with 23 patients

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Work's tutor: Dariusz Kata

Introduction: Hodgkin lymphoma (HL) is considered a curable disease in approximately 75% of the cases. However, patients (pts) with relapsed/refractory (RR) HL have dismal prognosis. Allogeneic hematopoietic stem cell transplantation (allo-HSCT) using reduced intensity conditioning (RIC) is a salvage option. In this study, we aimed to evaluate allo-HSCT for RR-HL.

Materials and methods: We performed a retrospective analysis of 23 RR-HL pts with a median age of 23 years who underwent allo-HSCT in our centre between 2002 and 2019. All patients received at least 3 lines of combined treatment. A median time from diagnosis to allo-HSCT was 42 months. Disease status at transplant was complete remission (CR) in 17%, partial remission in 31%, and stable/progressed disease in 52%. RIC regimens consisted of fludarabine/busulfan with additional anti-thymocyte globulin in 15 pts, fludarabine/melphalan with alemtuzumab in 5 pts and in 3 pts other nonmyeloablative conditioning regimens. Donor types were as follows: HLA-matched family in 39%, HLA-matched unrelated in 57% and one HLA-mismatched.

Results: All pts except of 1 engrafted. 20 pts achieved engraftment within 30 days. There were 2 early deaths due to the infectious complications. 12 pts developed acute graft-versus-host disease (GvHD). In 3 pts was observed chronic GvHD. Five-year overall survival was 31% and progression-free survival (PFS) was 29%.

Conclusions: Allo-HSCT represents a valid therapeutic option for patients with RR-HL. About one third of the patients may achieve long-term disease-free survival following allo-HSCT. The longest PFS was observed in pts transplanted in consecutive CR.

Keywords: allo-HSCT, Hodgkin lymphoma, relapsed, refractory

Are MC4R gene variants related to metabolic syndrome?

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Background: Abdominal obesity, high blood sugar level, high blood pressure, low serum high-density lipoprotein and high serum triglycerides are gathered as metabolic syndrome, which is associated with high risk of developing cardiovascular diseases and diabetes mellitus.

There are many factors, which are responsible for this syndrome- mainly associated with lifestyle, but also genetic ones. MC4R (melanocortin 4 receptor) genes variants have been associated with risk of developing obesity, type 2 diabetes mellitus and coronary artery disease.

The aim: To establish correlation between MC4R rs rs17782313 polymorphism and concentrations of glucose, insulin, HOMA-R and QUICKI values in the whole study group.

Materials and methods: Study group consisted of 294 patients (136 men and 158 women). Collected venous blood samples were stored at minus 70 C until study group was completed. In laboratory of Clinical Hospital 1 in Zabrze the DNA material were isolated, proper concentration of the DNA (15 ng/μl) were prepared and quality and quantity were checked by spectrophotometry. Allelic discrimination was performed in Roche Lightcycler96 thermocycler with use of fluorescent-labeled TaqMan Pre-designed SNP Genotyping Assay probes.

Results: We have not found statistically significant differences in concentrations of cholesterol, HDL, LDL, TG between genotypes in women and men.

In the whole group of patients, glucose and insulin levels did not differ significantly between TT, CT and CC carriers. We have found significant differences in values of HOMA-R and Qucki between TT,CT and CC carriers as well as between TT carriers and CT+CC carriers. CC+TT carriers have significantly lower value of HOMA-R and higher QUICKI value than TT carriers.

Conclusions: Mc4r ppolymorphism in rs17782313 may be associated with insulin resistin. Further studies are necessary to completely assess The association between investigated polymorphism, insulin resistance and risk of diabetes mellitus development.

Keywords: MC4R, SNP, metabolic syndrome

Quantitative myocardial blush evaluation correlates with infarct size and systolic left ventricle function in patients with type 2 diabetes and STEMI

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Background: Studies provide conflicting results regarding validity of the visual assessment of myocardial perfusion in diabetic STEMI patients. Cardiac magnetic resonance studies, indicate clearly that diabetic STEMI patients present higher volume of microvascular obstruction. Since patients with type 2 diabetes (T2DM) are at high risk of worse prognosis following STEMI it is important to find the methods identifying those who will have worse outcomes early enough.

The aim: The aim of the study was to evaluate the association between myocardial perfusion and infarct size as well as left ventricular function among STEMI patients with T2DM who were treated with primary percutaneous intervention (pPCI).

Materials and methods: A total of 104 consecutive STEMI patients with T2DM treated with pPCI were enrolled into this observational study. Myocardial perfusion was reassessed with the Quantitative Myocardial Blush Evaluator (QuBE). For infarct size assessment, we utilized peak activity of creatine kinase and troponin T concentration area under the curve (AUC). Echocardiographic evaluation of left ventricle systolic function was performed on the day of hospital discharge. Forward stepwise linear regression modeling has been used for assessment of relation between angiographic data and enzymatic infarct size and left ventricle function.

Results: Patients with T2DM and a QuBE score below the median value had significantly inferior procedural outcome than those with a QuBE score equal to or above the median value: epicardial flow in infarct-related artery was significantly slower (higher number of corrected TIMI frame count cTFC; $p=0.004$) with a significantly higher peak CK-MB value ($p=0.027$), troponin T AUC ($p=0.01$) and worse EF ($p=0.039$).

Conclusions: Diminished myocardial perfusion is associated with significantly larger infarct size and lower left ventricle systolic function among patients with T2DM. QuBE seems to be reliable predictor of infarct size and reduced left ventricle function in this group of patients.

Keywords: diabetes, STEMI, myocardial perfusion, infarct size, biomarkers

Evaluation of the focal changes in liver in patients with alveolar echinococcosis treated with albendazole

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Background: Alveolar echinococcosis is a parasitic disease caused by *Echinococcus multilocularis* tapeworm larvae. After ingestion of invasive eggs by a human, the oncosphere hatches in the lumen of the small intestine and then penetrates the intestinal wall in order to enter the portal circulation. It localizes itself in the liver, usually forming a non-embossed structure. Alveolar echinococcosis occurs rarely in Poland (about 40 cases a year), but in recent years there has been an increase in the incidence among humans.

The aim: The aim of the study was to evaluate the focal changes in liver in patients treated with albendazole based on the results of ultrasound examination and laboratory tests of the patients.

Materials and methods: Our study took into account 11 patients (4 men, 7 women) admitted to the Department of Infectious and Tropical Diseases and Hepatology, Department X of Warsaw's Hospital for Infectious Disease, who were diagnosed with alveolar echinococcosis in the years 2015-2018. The results of laboratory and imaging examinations on the day of the diagnosis, the day of the first control visit (6 months later) and the second control (about 12 months later) were compared.

Results: In 3 patients there were no hepatic symptoms at the time of the diagnosis. In the abdominal ultrasound examination, the lesions in the liver were described in 6 cases as cysts, in 3 cases – as litho-fluid focal lesions/changes, and in 2 as infiltrations. Lesions in the liver varied from 6 to 110 mm in diameter. In laboratory findings, GGTP was elevated in 10 patients, whereas in 3 patients it was the only elevated hepatic marker. In 6 people, there was a suspicion of neoplastic process before confirmation of the echinococcosis.

One year after the diagnosis, 4 patients underwent resection of the liver segment, in 2 patients liver lesions decreased in size, while in the rest, despite the stabilization of laboratory markers, liver lesions were not significantly reduced.

Conclusions: Despite treatment with albendazole and stabilization of liver function (due to the normalization of laboratory markers), the lesions caused by *E. multilocularis* are not decreasing in size significantly. Due to that, patients require regular follow-up visits and control USG, CT or MRI scans in periods of minimum 6 months.

Keywords: alveolar echinococcosis, abdominal USG, albendazole

Hematopoietic stem cell transplantation as a therapeutic option for patients with lymphoblastic lymphoma – comparison of effectiveness and safety

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Background: Lymphoblastic lymphoma (LBL) is a rare and highly aggressive neoplasm of the lymphoblast, accounting for less than 2% of non-Hodgkin's lymphoma (NHL). The lymphoblast cells can be committed to the B- (B-LBL) or T-cell lineage (T-LBL).

The aim: To assess the safety and effectiveness of hematopoietic stem cell transplantation (HSCT) in patients with lymphoblastic lymphoma.

Materials and methods: The candidates for HSCT in LBL were seventeen patients (7 females and 10 males) with the median age of 32 (range: 19-59). Amongst them, thirteen had T- LBL diagnosis and 4 – B - LBL. The patients were grouped according to whether they received allogeneic hematopoietic stem cell transplantation (allo-HSCT) (n = 9, 60%) or autologous hematopoietic stem cell transplantation (auto-HSCT) (n = 6, 40%). The clinical stage for B - and T - LBL was performed using the Ann Arbor staging system – 9 patients were in III-IV stadium and 8 patients were in I-II stadium.

Results: The treatment protocols, which were used in this group of patients were: PALG-ALL (n=6, 35,3%), Hyper-CVAD (n=3, 17,6%), GMALL (n=2, 11,8%) and other protocols (n=6, 35,3%). After applied chemotherapy, 60% (n=9) patients were evaluated as complete response (CR). Moreover, five of them were qualified to auto-HSCT. Seven patients developed acute graft versus host disease (aGVHD) after allo-HSCT: 6 with grade I aGVHD and 1 with grade II aGVHD (based on International Bone Marrow Transplant Registry Severity Index) – finally this patient progressed to a cutaneous form of chronic GVHD (cGVHD). All of them were diagnosed with T - LBL. The overall survival (OS) median in the allo-HSCT group was 41 months vs 17,5 months for auto-HSCT.

Conclusions: Allo-HSCT is more effective for the treatment of LBL in the group of patients who evaluated CR. Unfortunately, allo-HSCT was associated with greater complications – such as graft versus host disease.

Keywords: lymphoblastic lymphoma, allogeneic stem cell transplantation, autologous stem cell transplantation, and safety

Assessment of bone metabolism and the risk of bone fractures in obese men

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Introduction: Obesity and metabolic syndrome are increasingly occurring among the adult population. There is a well-known relationship between those two conditions and cardiovascular diseases, but we do not know much about how obesity and metabolic syndrome affect bone metabolism and fracture risk. The study aimed to assess fracture risk and the parameters of bone metabolism in obese men with central obesity and metabolic syndrome, which was then compared with healthy controls.

Material and methods: The study involved 36 obese men (BMI \geq 30) with central obesity (WC \geq 94) and 10 age-matched healthy men as controls. FRAX-calculator was used to measure 10-year fracture risk. The levels of bone metabolism markers such as OPG, CTX, and FGF-23 were determined in patients.

Results: FRAX was significantly lower ($p < 0.001$) in obese men when compared to the controls. A significant negative correlation between FRAX and BMI ($p < 0.001$) was observed in obese men, but not in healthy subjects. There was also a negative correlation between FRAX and WC ($p < 0.001$), again only among obese patients. A positive correlation ($p < 0.01$) between FGF-23 and FRAX was found in the non-obese group.

Conclusions: Obese men are characterized with a lower 10-years fracture risk. Additionally, increased BMI and waist circumference in obese men were found to be connected with a decreased bone fracture risk, but there was no similar relationship in controls. Moreover, healthy subjects with higher FGF-23 levels have an increased 10-year fracture risk.

Keywords: obesity, metabolic syndrome, osteoporosis, bone fractures, male, FGF-23, OPG, FRAX

Primary central nervous system lymphoma: response to front-line chemotherapy

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Background: Primary central nervous system lymphoma (PCNSL) is an extranodal form of non-Hodgkin lymphoma located within the brain, eye and cerebrospinal fluid. Typically, it shows no systemic spread. As it is relatively uncommon, little is known about the optimal treatment.

The aim: To assess the effectiveness and safety of different chemotherapy regimens in patients with PCNSL.

Materials and methods: 16 patients (9 females and 7 males) with PCNSL at the median age of 50 years (range: 44-69) were included in this study. They received chemotherapy as a front-line treatment for PCNSL. In the first part of the treatment the patients received various chemotherapy regimens, mostly based on rituximab, methotrexate and vincristin- 12 of them received R-MIV (rituximab, methotrexate, ifosfamide, vincristine) regimen. In the second part of treatment, the regimens were more diversified among patients, as only 5 of them kept receiving R-MIV.

Results: After the first part of the treatment, 4 patients achieved complete remission (CR) and 7 patients received partial remission (PR). 1 patient passed away due to the toxicity of the treatment and kidney failure. The status of the 4 patients was unknown, and it remained so. After the second part of the treatment, 7 patients achieved CR and 1 patient achieved PR. 1 patient was disqualified from further treatment due to liver damage, and 1 patient passed away, but the cause of death is unknown. Side effects of chemotherapy were observed in 13 patients, ranging from mild to severe. 7 patients were qualified to autologous hematopoietic stem cell transplantation (AH SCT); one passed away during the procedure.

Conclusions: Response to front-line chemotherapy seems to be satisfactory, however the treatment can bear the risk of severe side effects. Chemotherapy followed by AH SCT seems to be the optimal treatment for patients with PCNSL.

Keywords: central nervous system lymphoma, chemotherapy, transplantation

Risk factor associations with cardiovascular disease among 1944 patients with diabetes mellitus: Data from one Diabetology Centre in the Silesia Region, Poland

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Background: Despite advances in diabetes management cardiovascular diseases remain the main cause of death in patients with diabetes worldwide.

The aim: To describe the demographic and clinical characteristics of patients with diabetes mellitus according to the presence of cardiovascular disease (CVD), defined as stroke, transient ischemic attack, coronary artery disease, peripheral artery disease and heart failure.

Materials and methods: We conducted a cross-sectional study on 1944 patients with diabetes who were hospitalized in one Diabetology Centre in the Silesian region, Poland between 2015-2019. There were 1520 patients with type 2 diabetes (T2DM) and 424 patients with type 1 diabetes (T1DM), of whom 791 (40.7%) had a history of CVD. We compared the demographic and clinical data listed of patients with and without CVD and determined independent associations of CVD using multivariable regression analysis.

Results: On multivariable regression analysis, CVD was associated with presence of T2DM ($p<0.0001$; OR=5.85; 95%CI: 3.65-9.37), atrial fibrillation ($p<0.0001$; OR=6.60; 95%CI: 3.51-12.40), chronic kidney disease (CKD, defined as $eGFR \leq 60$ ml/min/1.72 m²; $p<0.0001$; OR=2.54; 95%CI: 1.86-3.46), duration of diabetes ($p<0.0001$; OR 1.04; 95%CI: 1.02-1.06), total cholesterol serum level ($p<0.0001$; OR= 0.76; 95%CI: 0.70-0.86) and treatment with statins ($p<0.0001$; OR=3.34; 95%CI: 2.44-4.56).

Conclusions: CVD among patients with DM is associated mainly with T2DM, longer time of diabetes duration, higher prevalence of CKD and AF as well as lower cholesterol concentration and higher use of statins. Besides time of diabetes duration, CVD is mainly related to modifiable risk factors with major implications for a holistic approach to CVD prevention management in T2DM patients

Keywords: diabetes mellitus, cardiovascular disease, risk factors, cross-sectional study

The impact of cancer-related pain on patients' daily living

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Background: Pain management is an integral part of cancer therapy. Due to the prevalence of cancer diseases in the population, it is necessary to provide oncological patients with analgesic treatment so that they can function in society and they are not forced to abandon the activities they used to perform in a state of full health.

The aim: The aim of the study was to determine the relationship between the occurrence of pain, its severity on the NRS scale and the depressive mood and obstacles in the daily functioning of oncological patients.

Materials and methods: A survey was conducted among 194 patients treated in two oncological departments of Medical University of Silesia. The questionnaire contained 14 questions about the patients' experiences with cancer pain and its treatment. Statistical analysis was performed using the TIBCO Statistica 13.3 software and the Astatsa calculator.

Results: 77 patients (39.9%) declared the presence of acute or chronic (> 3 months) cancer-related pain. Among these patients, the median of NRS value was 3. Half of the patients (50%) reported mild pain (NRS 0-3), 26.3% - moderate (NRS 4-6), and 23.7% - severe (NRS 7-10). In 67.9% of respondents, pain caused a depressed mood, more often in patients with more severe pain ($p=0.0001$). In the same group of patients, pain interfered with their daily functioning ($p=0.0001$). No correlation was found between the severity of pain and the stage of the tumor, its location or gender of the patients ($p>0.05$). Medical staff was asking 148 patients (76.7%) about the presence of pain, significantly more often in the group of patients who had already felt pain ($p=0.014$).

Conclusions: In the study group, severe pain impaired everyday functioning and caused a depressed mood. Oncological patients who did not declare pain sensation were asked less frequently about pain symptoms by medical staff.

Keywords: pain management, cancer pain, oncology

Co-infection by DNA virus in post-kidney transplant patients

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Work's tutor: MuDr. Miroslav Fajfr

Background: Polyomaviruses (JCPyV and BKPyV) and cytomegalovirus (hCMV) are the main viral pathogens affecting recipient outcomes after allogenic kidney transplantation. It has been found that infection with both viruses has a greater impact on kidney graft function than a single infection. The main aim of the project was to investigate DNA virus co-infections in post-renal transplant patients and their possible impact on clinical outcomes.

Materials and methods: Our study consisted of a total of 180 patients (120 recipients and 60 donors). Blood and urine samples were collected 1-year post-transplantation (between 2017 and 2020). BKPyV positive patients were included and subsequently screened for the presence of hCMV and JC polyomavirus (JCPyV). The PCR was performed via the RotorGene instrument. Patients with coinfections were evaluated for clinical outcomes.

Results: 36 patients developed BKPyV positivity during the first year after kidney transplantation. 3 patients expressed co-infection by BKPyV and JCPyV and 3 patients with co-infection by BKPyV and hCMV. In total 5, patients developed BK nephropathy and in 1 case it was associated with a co-infection (BKPyV+JCPyV coinfection). No acute graft rejection was noted.

Conclusions: BK virus nephropathy is a serious complication of kidney transplantation. 10%– 30% of recipients have BK viremia and nephropathy occurs in approximately 2% (Sawinski 2018). BKPyV reactivation is possibly enhanced in JCPyV co-infection and must be monitored carefully for 12 months post-transplantation. There are currently no antiviral treatments for Polyomaviruses, and reduction or revision in immunosuppressant regime pose threats to both graft and recipient. This further highlights the importance of screening and risk-stratification based on serology.

Keywords: polyomavirus, renal transplant, cytomegalovirus

Sodium bicarbonate therapy in patients after kidney transplantation with metabolic acidosis

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Work's tutor: Damian Gojowy, MD;
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Background: Metabolic acidosis (MA) contributes to increase mortality and disease progression in patients with chronic kidney disease (CKD).

Materials and methods: The current prospective, interventional study involves 24 patients. All patients were treated with sodium bicarbonate during 6 weeks to achieve blood HCO₃⁻ concentration above 22 mmol/l. One patient during the study period initiated hemodialysis and was excluded from the analysis. Therefore, 23 patients after kidney transplantation (KTx) with MA aged 52.3 (47.2–57.4 years) were analyzed.

Results: Treatment with sodium bicarbonate resulted in significant increase of blood HCO₃⁻ concentration in 6 weeks of follow-up [17.3 (16.3-18.3) and 22.3 (20.9-23.7 mmol/l), respectively; p<0.001]. In 19 patients (86%) at least temporarily normalization of blood HCO₃⁻ concentration was achieved. The mean daily dose of sodium bicarbonate after 6 weeks of treatment was 2.7 (2.1-3.4) g. There was no difference in eGFR [30.9 (25.3–36.5) vs 34.2 (24.5–43.9) ml/min/1.73m²], systolic blood pressure [140.5 (131.5-149.5) vs 144.2 (137.9-150.5) mmHg], K⁺ [4.8 (4.6–5.0) vs 4.7 (4.5–5.0) mmol/l] and Na⁺ [140.0 (138.4–141.7) vs 140.9 (139.3–142.4) mmol/l] plasma concentration at the beginning and after 6 weeks of treatment. Acute rejection episodes, significant changes of tacrolimus or cyclosporin A blood concentrations and serious adverse events were not observed in studied patients.

Conclusions: Treatment of MA with sodium bicarbonate is effective, safe and well tolerated in majority of KTx patients.

Keywords: metabolic acidosis; sodium bicarbonate; kidney transplantation

Neurowilson without hepatic involvement : A rare case study

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Work's tutor: Internal Medicine PG

Background: Wilson's disease is a rare autosomal recessive disorder of copper metabolism due to mutation of ATP7B gene located on chromosome 13.

Objective: The objective of this clinical case report is to bring forth the importance of applying theoretical training to practice in diagnostics.

Case description: A 14-year-old Indian female patient, who is a known case of Wilson's disease, was brought to the hospital with a history of generalized rigidity (progressive) for the past 3 months, altered sensorium for the past 1 month, inability to walk for the past 3 months and difficulty of speech for the past 15 days. Investigations revealed that her 24 hours urinary copper excretion was 275micromol/day, serum ceruloplasmin was less than 0.2mg/dl. She also presented with Kayser- Fleischer ring and her MRI revealed an acute infarct in periaqueductal gray- white matter. On examination, the patient was awake but not oriented and was unable to obey commands. Examination of other systems and vitals was normal. Patient was started on zinc, syndopa, baclofen and after obtaining a review from hepatology, was started on penicillamine. The patient is kept under strict observation to monitor her condition.

Conclusion: Neurological complications in Wilson's can vary extremely and a high index of suspicion is necessary to diagnose the condition effectively. Early treatment is crucial in preventing a debilitating outcome in the patient. It is important to keep the social factors in mind as storing of food and drinking water in copper pots is a prevalent practice in India.

Summary: This case of Neurowilson requires sharp skills on the clinician part with a keen eye for picking out the specific symptoms. Patient presented with advanced neurological complications and a failure to accurately diagnose her and start the appropriate treatment for her could have proved catastrophic.

Keywords: Neurowilson, kf ring, 24hours urinary copper

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SESSION OF INTERNAL MEDICINE II

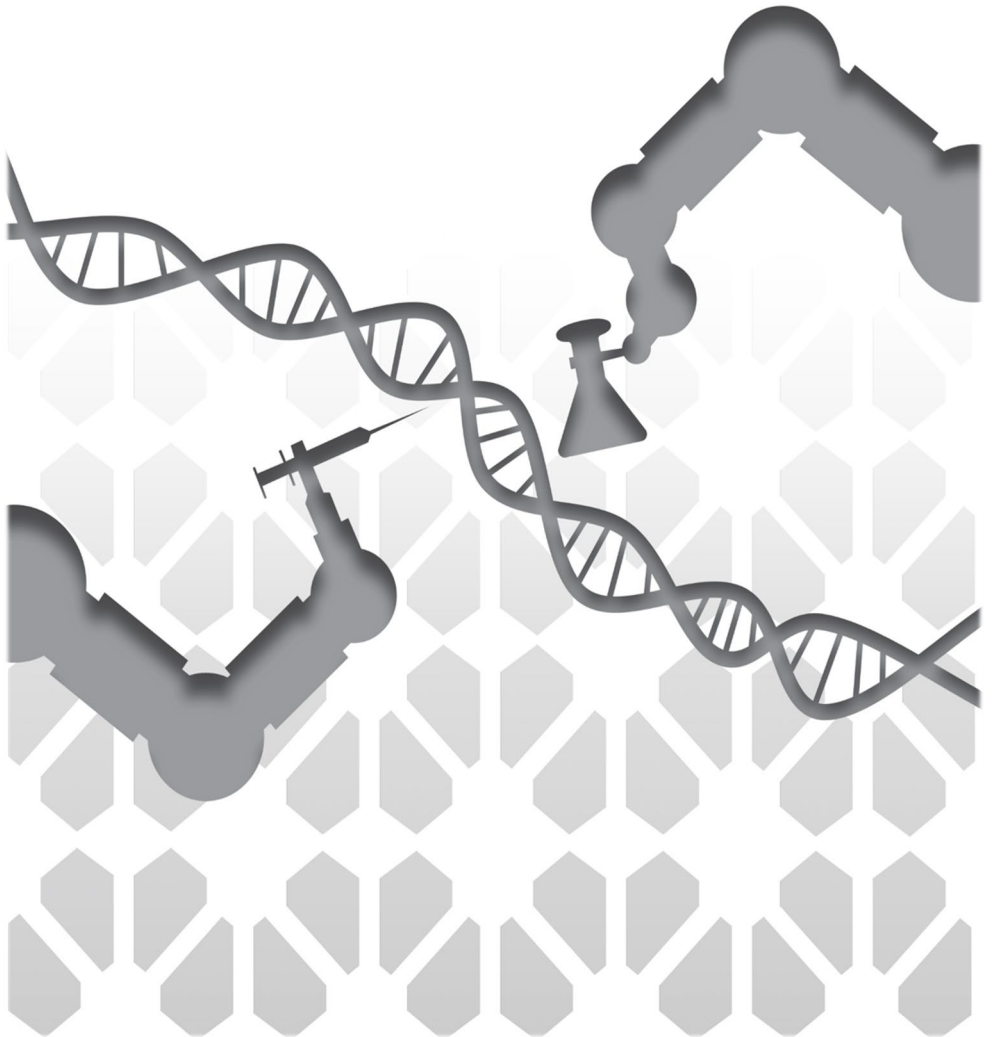


Table of contents

Varied shades of Sjögren's syndrome- never judge a book by its cover – case report	175
Almost complete response after hypofractionated radiotherapy with hyperthermia in a patient with unresectable low-grade pelvic fibromyxoid sarcoma.....	176
Challenge of treating Still disease: strengths and weaknesses of tocilizumab therapy – case report.....	177
Unusual case of Wegener’s granulomatosis	178
Case report of terminal ileitis caused by adjuvant oral capecitabine	179
Diagnostic difficulties in the differentiation of diseases associated with the presence of fluid in the pleural cavity.....	180
The helplessness of modern medicine:Adenoid Cystic Lung Cancer	181
Suspected pituitary adenoma secreting both thyrotropin and prolactin—a case report.....	182
Coexistence of PCC and ACTH-independent hypercortisolemia - diagnostic difficulties. Case report.....	183
Hyponatremia induced by thiazide and thiazide-like diuretics.....	184
Kaposi's sarcoma without cutaneous involvement after kidney transplant.	185
Severe pulmonary tuberculosis requiring intensive care: a case report.....	186

Varied shades of Sjögren's syndrome- never judge a book by its cover – case report

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Background: Sjögren's syndrome is a chronic inflammatory autoimmune disease. It is characterized by lymphocytic infiltration of exocrine glands, leading to their significant destruction and dysfunction. Lacrimal and salivary glands are commonly affected, causing dryness of eyes and mouth. Patients may also develop a wide range of severe systemic manifestations.

Case description: The subject of the study is the case presentation of a 64-year-old woman who experienced the following symptoms: intensified dryness of eyes and mouth, which particularly developed severe ocular manifestations such as keratopathy and numerous conjunctival adhesions in both eyes as well as corneal ulceration of the right eye. Aforementioned state of the right eye was qualified for keratoprosthesis transplant. These conditions required both intensive pharmacological and surgical treatment. Sjögren's syndrome was diagnosed on the basis of symptoms, a positive Schirmer test and the presence of SS-A antibodies. Except for ocular symptoms, the patient developed other systemic signs associated with respiratory, digestive and osteoarticular systems. Permanent coughing up purulent discharge, articular and muscle pain, decreased exercise tolerance, chronic obstructive pulmonary disease and gastroesophageal reflux disease caused significant decrease in the quality of patient's life.

Conclusions: This work provides an interdisciplinary overview of a case of systemic disease. Although, the main clinical manifestations are severe ophthalmic complications, the patient suffers from other diseases that very often accompany Sjögren's syndrome. It should be emphasized that patients with Sjögren's syndrome should be provided with multidisciplinary care in order to ensure better control and treatment of primary and comorbid diseases. Widespread underappreciation of Sjögren's syndrome leads to significant underdiagnosis, delays in diagnosis and consequent morbidity and mortality.

Keywords: Sjögren's syndrome, ocular manifestations, systemic manifestations

Almost complete response after hypofractionated radiotherapy with hyperthermia in a patient with unresectable low-grade pelvic fibromyxoid sarcoma

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Background: The primary treatment for low-grade STS is resection, sometimes combined with chemotherapy, radiotherapy. However, low-grade STS seem to be chemo-radioresistant. Thus, the management of locally advanced or unresectable disease is challenging. We believe that the addition hyperthermia (HT) to hypofractionated RT allow obtaining good local control with acceptable treatment toxicity (prospective phase II clinical trial SINDIR NCT03989596).

The aim: The aim of the study was to present a case from the aforementioned study of a patient with unresectable pelvic low-grade fibromyxoid sarcoma with almost complete response after RT+HT.

Case description: A 52year old women was admitted to Institute of Oncology with a low-grade fibromyxoid sarcoma of pelvis. In MRI a 9cm pelvic mass in contact with a right iliac bone was visible. The tumor was unresectable. Due to the extent of the disease, anthracycline-based chemotherapy was proposed. She received 3courses according to AI regimen, however, no satisfactory response has been achieved. Then participation in SINDR trial was proposed-December 2018.After obtaining an informed consent, she began the first part of RT+HT, namely 3.25 Gy per fraction-total dose 32.5Gy+4deep HT (BSD2000hyperthermia system). The treatment tolerance was good, grade 2 intestinal and skin toxicity according to Common Terminology Criteria for Adverse Events v4.0 was observed. After 6 weeks-February2019, the next MRI revealed the tumor regression, however, only an attempt of very extensive surgery with permanent stoma was possible. Then it was decided to add a boost of RT+HT according to SINDIR protocol without surgery. She received 4Gy per fraction-total dose of 16Gy+2deep HT. In December 2019 a gradual regression of the tumor was observed.

Conclusions: The case shows that RT+HT may be an effective treatment in patients with locally advanced potentially chemoresistant STS. It provides a good local disease control with acceptable toxicity. The full results of SINDIR clinical trial are awaited.

Keywords: soft tissue sarcomas, radiotherapy, sarcoma of pelvis,clinical trial

Challenge of treating Still disease: strengths and weaknesses of tocilizumab therapy – case report

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Background: Tocilizumab is a humanized monoclonal antibody against receptors of IL-6, which is a pleiotropic pro-inflammatory cytokine. It plays an important role in immune response and is implicated in the pathogenesis of many diseases, f.e. Still disease. The effect of IL-6 is weakened by tocilizumab, usually administered by monthly intravenous infusion.

Case description: The patient we describe was diagnosed at the age of 26. Neither form of therapy of his illness was effective, only biological treatment in the form of tocilizumab brought positive long-term effects. However, this form had serious side effects such as impaired liver function, manifested by elevated levels of unbound bilirubin. For this reason, tocilizumab treatment was discontinued, but due to the deteriorating patient's condition and the lack of effects after alternative trials, it was necessary to return to previous scheme. Eventually tocilizumab was the only effective and approved drug that ultimately performed its targets well. Importantly, the results were better after the second try.

Conclusions: Despite the many options available and the high effectiveness of biological treatment, it does not lack side effects. Tocilizumab seems to be exciting new therapy, having great database on its effectiveness as monotherapy and strong clinical and economic standpoint. It is crucial to spread awareness that the key of effective cure is to establish strategies for individual patients. What is necessary is to check the outcomes, conduct systematic blood tests, check liver and kidney parameters. Sometimes there is no perfect option and the method that will give the most benefits and the least losses has to be chosen.

Keywords: tocilizumab, Still disease, biological treatment

Unusual case of Wegener's granulomatosis

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Background: Wegener's granulomatosis is a rare multi-systemic disease characterized by necrotizing granulomatous inflammation of the upper and lower respiratory tracts and general focal necrotizing vasculitis (commonly known as Wegener's triad).

The diagnosis of Wegener's granulomatosis is suggested from the clinical and laboratory findings and from the presence of circulating anti-neutrophil cytoplasmic antibodies (ANCA) although the absence of ANCA does not exclude the diagnosis. Histopathological examination of lesional and peritoneal tissue is not pathognomonic, but is essential to confirm the presence of disease and exclude other disorders.

Case description: We described a case of 50-year-old Woman with pansinusitis, vision abnormalities in left eye, damaged(paralysed) nerves II and III on the left side. C-ANCA and ANA were negative, she had thrombocytosis, Her CRP was 16.0 mg/dl Fluid obtained from Her sinuses tested positive for MSSA so She was treated with Fluconazole and Metronidazole – but that haven't led to clinical improvement of Her condition. Later She developed loss of vision in left eye and subconjunctival hemorrhage. Then She also tested positive for C-ANCA. Because we suspected systemic vascular disease She was given corticosteroids. She was treated with IV methyl prednisolone 1g daily for 3 days followed by oral prednisolone 1mg/kg body weight and oral cyclophosphamide. Her condition improved rapidly and on follow up after 2 months She was reasonably well but vision field disturbances and exophthalmus in left eye remained.

Conclusions: In this report, we wanted to show that Wegener's granulomatosis, although it is a rare disease, should be considered a possible diagnosis in clinical setting similar to the one described above.

Keywords: Wegener's, granulomatosis

Case report of terminal ileitis caused by adjuvant oral capecitabine

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Background: Lower gastrointestinal hemorrhage (LGIH) is a common gastroenterological emergency, which may be life-threatening in a small subset of patients. In rare cases, rectal cleansing enemas may injure rectal tissue and cause LGIH.

Case description: We present an 84-year-old female with such a clinical picture – furthermore, the bleeding diathesis failed to respond to traditional endoscopic treatment modalities and was becoming a life-threatening emergency. Due to her age and multiple co-morbidities, she was a poor surgical candidate. Lack of access of interventional radiology, hemostasis was attempted by using mechanical tamponade with a Sengstaken-Blakemore tube. Our unconventional application of this device for the management of treatment refractory LGIH provides further evidence that supports its use in stabilizing select patients with elevated shock indices.

Keywords: capecitabine, diarrhea, ileitis

Diagnostic difficulties in the differentiation of diseases associated with the presence of fluid in the pleural cavity

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Background: Pleural mesothelioma is an aggressive cancer. In about 80% of patients, the history indicates long-term exposure to asbestos, and less frequently to smoking. The most common symptoms are: chest pain and hydrothorax, accompanied by: coughing, weight loss and general weakness. The median survival is about 6-18 months.

A pleural empyema is most often the result of a complicated parapneumonic fluid. It is manifested by fever, cough, suffocation and tachypnoea, less frequently pain in chest, weight loss, and weakness.

The aim: The presented case shows diagnostic difficulties in differentiating the above-mentioned diseases with an increase in the amount of fluid in the pleural cavity.

Case description: A 82-year-old man presented with severe chest pain (from 3 weeks) intensifying at night. He also reported: weight loss, night sweats, chronic cough, but not any recent infection. The patient was exposed to asbestos for many years. He has been smoking for 50 years. Tests showed: extensive shadows on the X-ray, the presence of fluid in the right pleura, CRP slightly elevated, high levels of: D-dimers, fibrinogen and PLT. Preliminary diagnosis was hydrothorax with suspicion of pleural mesothelioma, taking into account the long-term exposure to asbestos. Microbiological examinations did not indicate any infection. CT revealed pleural effusion (empyema) and mediastinal lymphadenopathy. Pleural adhesions and bleeding interrupted the videothoracoscopy so thoracotomy was performed. Histopathological examination excluded pleural mesothelioma and a pleural empyema was diagnosed.

Conclusions: Awareness of the frequency, symptomatology and etiology of pleural fluid is the key to selecting the appropriate tests and treatment. Any suspicion of cancer should initiate an insightful diagnostic process until the disease is ruled out or diagnosed.

Keywords: difficulties in the differentiation of diseases associated with the presence of fluid in the pleural cavity

The helplessness of modern medicine: Adenoid Cystic Lung Cancer

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Background: Adenoid Cystic Carcinoma (ACC) is a rare cancer typical for the salivary glands. Its primary location in the lung accounts for 0.04-0.2% of all pulmonary tumors. The basic form of treatment is surgical removal, but the massive infiltration of adjacent structures disqualifies the patient from the procedure. There are no guidelines for further patient management.

Case description: A 27-year-old woman sought medical attention with the following symptoms: hemoptysis, recurring for about three years, gradually decreasing exercise tolerance and dyspnea. Computer tomography of the chest revealed a nodular lesion of the right lung hilum with mediastinal lymphadenopathy. The tumor altered the position of the right pulmonary artery, obstructing the bronchus of the right inferior lobe resulting in atelectasis. The bronchofiberscope examination revealed an obstruction to the entrance of the right main bronchus at 90% diameter. Histopathological examination revealed adenoid cystic carcinoma. Endoscopic ultrasound was performed, which showed a mass infiltrating right pulmonary vessels, left atrial venous drainage and its anterior wall. Due to the vascular and cardiac infiltration, the patient was disqualified from the surgery. With the absence of guidelines regarding further treatment, induction treatment with Imatinib was attempted in order to achieve tumor regression. Nonetheless, it did not bring the intended results.

Conclusions: Treatment of a pulmonary ACC, due to its rarity, is a major challenge for modern medicine. Further management is limited due to the lack of clear guidelines in similar cases. Research regarding a larger group of patients with this type of cancer is needed.

Keywords: rak gruczołowo-torbielowaty, Imatynib

Suspected pituitary adenoma secreting both thyrotropin and prolactin – a case report

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Background: Thyrotropin (TSH)-secreting pituitary adenoma is a rare cause of hyperthyroidism, representing 0.5-1.0% of all pituitary adenomas. Most TSH-secreting adenomas produce only TSH. However, 20-25% of them secrete one or more other hormones, predominantly growth hormone or prolactin. The co-secretion of TSH and prolactin is five times more common in women than in men.

Case description: A 48-year old woman reported to Department due to newly-found thyroid nodules in 11.2019. She had no prior history of endocrine diseases. There, patient undergone a neck USG assessment, in which 3 thyroid nodules were found. In the right lobe-1 hypoechoic lesion with the diameters of 4.3x6.9x8.4mm with blurred borders (the biopsy was indicated). The two other nodules were not alarming. The woman had undergone a fine needle aspiration (FNA) biopsy—the results revealed a Bethesda Category III. A follow-up USG and FNA were recommended after 6 months. The patient's thyroid hormone levels were examined in 11.2019 and 12.2019. The lab results revealed elevated fT3 and fT4, while the TSH remained within normal limits. In order to find the source of excessive fT3 and fT4, thyroid scintigraphy with radioiodine was done in 01.2020. It revealed no hot nodules and the uptake after 24 hours was 44%. We excluded chronic autoimmune thyroid disease such as Graves' disease due to negative TRAb, ATG and ATPO. Moreover, further blood tests revealed hyperprolactinaemia. In 08.2020 the patient started to complain of hot flushes, hyperhidrosis and palpitations. It was difficult to estimate if the signs and symptoms presented were connected with the elevated free thyroid hormones and hyperprolactinemia especially that patient was in premenopausal period after a hysterectomy in 2011 (due to uterine leiomyomas). The MR of the brain was performed in 11.2020. It revealed a hypointense lesion in the left lobe of anterior pituitary. It was classified as an adenoma. The patient will be admitted into our department in 05.2021 to undergo a series of hormonal test to exclude or confirm a pituitary adenoma secreting both thyrotropin and prolactin and to exclude thyroid hormone resistance syndrome.

Conclusions: Although a pituitary adenoma secreting both thyrotropin and prolactin is a rare occurrence, the constellation of findings in this patient require a thorough disease-oriented diagnostic process. During the planned hospital stay TRH stimulation tests will be performed in order to exclude or confirm this diagnosis.

Keywords: Thyroid hormones; hyperprolactinaemia; pituitary adenoma;

Coexistence of PCC and ACTH-independent hypercortisolemia – diagnostic difficulties. Case report

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Background: The case applies to a 61 year old woman diagnosed with pheochromocytoma of the right adrenal gland, ACTH-independent hypercortisolemia, chronic kidney disease, resistant arterial hypertension, diabetes type 2 and hypercholesterolemia.

Case description: The patient was referred to the hospital for more detailed endocrine diagnostics. After analyzing the obtained results a decision was made-right adrenal gland adrenalectomy. After the operation the patient's condition improved significantly: blood pressure was normalized, insulin therapy was replaced with oral therapy and cortisolemia was correct.

This case presents the problems faced by endocrinologists due to coexistence of several systemic diseases: resistant hypertension, diabetes, chronic kidney disease and hypercholesterolemia. Only the coexistence of these diseases affects the results of endocrinological diagnostic tests. The patient had decompensated diabetes which resulted in polyuria, this could have an impact on the results of the concentration of the tested substances in the urine. Abnormal renal parameters also indicated an exacerbation of chronic kidney disease which could have a significant impact on the results of the dexamethasone test. The medications that the patient was taking were another difficulty. Due to the patient's resistant arterial hypertension it was not possible to discontinue the antihypertensive drugs. They are a component that significantly affects the results of endocrine tests and in practice it is recommended to discontinue them for several weeks before the tests (optimally 4 weeks). Other medications taken by the patient which may significantly affect the obtained results of the tests should also be taken into consideration.

Conclusions: The described case shows how surprising and unexpected the diagnostic process can be.

Keywords: hypercortisolemia, pheochromocytoma, diagnostic difficulties, coexistence of diseases

Hyponatremia induced by thiazide and thiazide-like diuretics

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Background: In some patients with arterial hypertension the use of thiazide and thiazide-like diuretics drugs may cause serious side effects such as hyponatremia induced by thiazide and thiazide-like diuretics (TIH).

Case description: 49-year-old woman with hypertension was treated with valsartan. In the morning, on the first day of summer holiday in Italy, a woman use a combined drug containing valsartan 80 mg and hydrochlorothiazide (HCT) 12.5 mg instead valsartan only, as usual. On the same day, the patient was exposed to sunlight for a long time and drank a lot of fluids. The next morning (20 hours after use of HCT), the patient initially experienced mental and neurological disorders without features of focal damage to the central nervous system (i.e. headache, weakness, nausea, impaired motor coordination, speech slowness, disorientation). In the following hours (after about 24 hours after use of HCT) a grand mal epileptic seizure occurred. The patient with cerebral edema was hospitalized in the intensive care unit (ICU) where she remained in a pharmacological coma for a week. At admission to the ICU, natremia was: 112 mmol/l. Hyponatremia was corrected in the following hours and days. In the following weeks, natremia was normal. After 4 weeks, hormonal tests excluded the SIADH, hypothyroidism as well as adrenal gland insufficiency and TIH was diagnosed. The patient was advice not to use thiazide or thiazide-like diuretics. For the next two years, the patient was treated with valsartan and during this period natremia was always normal.

Conclusions: TIH is a clinically significant complication of the use of thiazide and thiazide-like diuretics and may occur even after single use of this drugs.

Keywords: thiazide and thiazide-like diuretics, hyponatremia

Kaposi's sarcoma without cutaneous involvement after kidney transplant

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Background: Kaposi's sarcoma (KS) is one of the most typical malignancies after kidney transplantation, strongly associated with HHV-8 virus infection. More than 90% of patients have primary skin changes, that make the diagnosis easier and faster. The lack of skin lesions is considered rare, especially in the iatrogenic type of sarcoma, including patients on immunosuppression; and may cause a diagnostic challenge due to the variety of organ involvement, imitating other diseases. The aim of this case presentation is to raise attention to atypical clinical manifestation of this malignancy.

Case description: We present a case of a 33-year-old woman – kidney transplant recipient, diagnosed with disseminated stage of KS. The patient was on immunosuppression regimen since the age of 17 years due to chronic glomerulonephritis. The woman was diagnosed with KS in clinical stage IV during check-up at the nephrology ward, two years after transplantation, before planned arteriovenous fistula closure presenting signs and symptoms of progressive dyspnea and fatigue during ten months. The detection of the enlarged cervical lymphatic nodes and pulmonary metastases in X-ray were the first symptoms of KS. There were no skin lesions. A cervical lymph node biopsy revealed Kaposi sarcoma cells, CD34(+), CD31(+), vimentin(+), fascin(+), S-100(-), SMA(-), CD68(-). The CD23 and CD21 staining were positive in the dendritic cells of preserved lymphoid follicles of the lymph node. The patient completed 9 cycles of chemotherapy with liposomal doxorubicin (Caelyx), commonly used for the treatment of KS. Complete remission (CR) was confirmed by PET-CT scan. The patient remains in CR with functioning graft for 7 years.

Conclusions: The cancer was diagnosed with about 10 months delay due to the lack of skin lesions. Regardless of late diagnosis in dissemination stage of the disease the patient was successfully treated with chemotherapy.

Keywords: chemotherapy, immunosuppression, kidney transplantation,

Severe pulmonary tuberculosis requiring intensive care: a case report

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Background: Tuberculosis is a highly infectious disease which is considered to be curable under the right conditions, yet it remains as one of the top ten causes of death worldwide. Severe cases of pulmonary tuberculosis may lead to the development of acute respiratory failure and require intensive care.

Case description: We present a case of a 38-year-old woman who was transferred from the Tuberculosis and Lung Diseases Ward to the Intensive Care Unit due to acute respiratory failure in the course of tuberculous pneumonia. The patient was presented originally to hospital with a history of cough, weight loss, weakness and subfebrile states for a few months. During the hospitalization her condition deteriorated and required admission to the Intensive Care Unit. Chest computed tomography showed thick-walled cavities in the upper lobes of both lungs, consolidations, massive bronchiectasis and numerous scattered lumps, while CT angiography revealed peripheral pulmonary embolism. The patient developed multi-organ failure along with cardiogenic shock.

Conclusions: Despite the wide availability of treatment for tuberculosis, some patients refuse therapy, which can lead to dramatic clinical consequences. This case shows a short history of sudden exacerbation of pulmonary tuberculosis.

Keywords: pulmonary tuberculosis, acute respiratory failure, intensive care

SESSION OF INVASIVE CARDIOLOGY AND CARDIOTHORACIC SURGERY

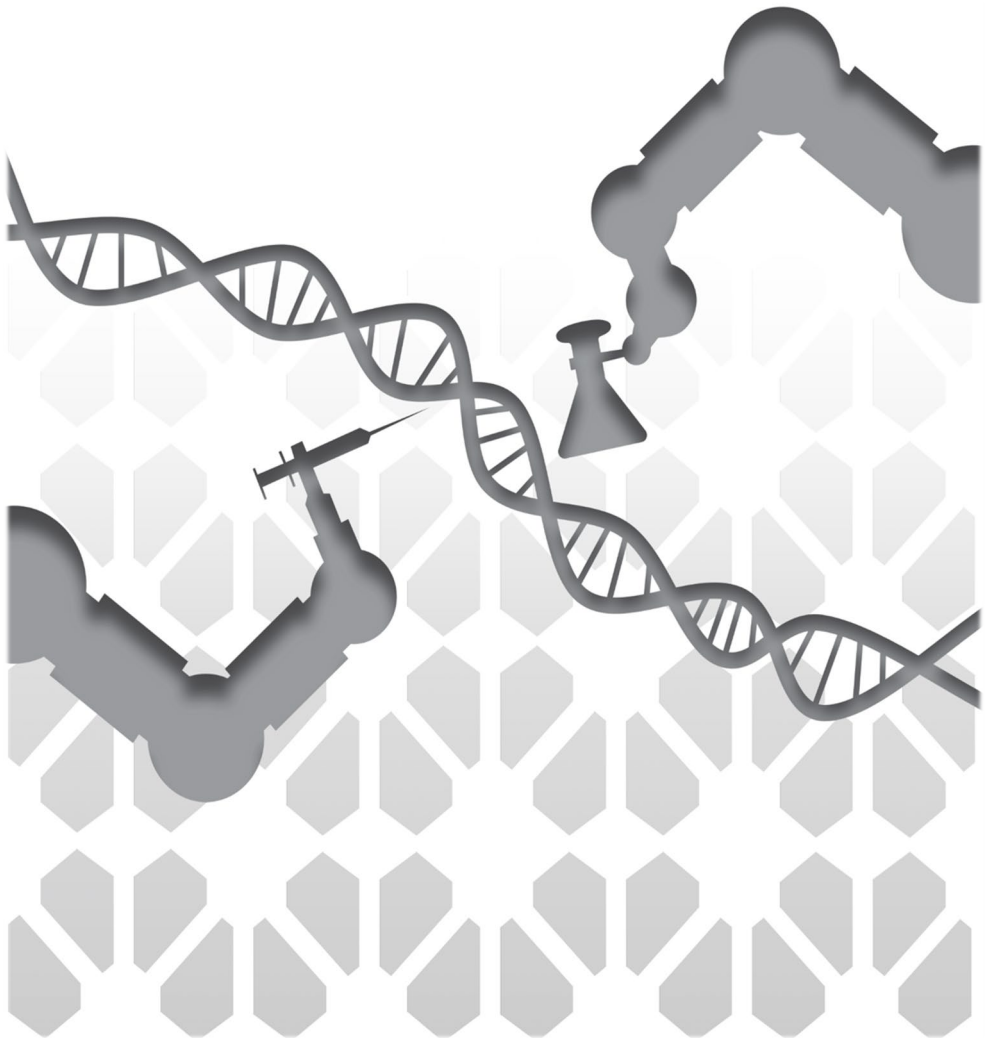


Table of contents

Indicators of blood products transfusion among patients undergoing surgical aortic valve replacement with long term prognosis analysis	189
Case study in pediatric cardiology: the treatment of pulmonary arteriovenous malformation using Amplatzer vascular plug	190
Influence of gender on short- and long-term mortality in patients with ST-elevation myocardial infarction (STEMI) treated with primary percutaneous coronary intervention (pPCI)	191
A Long-Term Observative Evaluation Of Therapeutic Efficacy Of Total Repair Depending On The Material Used In Rvot Reconstruction.....	192
The use of transcatheter aortic valve implantation for a patient with bioprosthetic aortic valve dysfunction (dehiscence) - a case report.....	193
Comparison of treatment of the severe aortic stenosis using the transcatheter aortic valve implantation (TAVI) method, between the largest self-expandable Evolut R valve size 34 and smaller 26 and 29.....	194
Obesity paradox in the light of sternal infection complications	195
Transfemoral Aortic Valve Replacement using an improved design: In-hospital and procedural outcomes of the Acurate Neo 2.....	196
Lung transplantation in the youngest patient in Poland - case report.....	197
An in vivo comparison of narrow and large bore aspiration catheters in patients presenting with st elevation myocardial infarction	198
The Role of the Electrocardiogram in the Recognition of Cardiac Transplant Rejection: A Systematic Review and Meta-analysis	199
An in vitro model for comparison of aspiration catheter efficacy	200
Fight against time or play for time? – the patient with Loeys-Dietz Syndrom (case report)	201
From potentially simply qualification for surgery to...? A case of extraordinary contraindications	202
Repeated dose of contrast media and the risk of contrast-induced acute kidney injury in a broad population of patients hospitalized in cardiology department	203
Implantation of the MICRA AV leadless pacemaker in patient after cardiac device-related infective endocarditis.....	204
Quality of life in patients with a subcutaneous versus transvenous implantable cardioverter-defibrillator	205

Indicators of blood products transfusion among patients undergoing surgical aortic valve replacement with long term prognosis analysis

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Background: The blood conservation strategy is considered to reduce perioperative morbidity and mortality in the cardiac surgery. However, there are limited data regarding the clinical features of patients undergoing surgical aortic valve replacement (SAVR) who may require blood products transfusion.

The aim: To confront the subjects following SAVR with and without blood products transfusion and its impact on long-term prognosis.

Materials and methods: The 273 patients with the diagnosis of severe aortic stenosis (SAS) were enrolled. 180 (65.9 %) of them had blood product transfusion during SAVR. Baseline characteristics, preoperative echocardiography and standard laboratory tests were determined. Detailed protocol of SAVR comprised duration of procedure and short-term complications. The long-term follow-up was obtained from the Polish National Death Registry.

Results: Patients with transfusion during SAVR were significantly older on admission (median age: 70.0 vs 68.0 years, $P=0.014$) than patients without transfusion. There were more females (56.1% vs 26.9%, $P<0.001$) with lower body mass index (median: 28.3 vs 31.1 kg/m², $P=0.001$) in the first group. Moreover, they were characterized by lower baseline hemoglobin level (median: 12.9 vs 14.3 g/dl, $P<0.001$) and lower eGFR (median: 70.0 vs 75.5 ml/min/1.73m²). The length of hospitalization was longer (median: 10.0 vs 8.0 days, $P=0.001$) with more frequent administration of pressors in ICU (43.4 vs 29.0%, $P=0.021$) and necessity of reoperation (8.4 vs 1.1%, $P=0.009$). By multivariable analysis, female sex ($\beta=0.284$, $P<0.001$), lower BMI ($\beta=-0.021$, $P=0.001$) and lower intraventricular septum thickness ($\beta=-0.032$, $P=0.017$) were independently correlated with higher risk of transfusion. However, cox proportional hazard model did not reveal the relevance in 3 years long-term mortality ($P=0.34$).

Conclusions: Higher risk of transfusion during SAVR in patients with SAS can be predicted without significant impact on long-term prognosis.

Keywords: transfusion, surgical aortic valve replacement

Case study in pediatric cardiology: the treatment of pulmonary arteriovenous malformation using Amplatzer vascular plug

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Background: Arteriovenous malformations are characterized by the presence of altered arterial and venous vessels that connect directly to each other, bypassing the capillary network. Pulmonary arteriovenous malformation (PAVM) is a rare (around 2-3 per 100,000) cardiovascular anomaly. Most cases are congenital, frequently related to hereditary haemorrhagic telangiectasia (HHT). PAVMs are rare vascular anomalies of the lung, in which abnormally dilated vessels provide a right-to-left shunt between the pulmonary artery and vein.

Case description: A 1-day-old newborn, prenatally diagnosed with pulmonary arteriovenous malformation in his right lung was referred to the cardiology department in The Children's Memorial Health Institute. On admission patient was in severe but stable condition. Clinical examination showed central cyanosis. Oxygen saturation level varied between 60% and 70%. On the same day right and left heart cardiac catheterization was performed. Infant underwent transcatheter embolization with AMPLATZER vascular plug (AVP). During this procedure the AVP has been used for occlusion of arteriovenous fistula in the right lung. The AVP attached to the delivery wire was advanced through the long sheath, the distal disk was opened in the feeding artery, the sheath retracted allowing opening of the proximal disk, and the device was released. The postprocedural recovery was uncomplicated. After the procedure saturation levels increased to 93-100%. The patient was asymptomatic on follow up.

Conclusions: Surgical resection of PAVM has now been largely replaced by transcatheter device closure. A variety of devices like detachable occlusion balloon, coil embolisation and Amplatzer vascular plugs are used for embolotherapy of large pulmonary AVMs. This case shows that large pulmonary AVM can be successfully treated with Amplatzer Vascular Plug.

Keywords: pulmonary arteriovenous malformations, amplatzer vascular plug

Influence of gender on short- and long-term mortality in patients with ST-elevation myocardial infarction (STEMI) treated with primary percutaneous coronary intervention (pPCI)

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Background: There are discrepant data on gender differences in the prognosis of patients with STEMI undergoing primary percutaneous coronary intervention (pPCI).

The aim: The aim of this study was to assess the influence of gender on early and long-term mortality in patients with STEMI.

Materials and methods: This is a retrospective single-center registry of 1647 patients with STEMI treated with pPCI between 2010-2015 in the cardiology ward in American Heart of Poland, Dabrowa Gornicza, Poland. Patients were divided into two groups based on gender: men 1121 (68%) and women 526 (32%). Endpoints were: in-hospital, 30-day, 1- and 5-year mortality. Median follow-up was 5,95 years.

Results: Men were significantly younger than women (median age 62 vs. 68; $p<0,05$). Prevalence of smoking was higher in men (41,7% vs. 30,4%; $p<0,05$). Women had more often hypertension (68,6% vs. 61,9%; $p<0,05$), diabetes (30,4% vs. 19,2%; $p<0,05$), obesity (23,4% vs. 15%; $p<0,05$) and atrial fibrillation (12,2% vs. 6,6%; $p<0,05$). Prior myocardial infarction and prior PCI were more prevalent in men – 13,6% vs. 8,9%; $p<0,05$ and 12,8% vs. 8,4%; $p<0,05$, respectively. At discharge men had more optimal pharmacotherapy than women. Women showed higher in-hospital (7,6% vs. 2,7%; $p<0,005$), 30-day (12,5% vs. 6,6%; $p<0,05$), 1-year (19,8% vs. 10,6%; $p<0,05$) and 5-year (40,9% vs. 28,5%; $p<0,05$) mortality rates.

Conclusions: Female sex was associated with worse short- and long-term prognosis after STEMI treated with pPCI.

Keywords: pPCI, STEMI, mortality, gender

A Long-Term Observative Evaluation Of Therapeutic Efficacy Of Tof Total Repair Depending On The Material Used In Rvot Reconstruction

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Background: Right Ventricle Outflow Tract (RVOT) extension is one of the key procedures in repair of Tetralogy of Fallot (TOF). The procedure may be conducted with use of different materials, such as a homograft (H) or a patch (P). Although there are many patients (pts) after RVOT correction, the longitudinal data is scarce.

The aim: To determine clinical characteristics of adult pts with TOF based on material used in total repair.

Materials and methods: A retrospective and descriptive analysis of clinical data of all adult pts with TOF hospitalized in our centre in years 2012-2021 was performed. Medical records were analyzed for baseline pts' characteristics, primarily material used in RVOT repair and most common reinterventions.

Results: From a group of 102 pts that underwent a total repair, a cohort of 89 pts (mean age = 32.9; min = 18, max = 66, median = 31), 45 male (50.6%) and 44 female (49.4%), with defined RVOT repair material was outlined. 27 pts (30.34%) needed prior palliative Blalock Taussig shunt (nP=17; 30.36%/nH=10; 30.3%), 1 pts (P) required central aorto-pulmonary shunt (1.12%). Residual ventricular septal defect was closed in 5 pts (5.62%) (nP=3; 5.36%/nH=2; 6.06%). The main issue after TOF repair was pulmonary regurgitation (nP=32, 57.14%/nH=16, 48.48%) and pulmonary stenosis (nP=5; 8.93%/nH=6; 18.18%). Out of 32 pts (35.96%) that underwent RVOT or main pulmonary artery balloonplasty (nP=19, 33.93%/nH=13, 39.39%), 9 pts (nP=6, 10.71%/nH=3, 9.09%) required subsequent pulmonary valve (PV) replacement. In total, PV was replaced in 23 pts (nP=14; 25%/nH=9; 27.27%) as surgical (nP=9; 16.07%/nH=3; 9.09%) or transcatheter (nP=4; 7.14%/nH=6; 18.18%) intervention. Pulmonary artery stent were implanted in 18 pts (nP=10; 17.86%/nH=8; 24.24%).

Conclusions: Neither of the studied methods show superiority in RVOT correction. Constant observation of patients after TOF total repair is absolutely vital for further successful treatment. Further follow-up is required.

Keywords: fallot tof homograft patch RVOT

The use of transcatheter aortic valve implantation for a patient with bioprosthetic aortic valve dysfunction (dehiscence) - a case report

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Background: Valve-in-valve (ViV) transcatheter aortic valve implantation (TAVI) is one of the treatment options of bioprosthetic aortic valve dysfunction for patients with high surgical risk.

Case description: We present the case of a 52-year-old patient with aortic stenosis (AS) with left-sided paresis, with implanted cardiac pacemaker-defibrillator. In 2005 patient had a mitral and aortic valve implanted due to aortic and mitral regurgitation resulting from an endocarditis. In 2007 the patient underwent reoperation and mechanical valve On-X 27/29 was implanted in the position of the mitral valve, and Medtronic Freestyle 21 in the position of the aortic valve. After the operation echocardiography revealed a severe AS, which was associated with the valve dehiscence. It occurred during the systolic period with a gradient of 111/68 mmHg and aortic valve area (AVA) of 0.8 cm²— due to high surgical risk patient was qualified for TAVI. The procedure was performed with the use of right femoral artery access. Valvuloplasty was performed to assess the aortic valve anatomy and the CoreValve 26 valve was implanted. An additional difficulty during the procedure was the lack of calcification in the valve and the lack of previously implanted valve components that would be visible under X-ray radiation. After valve implantation, the echocardiography and aortography revealed a moderate paravalvular leak. Then patency of the coronary arteries was checked. After the TAVI echocardiography and computed tomography showed a proper functioning aortic valve. In the following years echocardiography showed good results (in 2019 AVA=2,6 cm² and peak/mean gradient = 7/3.3 mmHg) indicating that the bioprosthesis functioned properly.

Conclusions: The ViV procedure among patients with bioprosthetic valve dysfunction is an effective method of treatment, and the presented case additionally confirms that in the case of valve dehiscence, treatment with the use of TAVI method may be effective.

Keywords: case report, tavi, valve-in-valve, valve dehiscence

Comparison of treatment of the severe aortic stenosis using the transcatheter aortic valve implantation (TAVI) method, between the largest self-expandable Evolut R valve size 34 and smaller 26 and 29

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Background: For about 19 years patients with severe aortic stenosis are successfully treated with the transcatheter aortic valve implantation (TAVI). In each case implantation needs to be precise, which could be harder to achieve among patients with larger aortic annulus in whom we implant Evolut R 34 prosthesis. This could be linked to more frequent complications, such as valve embolization, permanent pacemaker implantation or elongated procedure time.

The aim: The aim of the study was to compare outcomes of the TAVI procedure using a large self-expandable valves Evolut R 34 with a smaller Evolut R 26 and 29.

Materials and methods: To this study 91 patients with severe aortic stenosis who were treated with TAVI by the Heart Team I in the Silesian Center for Heart Diseases were included. Patients were divided into two groups: I (60 patients) – with Evolut R 26 and 29 valves implanted, and II (31 patients) – treated with Evolut 34 valve.

Results: Both groups differed significantly in the terms of sex, body surface, tobacco use and NT-proBNP levels (respectively gr. I and II: 38.33 v 90.32%; 1,78 v 1,93 m²; 10,2 v 35,5%; 3195,1 v 9362,4 pg/ml.) The differences were also found in the echocardiography: LVEF (49,2 v 41,3%, p=0,0003) and in CT: annulus diameter (23,46 v 28,57 mm, p=0,0001). Mean procedure duration and fluoroscopy times were significantly different (187 min v 211 min, p=0,01; 27 min v 35min, p=0,0001). The TAVI was successful (according to the VARC-2 criteria) in 95.0% patients from gr. I and 74.2% from gr. II (p=0.0039). In the echocardiography assessment after the TAVI the moderate paravalvular leak occurred among 2 (1.7%) v 6 (19.3%) patients.

Conclusions: Population of patients with large aortic annulus treated with largest valve - Evolut R 34 is characterized by lower device success implying mostly from more frequent occurrence of the moderate paravalvular leak assessed in the echocardiography after the TAVI, as well as longer procedure and fluoroscopy times.

Keywords: TAVI, aortic stenosis, aortic valve, Evolut R, VARC-2

Obesity paradox in the light of sternal infection complications

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Background: Obesity paradox is a well-known issue in cardiac surgery and we find it interesting, how it corresponds with the quality of life. We decided to investigate how BMI affects mortality and infection-related short term complications in patients, who underwent isolated Coronary Artery Bypass Grafting (CABG) procedure.

Materials and methods: To this study we enrolled patients after isolated CABG surgery, which took place between January 2014 and December 2020 . They are divided into 6 BMI groups: 1. underweight (BMI<18,5 kg/m(2)), 2. normal weight (≥18,5 to<25 kg/m(2)), 3. overweight (≥25 to<30 kg/m(2)), 4. class I obese (≥30 to<35 kg/m(2)), 5. class II obese (≥35 to<40 kg/m(2)), and 6. class III obese (BMI≥40 kg/m(2)). Short-term complications included among others: mortality, deep sternal infections and negative pressure wound therapy (NPWT).

Results: Among 6448 patients (mean age 66,5) there were 1606 (25%) women and 4842 men (75%). Group 1. consisted of 32 (0,5%), 2. 1362 (21,1%), 3. 2950 (45,8%), 4. 1647 (25,5%), 5. 394 (6,1%) and 6. 62 (1%) people. Highest mortality rate was in underweight patients and it was decreasing with higher BMI (2(6,25)% vs 43(3,16%) vs 45(1,53%) vs 32(1,94%) vs 3(0,76%) vs 0(0%), respectively; $p<0,05$). In contrary, deep sternal infection rate was increasing (0(0)% vs 10(0,73%) vs 24(0,81%) vs 29(1,76%) vs 8(2,03%) vs 2(3,23%), respectively; $p<0,05$), as NPWT (0(0)% vs 17(1,25%) vs 42(1,42%) vs 43(2,61%) vs 15(3,81%) vs 4(6,45%), respectively; $p<0,05$).

Conclusions: Obesity paradox applies to mortality, only. Obese patients have better chances of survival but higher risk of postoperative complications, which may deteriorate their quality of life.

Keywords: cardiac surgery, obesity, complications, infections

Transfemoral Aortic Valve Replacement using an improved design: In-hospital and procedural outcomes of the Acurate Neo 2

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Background: Transcatheter aortic valve implantation (TAVI) is an effective and safe treatment option for patients with aortic stenosis (AS). In Acurate Neo 2 (Boston Scientific) several features were implemented to reduce paravalvular leak (PVL) and ease valve positioning. The purpose of this study was to evaluate intraoperative and in-hospital safety and efficacy of the Acurate neo 2 implanted transfemorally in patients (pts) with AS.

Materials and methods: From X 2020 til III 2021, 49pts (36F; 73%) were operated on using the Neo 2. The mean age was 76,72 (SD 6,5), 19 pts (39%) were diabetic, 20pts (41%) were hypertensive with paroxysmal (10%; 5pts) or permanent (12%; 6pts) atrial fibrillation. Three pts had a pacemaker implanted >6m prior to procedure. Four (8%) had a history of stroke, 20 (41%) - had PCI and 14 pts (29%) were post sternotomy. Mean left ventricular ejection fraction was 52,62 (SD 8,95) and EuroScore II was 7,9 (SD 2,17). Mean aortic gradient was 52,94 mmHg (SD 17,45).

Results: The procedure was successful in all 49 cases. There were no conversions to sternotomy. One pt required pericardiocentesis and 2 had minor vascular complications related to the access site. In all but 1pt balloon predilatation was performed. In 12pts (24%) size SMALL (23mm) was used, MEDIUM (25mm) and LARGE (27mm) in 19 (39%) and 18 (37%) of pts respectively. Postdilatation was required in 11 cases (22%). No PVL was observed in 37pts (76%), trace in 4 (8%) and mild in 8pts (16%). The mean gradient was 6.81 ± 3.09 mmHg. No new heart rythm disturbances, were observed. Mean procedural time (in-out of the OR) was $147 \pm 37,8$ min and mean hospital stay was $2,97 \pm 2,4$ days. One patient (an emergency) died on the 4th post op day due to multiorgan failure. Autopsy confirmed non-device related cause of death.

Conclusions: Acurate neo 2 offers exceptional outcomes with low PVL rate and significant reduction of AV rhythm disturbances. Further studies are needed to confirm these findings.

Keywords: TAVI, transcatheter aortic valve implantation, Acurate Neo 2

Lung transplantation in the youngest patient in Poland - case report

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Background: Hereditary hemorrhagic telangiectasia is also known as Osler-Weber-Rendu syndrome. In most cases the beginning of this disease manifests itself as recurrent nosebleeds and increased fatigue. The progression leads to the end-stage respiratory failure and patient's condition's deterioration. Consequently, in such cases, lung transplantation remains the only therapeutic option.

Case description: The case describes an 11-years old male patient, who was admitted to the Silesian Center for Heart Diseases with the diagnosis of hereditary hemorrhagic telangiectasia with pulmonary arteriovenous malformations in order to qualify for lung transplantation. Patient's oxygen saturation measured at rest was 55%, during physical activity his oxygen saturation decreased even by 31-33%, which manifested clinically as central cyanosis. At this time, it was impossible to carry out a 6-minute walk test (6MWT) due to low level of oxygen saturation at rest. After 119 days, at the age of 10, he became double lung transplant recipient. The operation was performed using extracorporeal circulation. Patient's recuperation went off without complications. Three weeks after transplantation the patient obtained the following results - FEV1: 71%, FVC: 62%, FEV1/FVC: 114%, and the distance in 6MWT was 374.4 m. During the next 8 months, an improvement of ventilation parameters was observed, as well as a significant increase in exercise tolerance and a return to normal values of oxygen saturation. There were also no graft-related complications during this period. Nowadays, the patient is in good clinical condition.

Conclusions: Lung transplantation is an effective treatment of advanced hereditary hemorrhagic telangiectasia with lung lesions - even in the group of the youngest patients. It improves respiratory efficiency and also has a positive effect on the quality of patient's life. The obtained results are highly satisfying.

Keywords: lung transplantation, hereditary hemorrhagic telangiectasia, Osler-Weber-Rendu syndrome, respiratory failure, arteriovenous malformations

An in vivo comparison of narrow and large bore aspiration catheters in patients presenting with ST elevation myocardial infarction

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Background: Thrombus aspiration is recommended in selected patients with ST elevation myocardial infarction only. Selection of the most effective aspiration catheter would be the ideal solution, however optical coherence tomography analysis has shown limitations of some of them to remove thrombus effectively. Moreover in vitro tests have shown important differences in their performance, pointing out to design of the distal tip as well their internal diameter as clues to their better performance.

The aim: The aim of the study was to compare the results of several aspiration catheters used in interventional treatment of STEMI patients with the results of primary angioplasty alone and to test whether aspiration catheters with small cross-sectional area have lower efficacy in comparison to catheters with larger cross-sectional area.

Materials and methods: 773 patients with STEMI were enrolled into the study: 586 patients underwent primary PCI alone (Ctrl group), 187 patients received adjunctive manual thrombus aspiration. All aspiration catheters were categorized as large bore – 146 patients (LB group) and narrow bore – 41 patients (NB group). We have compared myocardial perfusion visually and quantitatively, LVEF and long-term all-cause mortality. Statistical analysis was based on non-parametrical, ANOVA and Kaplan-Meier survival analysis.

Results: Groups were significantly biased in respect with demographics and angiographic presentation of myocardial infarction. LB group and NB group were significantly younger, and presented with significantly worse epicardial flow and thrombus burden graded in TIMI classification. There is insignificant trend towards inferior myocardial perfusion in NB group in comparison with Ctrl group. LB group has had significantly lower predischarge LVEF in comparison to Ctrl group. Long-term all-cause mortality was comparable across the groups.

Conclusions: We have not enough evidence to prove that NB catheters are less effective than LB ones. The positive observation of our study is fact that use of aspiration thrombectomy on operator's discretion in selected group of patients, equals their long-term all-cause mortality to that observed in reference group. However, this observation requires confirmation in future studies, that would control for confounding variables.

Keywords: myocardial infarction, bore aspiration catheters, STEMI

The Role of the Electrocardiogram in the Recognition of Cardiac Transplant Rejection: A Systematic Review and Meta-analysis

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Background: In cardiac transplant recipients, the electrocardiogram (ECG) is a non-invasive measure of early allograft rejection. The ECG has the ability to predict an acute cellular rejection, thus shortening the time to recognition of rejection. Earlier diagnosis has the potential to reduce the number and severity of rejection episodes.

Materials and methods: A systematic literature review was conducted to identify and select the original research reports on using Electrocardiography in diagnosing cardiac transplant rejection in accordance with the PRISMA guidelines. Studies included reported on sensitivity and specificity of ECG readings in heart transplant recipients during the first post-transplant year. Data were analyzed with Review manager version 5.4. P-value was used in testing the significant difference.

Results: After the removal of duplicates, 98 articles were eligible for screening. After the full-text screening, a total of 17 papers were included in the review based on the above criteria. A total of 957 patients were identified for heart transplant rejection, of 304 diagnosed by Electrocardiography (31.7%). The main method used for diagnosis was the QRS interval and amplitude.

Conclusions: In heart transplant recipients, a non-invasive measure of early allograft rejection has the potential to reduce the number and severity of rejection episodes by reducing the time and cost of surveillance of rejection and shortening the time to recognition of rejection.

Keywords: ECG, heart transplant rejection, rejection diagnosis, cardio transplant rejection

An in vitro model for comparison of aspiration catheter efficacy

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Background: Thrombus aspiration is recommended in selected patients with ST-elevation myocardial infarction only. Though this technique has been introduced and its use keeps growing in patients with cerebral stroke. Selection of the most effective aspiration catheter would be the ideal solution. However, optical coherence tomography analysis has shown limitations of some of them to remove thrombus effectively.

The aim: The study aimed to compare two different aspiration catheters in two different time frames of blood clot formation.

Materials and methods: We have allowed healthy donor blood to clot for six and twenty-four hours in borosilicate glass tubes with a 3-millimeter internal diameter. Then we have performed a single-pass aspiration with ProntoV4 and Launcher, both 6F aspiration catheters. The tubes were weighed before and after the aspiration (KERN PCB 100-3 laboratory scale). We expressed the mass of the aspirated clot as the percentage of the initial clot bulk. We examined 80 samples in total. Mann-Whitney test was used statistical analysis.

Results: Both catheters performed comparably in our in vitro model, though longer clotting time favored their efficacy substantially (6-hour clot: 59,9±20,2%, 24-hour clot: 80,9±16,3%, with significance $P < 0,05$).

Conclusions: Our experiment disclosed that the time of blood clot formation might significantly impact the assessment of aspiration catheters efficacy.

Keywords: catheter efficacy, comparison, in vitro, aspiration

Fight against time or play for time? – the patient with Loey-Dietz Syndrome (case report)

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Background: Loey-Dietz syndrome (LDS) first identified in 2005 is an aggressive congenital disorder of connective tissue characterized by multisystemic involvement (hypertelorism, and bifid/broad uvula or cleft palate). The most common features are vascular manifestations (widespread arterial aneurysms and dissection in a young age). No specific diagnostic criteria exist. The similarity of clinical manifestations to other disorders of connective tissue may be associated with poor recognition of LDS. Disease is confirmed by a molecular test and Computed Tomography (CT).

Case description: Dilated ascending aorta was found in 20-month-old boy who presented with circulatory failure manifestations and aortic valve regurgitation. The patient underwent ascending aorta and aortic valve replacement (AVR). 7 years later his health state deteriorated significantly. Angio-CT showed massive aneurysm of the aortic arch (8 cm), multiple thoracic aortic aneurysms and vascular tortuosity. Based on significant clinical image LDS was diagnosed. Due to multiplicity of aneurysms the patient was disqualified for any surgical treatment.

Conclusions: As the LDS is most typically characterized by an aggressive vascular course, early diagnosis and prompt pharmacological and surgical interventions are prominent in avoiding tragic consequences of the disease. We take part in a race between a progression of symptoms and an accurate diagnosis. It is often a difficult task, we are left with a game on time: an attempt to delay the progression of the disease in hope for giving the patient a chance for the next, precious days of life.

Keywords: Loey-Dietz syndrome, connective tissue disorder, aorta surgery, aortic aneurysm with tortuosity, aortic dissection

From potentially simply qualification for surgery to...? A case of extraordinary contraindications

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Background: Mitral valve prolapse (MVP) is a specific form of valvular heart disease. Especially when MVP is diagnosed among young patients it may increase the risk of sudden cardiac death.

Case description: We present a case of 23 years old female who was hospitalized because of MVP in order to qualify for the surgical correction of the defect. Patient was in NYHA II/III class. ECG Holter monitoring revealed first-degree AV block, LAH and episodes of paroxysmal atrial fibrillation and supraventricular tachycardia. She presented short stature (138 cm), osteoporosis, underweight (28 kg) and skeletal malformations (suspected kyphoscoliotic type Ehlers-Danlos syndrome). All above mentioned co-morbidities significantly limited breathing mechanics and spirometry parameters. Echocardiography also revealed: LVEF>60%, both mitral leaflets thickening (7mm) and prolapse, mitral annulus disjunction (MAD), increased thickness of mid-left ventricular segments with an apical aneurysm. During the hospitalization anesthetic and cardiac surgery consultations were carried out and finally the patient was not qualified for the procedure.

Conclusions: Disqualification was not due to the difficulties in performing the procedure, but due to the dramatic changes in the patient's respiratory parameters, which highly indicate the possible inability to breathe independently after assisted ventilation. The prognosis of such cases is doubtful. In the patient's current health condition, the risks of postoperative complications outweighs the benefits of correcting the defect. However, there is still a high risk of SCD due to MVP, MAD and apical aneurysm.

Keywords: congenital, MR, MVP, SCD

Repeated dose of contrast media and the risk of contrast-induced acute kidney injury in a broad population of patients hospitalized in cardiology department

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Background: Contrast-induced acute kidney injury (CI-AKI) is a growing problem among cardiac patients that can lead to development of chronic kidney disease (CKD) and impaired in-hospital and long-term outcome.

The aim: The aim of this study was to evaluate the impact of repeated contrast media (CM) administration during single hospitalization on the rate of CI-AKI.

Materials and methods: This retrospective study covered 228 patients admitted to the cardiology department. The study group (n=138) comprised of patients with different diagnoses who received CM more than once during hospitalization (coronary angiography/percutaneous coronary intervention/computed tomography). The control group (n=90) involved CAD patients subject to single CM dose. The primary endpoint was CI-AKI defined by absolute increase of SCr ≥ 0.3 mg/dl or $>50\%$ relative to baseline value within 48-72 hours from the last CM dose.

Results: Sex distribution was comparable in study and control group ($p=0.565$). Patients in study group were older (69.6 vs 64.1 years, $p<0.001$), had higher prevalence of diabetes (44.9% vs 12.2%, $p<0.001$) and CKD (32.6 vs 18.9%, $p=0.023$), received higher total volume of CM (278 mL \pm 113 vs 135 \pm 87 mL, $p<0.001$), yet had lower left ventricular ejection fraction (LVEF, 45.4% \pm 11.6 vs 53.5 \pm 7.2%, $p<0.001$), lower prevalence of arterial hypertension (83.3% vs 95.6%, $p=0.005$) and smoking (38.4% vs. 58.9%) than control group. SCr did not differ between study and control group after 48-72 hours after CM use (1.2 \pm 1.0 vs 1.0 \pm 0.31, $p=0.305$). CI-AKI occurred in 10 patients in study and in 8 patients in the control group (7.3 vs 8.9% ; $p=0.653$). Logistic regression analysis revealed LVEF (unit OR=0.91, 95% CI:0.86-0.98) and presence of CKD (OR=5.92; 95% CI:1.34-26.1), but not repeated CM use were independent predictors of CI-AKI onset.

Conclusions: Repeated in-hospital CM use does not seem to affect the risk of CI-AKI in this group of patients, however, firm conclusions are limited by disparity between groups in terms of baseline risk factors.

Keywords: contrast-induced acute kidney injury, CI-AKI, contrast-induced nephropathy, CIN

Implantation of the MICRA AV leadless pacemaker in patient after cardiac device-related infective endocarditis

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Background: In early 2020 Food and Drug Administration (FDA) approved Micra AV - a new type of leadless pacemaker with atrioventricular synchrony to treat patients with atrio-ventricular (AV) blocks. We describe a case of a patient who was implanted with Micra AV pacemaker after infective endocarditis.

Case description: A 38-year-old female patient was admitted to the clinic due to the 29-seconds event of a complete AV block without an escape rhythm and was implanted with a dual chamber pacemaker without any complications. After several months she was admitted again with suspected ventricular perforation by the pacemaker electrode and underwent a replacement procedure of both pacemaker's electrodes. Nevertheless, one week later the patient developed a fever with significantly elevated inflammatory markers. The blood cultures were negative but in the transesophageal echocardiography features of electrode related infective endocarditis were observed. Empirical antibiotic therapy was administered, and the device was removed. The Heart Team qualified the patient for the implantation of a Micra™ AV leadless pacemaker. The procedure was performed without any complications and the device was implanted to the right ventricle. All parameters were correct, and the patient was discharged.

Conclusions: Micra AV may be a feasible and safe option for young patients with paroxysmal AV block after device-related complications.

Keywords: leadless pacemaker; Micra AV, atrio-ventricular synchronous pacing, atrio-ventricular block

Quality of life in patients with a subcutaneous versus transvenous implantable cardioverter-defibrillator

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Background: The implantable cardioverter-defibrillator (ICD) is a well-accepted life-saving device for potential lethal ventricular arrhythmia and is implanted in the prevention of sudden cardiac death (SCD). However, this device is associated with short- and long-term complications. The subcutaneous cardioverter defibrillator (S-ICD) is relatively new technology aiming at overcoming those lead-related complications observed in patients with transvenous ICD (TV-ICD). There are data regarding mortality in patients with S-ICD in comparison with ICD but little is known about quality of life (QoL) in patients with S-ICD in comparison with ICD.

The aim: The aim of our study was to compare the quality of life of patients with subcutaneous and conventional cardioverter-defibrillator.

Materials and methods: A cohort of S-ICD (N=22) and TV-ICD patients (N=22) matched by sex, age and type of prevention were requested to fulfill two standardized questionnaires to assess QoL: 36-Item Short Form Health Survey (SF-36) and Minnesota Living With Heart Failure Questionnaire (MLHFQ).

Results: Patients with S-ICD and TV-ICD did not differ with regard to baseline characteristics. There were no statistically significant differences between S-ICD and TV-ICD subgroup both for mental and physical QoL assessed in SF-36 and MLHFQ (all P=NS).

Conclusions: Quality of life does not differ significantly between groups of patients with subcutaneous and conventional implantable cardioverter-defibrillator.

Keywords: quality of life, implantable cardioverter-defibrillator, subcutaneous cardioverter-defibrillator

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SESSION OF NEONATOLOGY AND PEDIATRICS

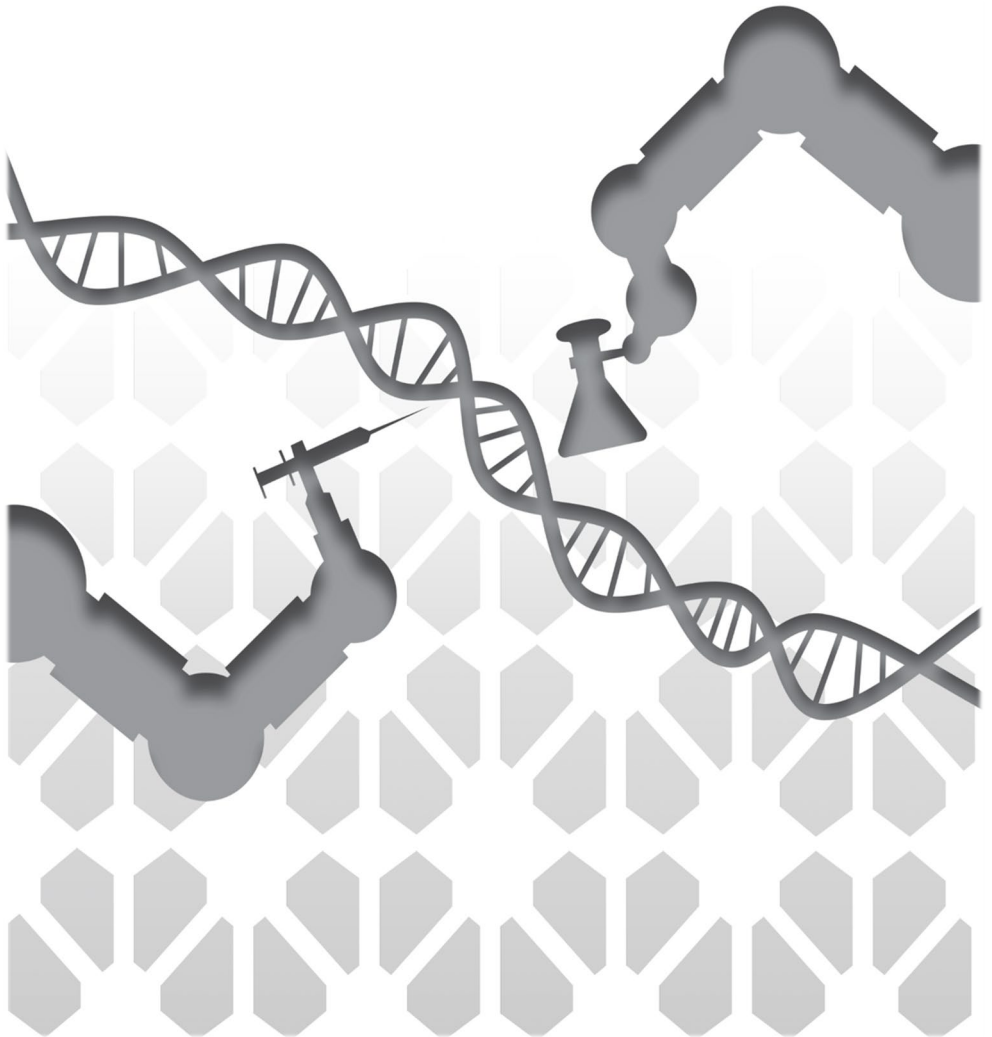


Table of contents

Treatment of complex, congenital heart defect	209
The microflora assessment of the urethra area of children with newly diagnosed type 1 diabetes	210
Parental awareness of ophthalmic complications of prematurity	211
Nutritional status and eating habits of children with cystic fibrosis (CF)- one centre study.	212
Retrospective analysis of indications and complications of percutaneous endoscopic gastrostomy (PEG) in children hospitalized at the Department of Pediatrics, Medical University of Silesia in Katowice in 2010-2019	213
4-week-old newborn with a huge left-sided hydronephrosis – case report	214
Congenital symptomatic cytomegalovirus infection.....	215
Mobile applications in diabetes treatment - friend or enemy?	216
Autism – just a disease or a major medical challenge?.....	217
From resistance to thyroid hormone to a foreign body in the stomach - a case report of 12,5-year-old girl with trichobezoar.....	218
Meckel’s diverticulum – a rare cause of intestine intussusception and ischemia in adolescent	219
Grasping at straws – trying to find some way to succeed when no common therapy is likely to work.....	220
Assessment of the prevalence of thyroid autoantibodies: thyroid peroxidase antibodies (ATPO) and thyroglobulin antibodies (ATG) in children with newly diagnosed diabetes mellitus type 1 (T1D) in years 2016-2019 in the Upper Silesia region, Poland	221
Hydrops fetalis – the almost forgotten effect of serological conflict.....	223
Autoimmune hemolytic anemia with cold agglutinin as a rare manifestation of Epstein-Barr virus infection	224
Suspicion of Jacobs Syndrome in a 9-month-old boy.....	225

Treatment of complex, congenital heart defect

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Background: Three reconstructive operations, known as "Staged Reconstruction" enable the creation of a new functional systemic circuit in patients with hypoplastic left heart syndrome or other complex heart defects with single ventricle physiology.

Case description: A 2-day-old newborn, prenatally diagnosed with multiple congenital heart defects in the form of double inlet left ventricle (DILV), transposition of the great arteries (TGA), hypoplastic aortic arch (HAA) and ventricular septal defect (VSD), was referred to the cardiology department in The Children's Memorial Health Institute. On the 15th day of the patient's life the infant underwent first surgery - the Norwood procedure with a modified Blalock-Taussig Shunt and removal of the interatrial septum. During this procedure the pulmonary trunk has been connected to the ascending aorta and the aorta has been connected to the right pulmonary artery using a Gore-Tex conduit. Later, the 1-year-old patient underwent the second operation - the Glenn Procedure with angioplasty of the right pulmonary artery using an allogeneic pericardium patch. The superior vena cava (SVC) was disconnected from the heart and connected directly to the pulmonary artery and the previous Blalock-Taussig shunt was removed. Recently (last year) the 3-year-old patient has been qualified for the Fontan procedure that was supposed to take place in the 2020. However, as a result of the COVID-19 pandemic the procedure had been postponed. Following this third operation, all the venous blood from SVC and IVC will be redirected to the lungs, without passing through a ventricle.

Conclusions: This case shows that even severe, complex cases with multiple congenital heart defects can be successfully treated, when a carefully thought-out plan consisting of cardiological and cardiosurgical care is at hand. In consequence, a normal or near-normal growth, development and good quality of life can result.

Keywords: congenital heart defect; palliative operation; staged reconstruction

The microflora assessment of the urethra area of children with newly diagnosed type 1 diabetes

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Background: Children suffering from Type 1 Diabetes (T1D) are more prone to various infections because of their immune system dysfunction and glycosuria.

The aim: The microflora assessment of the urethra area of children with newly diagnosed T1D.

Materials and methods: The materials of the study were swabs from the urethral area taken on admission to the hospital in 37 children at the time of diagnosis of T1D (19 girls). The mean age was 9.2 years (0.58-17.5). The mean HbA1c value was 12.44% (6.4-20.1%). The mean value of glycosuria was 4929.91mg/dl (0-9770). Ketoacidosis was diagnosed in 12 children (32.4%).

Results: The following microbial species were isolated in the collected materials: *Candida albicans* in 12 children (32,43%), *Enterococcus faecalis* in 8 (21,62%), *Staphylococcus aureus* in 6 (16,22%), *Escherichia coli*, *Streptococcus anginosus*, *Corynebacterium glucuronolyticum* in 5 each (13,51%), group B *Streptococcus* beta-hemolysis, *Aerococcus urinae* in 4 each (10,81%), *Candida dubliniensis*, *Lactobacillus gasserii* in 3 each (8,1%), *Streptococcus oralis*, *Candida parapsilosis* in 2 each (5,4%), coagulase-negative staphylococci in 24 (64,86%).

In individual cases, the following species were isolated: *Citrobacter freundii*, *Candida guilliermondii*, *Streptococcus gallolyticus*, *Cutibacterium avidum*, *Streptococcus vestibularis*, *Streptococcus salivarius*, *Klebsiella oxytoca*, *Corynebacterium amycolatum*, *Micrococcus luteus*, *Klebsiella pneumoniae*, *Corynebacterium kroppenstedtii*, *Actinomyces turicensis*, *Actinomyces urogenitalis*, *Lactobacillus crispatus*, *Acinetobacter ursingii*, *Leclercia adecarboxylata*, *Moraxella osloensis*, *Pantoea eucrina* oraz *Actinotignum schaalii*.

1 patient was cultured negative. 17 children were found to be colonized by *Candida* spp. (48.57%), in the other patients (51.43%), the area of the urethra was colonized only by bacterial strains.

Conclusions: It is important to examine the urethral area at the time of diagnosis of T1D in order to detect and undertake inflammation.

Keywords: diabetes, T1D, microflora

Parental awareness of ophthalmic complications of prematurity

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Background: Retinopathy of prematurity (ROP) is a retinal vasoproliferative disease that affects premature infants. ROP remains a leading cause of childhood blindness worldwide, despite the progress of neonatal and ophthalmological care.

The aim: The aim of study was to analyze the knowledge of parents with premature children about ROP.

Materials and methods: The material applied in this research was dedicated and anonymous online questionnaire consisted of 21 questions. Research was evaluated among 570 parents with premature children and was collected between December 2020 and February 2021. Participants were asked about their knowledge about ROP.

Results: Among participants 41.6% were parents of infants born at ≤ 28 gestational age and 64.2% of infants whose birth weight was ≤ 1500 g. 31.2% had no idea as to which part of the eye is affected in ROP. 20% didn't know when ROP screening should be started. 67.4% didn't know how many stages has ROP. Only 27.7% of parents indicated intravitreal anti-VEGF injection as the newest method for ROP treatment. 42.9% of participants weren't informed about the importance of the regular eye exam. 57.9% of participants didn't know how often eye exams should be performed until age 6-7. Among participants 39.6% didn't know they should observe the baby after eye exam for side effects of drugs. Parents whose babies were born at ≤ 28 gestational age have more knowledge regarding the majority of the questions.

Conclusions: Considering the severity of ROP disease, there is a lack of basic knowledge about this medical disorder. Doctors should pay more attention to educating parents of premature babies about the need for regular ophthalmological visits and the possible consequences of their omission.

Keywords: retinopathy of prematurity, ophthalmic complications, preterm birth, parental awareness

Nutritional status and eating habits of children with cystic fibrosis (CF)- one centre study

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Background: CF is the most common autosomal recessive genetic disorder causing endo and exocrine malfunction, maldigestion these can lead to malnutrition. Appropriate nutrition in pediatric CF is prognostic factor and an integral part of the treatment process.

The aim: The aim of our study was to assess the nutritional status and analyze eating habits of children diagnosed with CF.

Materials and methods: The original questionnaire was distributed to 32 parents of children with diagnosed CF and treated in Department of Pediatrics, Medical University of Silesia in Katowice. The survey consisted of questions concerning nutritional status, eating habits, diet and the clinical course of CF. The statistical analysis was performed with the Statistica program.

Results: The data was collected from 32 parents of children with CF, 18/32 (56%) female and 14/32 (44%) male. Children's age ranged from 8 months to 19 years (mean age was 9.5 years). BMI below 3rd percentile was detected in 12.5% and between 3rd and 10th percentile in 19% of patients. Whereas height below 3rd percentile was detected in 12.5% of patients. Respiratory symptoms were found in 29/32 (91%), while symptoms of exocrine pancreatic insufficiency were reported in 31/32 (97%) of cases. Liver damage or disease was declared in 34% of patients and its occurrence increased with age ($p < 0.05$). Parents determined their children's diet as rich in protein, fat, carbohydrates in 60%, 34%, 69% accordingly. 66% of children consumed 5 or more meals. Less caloric and qualitatively dairy consumption was observed in children with a body weight deficiency ($p < 0.05$). According to 70% of parents CF made children's everyday life difficult to some extent. The more often there were exacerbations, the more difficult it was to function daily ($p < 0.05$).

Conclusions: Malnutrition is a common problem in pediatric CF patients. Moreover, malnutrition is a prognostic factor in patients with CF. There is a need for better education for parents ex. training courses and further research on this topic.

Keywords: CF, cystic fibrosis, nutrition, eating habits

Retrospective analysis of indications and complications of percutaneous endoscopic gastrostomy (PEG) in children hospitalized at the Department of Pediatrics, Medical University of Silesia in Katowice in 2010-2019

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Background: PEG (percutaneous endoscopic gastrostomy) is a procedure that creates a temporary or permanent communication between the stomach and the abdominal wall. The main indications for PEG insertion are feeding disorders that prevent proper oral nutrition.

The aim: It analyzes the indications for PEG placement and assesses complications in children hospitalized in the Department of Pediatrics, SUM in 2010-2019.

Materials and methods: The medical history of 70 children (36 girls-51% and 34 boys-49%) aged 6 months-17 years (mean age 6 years) admitted to Pediatrics Ward due to PEG setting was analyzed. The study evaluates age, sex, clinical diagnosis, nutritional status, indication of PEG placement, complications and the weight gain 6 and 12 months after the PEG setting.

Results: The biggest group were children aged under 5 years (32/70-46%), with children aged under 1 year constituted only 4% (3/70). The most common indications for PEG were feeding difficulties (90%), less often weight gain deficit (10%). The most frequent underlying diseases were neurological diseases, among which cerebral palsy (n=26) and epilepsy (n=35) predominated. The most common side effects of PEG insertion were local reactions like leakage from the PEG area (5/70-7%) or inflammation (3/70-4%). Two children (2,8%) had severe complications such as gastric bleeding and esophageal perforation. In 4 cases (6%), PEG setting was withdrawn due to increased spinal kyphosis, lack of diaphanoscopy and the ventriculoperitoneal valve drain at the site of the planned PEG. Weight gain was observed in over 90% of patients.

Conclusions: Percutaneous endoscopic gastrostomy seems to be an efficient and safe method of gaining access to intragastric nutrition. The most common indication for PEG placement is feeding difficulties due to neurological disorders and genetic diseases. Complications after PEG setting are rare, local skin reactions are the most common.

Keywords: pediatric, gastrostomy, enteral feeding, endoskopy, nutrition

4-week-old newborn with a huge left-sided hydronephrosis – case report

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Background: Hydronephrosis refers to dilation of the renal pelvis and calyces caused by the accumulation of urine as a result of obstruction to outflow and accompanied by atrophy of the kidney structure. Prenatal ultrasonography in the second and third trimesters is typically used to diagnose hydronephrosis. Hydronephrosis in newborns or young children may cause a palpable abdominal mass, as well as obstruction complications including urinary tract infection or hematuria.

Case description: A 4-week-old male newborn was admitted to the Department of Pediatric Surgery due to left-sided hydronephrosis. The preoperative ultrasonographical examination revealed a significantly enlarged left kidney, which measured 97x49x34mm. The left kidney's volume was more than three and a half times that of the right kidney's (right kidney: 21,5ml vs. left kidney: 80,8ml). The pelvicalyceal system was vastly extended, the renal pelvis was dilated up to 48mm. The renal calyx was narrowed to 2,5mm. The hydronephrosis was caused by the ureteropelvic junction stricture. Hypofunction of the left kidney was also detected by conducting the renal scintigraphy, which showed only 28% share in infiltrating. Resection of the pelviureteral segment was performed with ureteroplasty according to the Anderson-Hynes procedure.

Conclusions: Hydronephrosis in newborns is very rare. Hydronephrosis in a neonate caused by ureteropelvic junction stricture, as large as presented, is highly uncommon. Both prenatal and neonatal ultrasonography is helpful in diagnosing it and its cause. The treatment depends on the extent of enlargement of the pelvicalyceal system. Surgical operation is essential. Ureteroplasty according to Anderson-Hynes procedure is the one that can be chosen to treat this condition. A decision about the way of treatment is crucial and it should be conducted to each patient individually.

Keywords: pediatric urology, pediatric surgery, newborn, hydronephrosis, UPJS, kidneys

Congenital symptomatic cytomegalovirus infection

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Background: Cytomegalovirus infection is the most common congenital infection, occurring in approximately 0.6% of live births worldwide. It occurs due to the presence of a virus in the mother's blood (viremia) during pregnancy and then vertically transmitted to the fetus.

The aim: The vast majority of newborns with congenital cytomegaly (cCMV) do not have any clinical symptoms at birth.

Results: Symptoms of the disease vary from mild, non-specific, or multi-organ involvement. The most frequently observed manifestations are petechial rash, jaundice, hepatosplenomegaly, and neurological symptoms. On ophthalmologic examination, 10% of patients with cCMV have chorioretinitis accompanied by optic atrophy. cCMV is also the leading cause of hearing loss and neurological disability in children worldwide. About half of infants with cCMV manifestation are born with features of intrauterine hypotrophy, and one-third are preterm infants. According to the data, the mortality rate of cytomegaly is probably <5%.

A newborn born from the second pregnancy, second birth, the female was born by cesarean section for the indications - impending intrauterine asphyxia. After birth, the child was diagnosed with intrauterine hypotrophy and microcephaly. Increasing yellowing of the skin integuments and the appearance of numerous petechiae on the scalp, trunk, and limbs were observed. On the second day of life, an ultrasound of the abdominal cavity revealed splenomegaly, characteristic of cytomegalovirus. A quantitative RT-PCR test was also performed, which confirmed CMV infection.

Conclusions: Despite the 30% mortality rate in CMV-infected neonates, screening for viral infections is not routinely performed. It is predominant to inform patients about the effects and prevention of the condition. Additionally, it is postulated in the medical community that patients with flu-like manifestations which may suggest CMV disease should be serologically tested and monitored to confirm or rule out cytomegaly.

Keywords: cytomegalovirus, intrauterine hypotrophy, microcephaly, cytomegaly

Mobile applications in diabetes treatment - friend or enemy?

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Background: Intensive technology development has contributed to the increased interest in telemedicine. The researchers conducted globally so far suggest that the regular use of mobile nutritional applications contributes to the reduction of the value of glycated hemoglobin in diabetic patients.

The aim: Our aim was to answer the question which method of counting calories the most affects the level of metabolic control in DT1 patients measured by HbA1c levels.

Materials and methods: The study included 100 patients with DT1 from GCZD. The surveyed patients answered questions included in the original questionnaire about monitoring their nutrition. Moreover, medical data coming from patients' databases was used (age, sex, diabetes duration, last 3 HbA1c measurements).

Results: The most popular method of counting calories consumption was the use of mobile applications, used by 47% of the respondents, 31% respondents counted calories by eye, 17% used tables, 5% did not count calories at all. The best metabolic control was achieved by patients using nutritional books and/or tables (median: 6.5). The group using modern technologies for food calculation obtained higher results (median: 7.2) but still significantly lower than those who did not calculate the caloric value of meals or did it by eye (median: 7.8). Furthermore, positive correlation between younger patients' age, parents' involvement, subjective improvement in quality of life and choosing mobile applications was noticed.

Conclusions: Our study showed that patients with DT1 calculating meals in a precise manner show significantly lower levels of HbA1c. Mob apps improve QOL, but counting calories using books and nutrition tables lead to the best glycemic control.

Keywords: diabetes type1, DT1, mobile application, calories counting, HbA1c

Autism – just a disease or a major medical challenge?

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Background: Autism spectrum disorder (ASD) refers to a broad range of conditions characterized by challenges with social skills, repetitive behaviors, speech and nonverbal communication. ASD can take completely different forms, from mild symptoms to very severe, hindering functioning in every sphere of life. It can be a minor problem or a disability that needs full-time care in special facility. Autism in combination with other diseases may pose serious clinical challenge.

The aim: The aim of this study was to present a case of a patient treated in Clinic of Pediatrics in Zabrze because of chronic kidney disease due to congenital posterior urethral valve who was also diagnosed with ASD and recently was admitted to clinic with the first episode of twitch.

Case description: Patient, currently age 7,5 years old, was born in 35 hbd by C-section due to congenital posterior urethral valve and progressing renal failure. He is suffering from chronic kidney disease stage IV, megaurether, Atrial Septal Defect type II, recurrent urinary tract infections and is under qualification for renal transplantation. At age 3 he was diagnosed with ASD. He's medical condition requires nighttime catheterizing, multi-medicaments pharmacotherapy, special diet, daily fluid measurement. Understanding from the patient is a real challenge especially when it comes to diet restriction and hyperactive which can make a problem with dialysis therapy. Qualification for kidney transplant needs cooperation with the patient because of check-ups, conducting diagnostics, maintenance of good blood count levels in which diagnosed autism is also an important obstacle.

Conclusions: ASD is disorder that we still know little about and we can come across many challenges that come with it. For some of the patients autism isn't only disease and may have important impact on other illnesses and their clinical courses which can significantly reduce the standard of living.

Keywords: ASD, autism, urethral valve, chronic kidney disease, renal transplantation

From resistance to thyroid hormone to a foreign body in the stomach - a case report of 12,5-year-old girl with trichobezoar

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Background: Bezoars are masses formed of indigestible foreign material in the gastro-intestinal tract, usually in the stomach. Those materials could be indigestible fruit, hair, milk products or tablets. In children the most common type of bezoar is trichobezoar (formed of hair).

Case description: We describe a 12,5-year-old girl who has been complaining about deterioration of mood, collapsings without losing consciousness, scotomas and cardiac arrhythmias for two years. Based on thyroid hormones results (elevated ft3 and ft4, TSH normal) pituitary resistance to thyroid hormone was suspected. For this reason, the girl was admitted to the Department of Pediatric Endocrinology for further diagnostic workup. Before that the girl had been consulted by a gastroenterologist due to upper abdomen pain that kept for approximately two months. On the basis of appearance H. pylori antigen in stool the eradicating treatment was conducted. At the admission to the hospital the physical examination revealed an upper abdominal palpable mass. A number of diagnostic examinations were performed. The USG of abdomen was interpreted as showing no aberrations, except for additional spleen but it didn't give a further explanation of palpable mass. Therefore, the contrast X-ray of digestive tract was performed revealing deficit of contrast in stomach body and pylorus region suggesting the presence of the growth. Due to these results a decision to perform a gastroscopy was made, and it revealed a large trichobezoar of stomach. During hospitalization, the patient was consulted by a psychologist, who recommended further observation. Finally, trichobezoar was surgically removed without any complication.

Conclusions: Presented case shows that those unspecific symptoms require multiway diagnostics and cooperation of many specialists. It is crucial to interpret diagnostic examinations with regard to patient's physical condition. Diagnosis of trichobezoar demands insightful search of causes in order to avoid another incident.

Keywords: trichobezoar, abdominal mass

Meckel's diverticulum – a rare cause of intestine intussusception and ischemia in adolescent

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Background: Meckel's diverticulum is most common congenital malformation of gastrointestinal tract, which results from failure of the proximal part of vitelline duct regression. It is usually located in the distal ileum, within 60–100 cm of the ileocecal valve. Most of cases are asymptomatic and discovered by instance during other surgical procedures. In some people Meckel diverticulum gets inflamed and manifests itself initially as periodic, intermittent abdominal pain, with vomiting, fever, diarrhea, bloody stool as later symptoms. Intussusception caused by Meckel's diverticulum is an indication to its resection. The aim of this work is to make clinicians aware of a rare cause of intestinal intussusception and show that they should react immediately to avoid complications like peritonitis or bowel perforation.

Case description: Female Patient, 15 years old girl admitted to ER with strong abdominal pain. USG was performed, which revealed fluid in subhepatic recess, around the spleen and free fluid between intestinal loops. In suspicion of peritonitis, she was transferred to Pediatric Surgery Clinic, where decision about urgent surgery was made. During the procedure ileocecal intussusception of necrotic ileum with Meckel's diverticulum was discovered. The 30 cm of intestine loops was resected, then the end-to-end anastomosis was made. Peritoneal cavity fluid culture revealed presence of anaerobic bacteria – *Clostridium innocuum* and *Prevotella disiensis*. The targeted antibiotic therapy was implemented – cefuroxime aksetil, amikacin, metronidazole. Postoperatively without complications, discharged home a week after surgery in good condition.

Conclusions: Although intussusception due to Meckel's diverticulum is a rare cause of intestinal obstruction, clinicians should be aware of it in their practice, because symptoms are not specific. Symptomatic Meckel's diverticulum is an indication to surgery to avoid serious complications. The earlier surgery is made, the better prognosis for patient is.

Keywords: Meckel's diverticulum

Grasping at straws – trying to find some way to succeed when no common therapy is likely to work

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Background: Nowadays, complementary and alternative (CAM) medicine is associated with controversial ways of treatment, especially when it comes to pediatric epilepsy. There are cases in which academic medicine appears as useless, such as drug resistant or idiopathic form of the disease. Parents feel constrained to look for an efficient solution and most of them are grasping at straws.

The aim: The idea of our research was to investigate the influence of CAM on therapy of epileptic children with evaluation of pattern use, primary reasons and opinions.

Materials and methods: The trial consisted of an on-line survey, aimed at parents of children suffering from epilepsy. Our target group was these ones, who decided to use CAM in their children therapy. We've constructed an authorial questionnaire with over 40 questions, shared on online groups, associating parents of epileptics. Questions were focused on characteristics of syndromes and presumed alternative therapies. Research took place between November 2019 and January 2020.

Results: 94 parents completed the on-line survey. Results concerned mostly children with or under the age of 10. Opinion of effectiveness of the CAM used by the patients compared to use of AEDs was described as effective in 94% of those without AED and 66% with those receiving at least one AED. Less than 10% used only one therapy rather than CAM therapy. 13.8% of the respondents reported adverse effects of CAM.

Conclusions: It has to be assumed that non-standard treatment of pediatric epilepsy was considered rather effective by respondents. Noticed side effects of CAM was the cause of prudent selection with the necessity of medical consultation before using it. According to the results, not only one, but several types of alternative treatments, were chosen by parents.

Keywords: paediatrics, epilepsy, academic medicine, alternative medicine, CAM

Assessment of the prevalence of thyroid autoantibodies: thyroid peroxidase antibodies (ATPO) and thyroglobulin antibodies (ATG) in children with newly diagnosed diabetes mellitus type 1 (T1D) in years 2016-2019 in the Upper Silesia region, Poland

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Background: T1D is often associated with autoimmune thyroiditis. It is proven that the prevalence of thyroid antibodies is higher in children with T1D than in population without T1D.

The aim: The aim of our study was to evaluate the prevalence of thyroid antibodies: ATPO, ATG and their association with selected clinical parameters in children with newly diagnosed T1D. The retrospective study, based on hospital records, included 737 children (401 males) with newly diagnosed T1D, the median age-9.69 (25-75% 6.15-12.92) years. The analysis of prevalence ATPO, ATG was performed in three age groups:0-5; 5-10; 10-18 years. Analyzed parameters included: anthropometric data, GADA, IA2A, ZnT8A, HbA1c, C-peptide, daily insulin dose, TSH, fT4, presence of DKA.

Materials and methods: Positive ATPO and/or ATG were found in 10.6% among all children with newly diagnosed T1D: ATPO-9.4%, ATG-4.3%, ATPO and ATG (both)-3.1% with no significant differences in the prevalence between assess years. Positive ATPO were found in: 12.3%-10-18; 9.1%-5-10; 4.0%-0-5 years, and positive ATG: 5.7%-10-18; 4.7%-5-10; <1%-0-5 years in respective age groups. Positive ATPO were significantly more frequent in older children (Me 10.81 vs Me 9.47 years; $p=0.005$), as well as positive ATG (Me 11.47 vs Me 9.59 years; $p=0.040$). Positive ATPO were observed more often in girls (63.8% vs 36.2%; $p=0.002$). Moreover, in the analysis of selected clinical parameters, statistical significance was found as follows: positive ATPO coexisted significantly more often with positive and higher GADA (86.8% vs 13.2%; $p=0.008$; Me 186.93 vs 48.69 U/ml; $p=0.001$), in children with respectively positive ATPO and ATG, were observed higher level of HbA1c (Me 12.2 vs 11.5%; $p=0.039$; Me 12.4 vs 11.06%; $p=0.039$) and higher TSH (Me 3.43 vs Me 2.89 mIU/l; $p=0.008$; Me 3.88 vs Me 2.92 mIU/l; $p=0.010$).

Results: Positive thyroid antibodies were found in approximately 11% of the pediatric population in Poland with newly diagnosed T1D, especially in older children, female and with positive GADA.

Keywords: type 1 diabetes, children, thyroid antibodies, ATPO, ATG

Hydrops fetalis – the almost forgotten effect of serological conflict

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Background: In the last 40 years, Rh factor immunization has ceased to be one of the most common causes of perinatal fetal and neonatal mortality.. Implementation of routine, postnatal prevention in 1970s reduced the risk of fetal and neonatal haemolytic disease in the following pregnancy from 12-13% to 1-2%. In the 1980s, the introduction of additional intra-pregnancy use of anti-D immunoglobulin, reduced immunisation during pregnancy to 0.2% of cases. Hydrops fetalis, the rarest form of serological conflict, occurs in approximately 1 in 1700 to 1 in 3000 pregnancies, and is diagnosed by prenatal ultraserological asound when at least two abnormal fetal fluid collections are present, including ascites, pleural effusion, pericardial effusion, or skin edema.

Case description: A newborn with hydrops fetalis, based on Rh serological conflict, was described. Neonate was born prematurely (31hbd) in a very serious condition (apgar 1/1/1/1) by caesarean section (indications: hydrops fetalis and threatened intrauterine asphyxia) with hydrops fetalis. Previous labour was in Ukraine. Mother did not receive immunoprophylaxis after the 1st pregnancy. In the current pregnancy, a Coombs test was performed for the first time at 29 weeks gestation. The anti-C antibody titer was 1:8, anti-D antibody titer was 1:1024. The patient was referred for an ultrasound examination which was performed at 31 weeks gestation. The examining doctor confirmed hydrops fetalis and referred the patient to hospital, where it was decided to perform an emergency caesarean section.

During the cesarean section dark amniotic fluid drained away. After labour, the newborn was resuscitated. 30ml of dark fluid was drained from the pleural cavity and about 30ml from the peritoneal cavity. The baby's condition was critical. After 32 minutes the newborn died.

Keywords: hydrops fetalis, serological conflict, newborn

Autoimmune hemolytic anemia with cold agglutinin as a rare manifestation of Epstein-Barr virus infection

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Background: Infectious mononucleosis is one of the most common manifestations of Epstein-Barr virus infection. Although cold agglutinin occurs in more than 60% of patients with infectious mononucleosis, it is rare to develop autoimmune hemolytic anemia (1-3% of infected patients). Antibodies form in a cold type of autoimmune hemolytic anemia belong mainly to IgM, but also to IgG, IgA class, against polysaccharides found on erythrocytes, due to which they agglutinate at low temperatures what leads to complement activation and hemolysis. Characteristics of hemolytic anemia are high: percentages of reticulocytes, LDH activity, free bilirubin concentration, and low haptoglobin concentration.

Case description: 7 years old boy, referred from GP. He was admitted to the hospital due to the yellowness of the skin and whites of the eyes. His upper respiratory tract was infected for 3 days. When he was 3 years old, he was diagnosed with diabetes type 1. During admission to the hospital, he was in good condition. In physical examination, no further abnormalities were found. Results of laboratory tests showed a high level of CRP and procalcitonin and features of hemolytic anemia. In USG examination of the revealed splenomegaly. The serological examination confirmed an active EBV infection. Due to progressive anemization, warm blood was drawn for clot and 2 times for EDTA, and hemolytic anemia with cold agglutinin was confirmed. Methylprednisolone and Clemastinum were administered. Then packed red blood cell transfusion was made. In check-up examination, there were packed red blood cells not seen features of hemolysis and the level of hemoglobin was normal.

Conclusions: Although hemolytic anemia with cold agglutinin occurs rare, it can be a serious threat to health and life. It should always be considered in differential diagnosis hyperbilirubinemia and anemia during active viruses' infection such as EBV.

Keywords: EBV, hemolytic anemia, cold agglutinin

Suspicion of Jacobs Syndrome in a 9-month-old boy

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Background: Jacobs syndrome is caused by a quantitative aneuploid type chromosome disorder characterized by the presence of an additional Y chromosome in men.

XYY syndrome occurs in approximately 0.1% of the male population. It is estimated that this number is significantly underestimated due to the lack of genetic screening.

To confirm Jacobs syndrome, a man must have an XYY karyotype and clinical signs such as physical and behavioral features. Physical features include high growth, while behavioral features include developmental delay, speech disorder, cognitive impairment, and emotional and social development difficulties. What is more, the IQ level is often reduced by 10 to 15 points compared to siblings.

Case description: A boy born by nature during the first pregnancy. It was a threatened pregnancy because genital bleeding occurred at the 9th week of pregnancy. At the 13th week of pregnancy, abnormal flow on the tricuspid valve (retrograde wave) was observed, therefore, at the 16th week of pregnancy, an amniocentesis was performed, in which the karyotype 47, XYY was found.

Since birth, the patient's weight, height, and circumference exceed the mean values. The patient had problems with food intake such as downpouring and an undercutting of the frenulum was performed at 3 months of age. The patient was also diagnosed with reduced muscle tone and poor eye contact.

Conclusions: The infant develops abnormally. Time standards in the implementation of milestones have not been observed.

The child has some features that may suggest the occurrence of Jacobs syndrome, they are hypotension, low, but normal body weight with concomitant tall growth. At present, the child does not show behavioral and social problems.

XYY syndrome is difficult because there are only symptomatic treatment options, consisting of minimizing discomfort.

Keywords: 47,XYY, aberracja chromosomów pici, aneuploidia, wysoki wzrost

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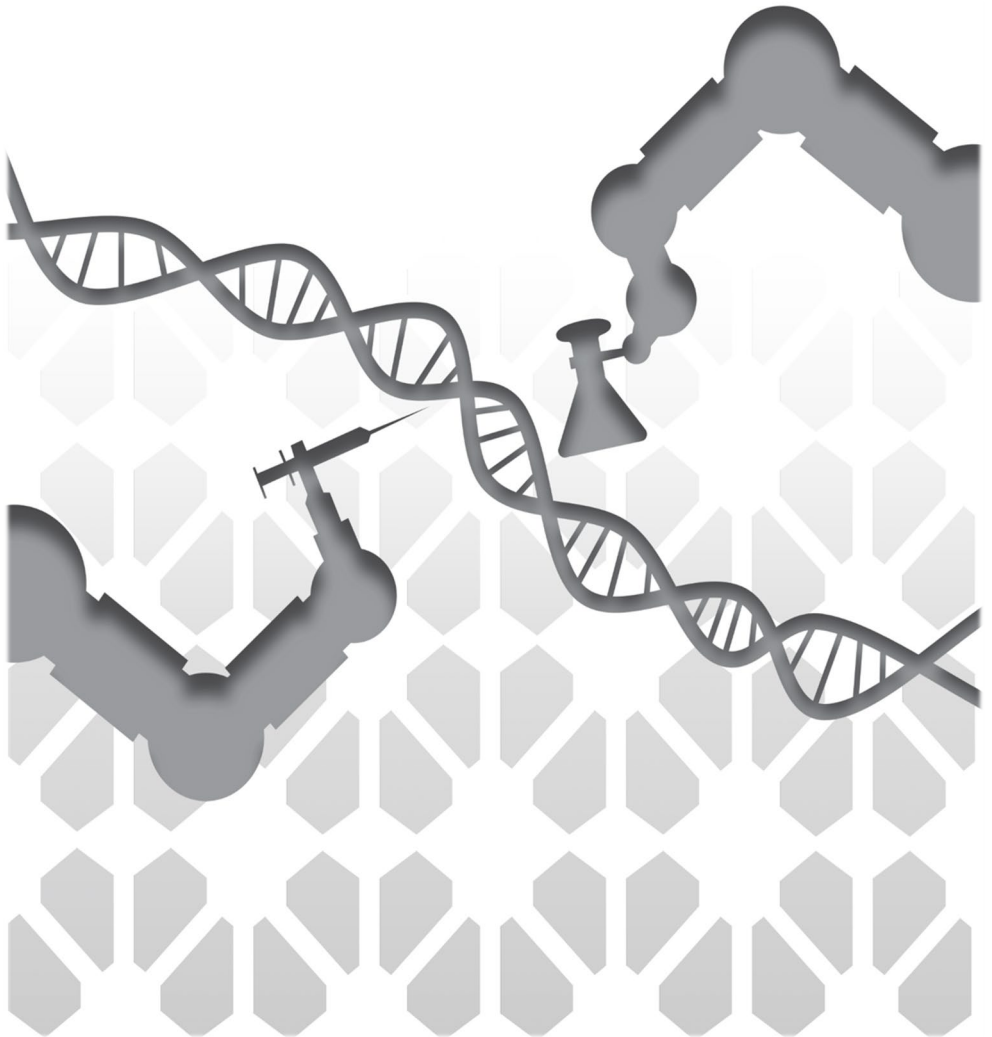


Table of contents

What patients with MS do know about COVID-19 and what they should know	228
Evaluation of halitosis in patients after ischemic stroke compared with the selected blood parameters.....	229
Seven ischemic strokes until the diagnosis of antiphospholipid antibody syndrome.....	230
CADASIL - when to suspect	231
COVID-19 in the course of relapsing-remitting multiple sclerosis	232
The silent executioner – the case study of rhabdoid meningioma	233
The epidemic of the 21st century. Smartphone – a work tool or a source of addictions? ...	234
Short and long-term outcomes in symptomatic Chiari malformation I patients undergoing posterior fossa decompression and duraplasty with or without tonsillectomy and evaluation of postoperative outcomes predictors: a multicenter retrospective study	235
Can the expression profile of interleukins be used to classify glioma’s grade in the future?	236
Metastasis of breast cancer to pituitary adenoma. Case report.....	237
Petroclinoid ligament and Dorello's canal anatomic variability and their clinical implications	238
Irritable brain syndrome or bowel’s migraine? - the link between migraine and IBS.....	239
Significance of early and repeated rehabilitation following a traumatic brain injury: a case report	240
The influence of seasonality, vitamin D supplementation and other extrinsic factors on relapse occurrence in patients with relapsing-remitting type of multiple sclerosis	241

What patients with MS do know about COVID-19 and what they should know

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Introduction: By January 2021 the diagnosis of COVID-19 was set among 1 500 000 patients in Poland. As the number of confirmed SARS-Cov2 infections tends to grow, the probability of COVID-19 raises. In Poland the multiple sclerosis (MS) patients' population, to which belong about 40.00-60.000 members, is quite numerous comparing to other countries. First doses of COVID-19 vaccines were distributed on 27th of December 2020.

The aim: The SARS-CoV-2 infection, decision about vaccination and awareness may have an relevant impact on MS patients health. Considering this fact, we decided to conduct the study.

Methods & Materials: A survey was carried out between January and March 2021 online and among the patients of Department of Neurology of Medical University of Silesia in Katowice. The survey contains basic demographic questions, investigates knowledge about COVID-19, attitude to vaccination and pandemic's impact on MS's therapy.

Results: We collected 280 surveys, 128 online, 152 stationary, 80 were rejected. 92,5% respondents claim to regularly update information on SARS-CoV-2 pandemic. Among the most commonly mentioned symptoms of COVID-19 are fever, cough, taste and smell disturbances, breathlessness. There weren't any significant differences regarding sex, age, educational level or place of living. 41,5% of respondents are opposed to get vaccinated. The most commonly mentioned arguments against vaccination were thread of side effects and believe, that the vaccinations were not properly studied. 66,5% feel threatened with SARS-CoV-2 infection. We found association between concern about COVID-19 and willingness to be vaccinated ($p=0.002$). 17% of respondents were infected with SARS-CoV-2, however just one patient. was hospitalized.

Conclusion: The majority of patients with multiple sclerosis are aware of SARS-CoV2. Regarding this fact, they show very poor willing to get vaccinated. This study underlines necessity of discussion with MS patients about SARS-CoV-2 and vaccination.

Keywords: COVID-19, SARS-CoV-2, multiple sclerosis, vaccination, awareness, knowledge, pandemic, infection

Evaluation of halitosis in patients after ischemic stroke compared with the selected blood parameters

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Background: Periodontal and other oral infections can be potential risk factors for stroke. Additionally, in these diseases, we may observe the presence of halitosis, which is related to sulphur compounds. Halitosis can be objectively diagnosed using devices detecting chemical compounds contained in the breath.

The aim: The aim of this study was to reveal the relationship between the level of Sulphur compounds and selected parameters of biochemical, morphological and pressure measurements in patients hospitalized for ischemic stroke.

Materials and methods: Handheld halimeter was used to test 52 patients with an average age 68 ± 12 y, hospitalized in the neurology department for ischemic strokes. On average the results of the halitosis measurement were 28 ± 17 ppb. The sulphide levels were compared with the results of morphological, biochemical, diagnostic imaging technique and pressure measurements.

Results: There were found correlation between sulphide concentrations and the time of hospitalization ($r = -0.33$; $p < 0.05$), glucose concentration ($r = 0.39$; $p < 0.05$), the number of platelets ($r = -0.28$; $p < 0.05$), the minimum systolic blood pressure (SBP) values observed in the 24-hour blood pressure measurement ($r = -0.28$, $p < 0.05$).

Conclusions: Our study found that elevated levels of Sulphur compounds in the mouth may be related to blood glucose levels. Statistically significant correlations between the level of sulphides and systolic blood pressure as well as the number of platelets may indicate a relationship of this parameter with ischemic stroke but require further research.

Keywords: ischemic stroke, halitosis

Seven ischemic strokes until the diagnosis of antiphospholipid antibody syndrome

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Background: Antiphospholipid antibody syndrome (APS) is an autoimmune condition characterized by venous or arterial thrombosis and/or pregnancy morbidity. For diagnosis at least one of the three antibody types must be evident in plasma or serum: anticardiolipin antibodies, lupus anticoagulants, anti- β 2-glycoprotein-I antibodies. Stroke is the most frequent neurological manifestation of APS.

Case description: 53-year-old male was admitted with a preliminary diagnosis of transient ischemic attack (TIA). Patient is complaining of general fatigue and im-paired balance and gait for more than 4,5 hours. Examination reveals gaze palsy and tongue deviation to the left side, deep hemiparesis, and sensation impairment on the left side of the body and Babinski reflex in the left foot. Native CT, MR and MRA of the brain reveal acute ischemic changes in the right middle cerebral artery territory as well as multiple old ischemic lesions in the right frontal, parietal and occipital lobes as well as left parietal lobe. In the past 13 years patient has been hospitalized with TIAs 6 times. Symptoms of each of those TIAs coincide with old is-chemic lesions seen on CT and MR, suggesting that each of them was a stroke.

Other investigations, including native CT and echocardiography reveal diffuse changes in lungs, left ventricle diastolic dysfunction, mitral and aortic valve regurgitation. In suspicion of systemic disease, laboratory tests for APS are done, where Anti-Cardiolipin IgA, IgM, IgG come back positive.

Summary: This case report demonstrates a young man with undiagnosed symptomatic APS, resulting in multiple strokes, misdiagnosed as TIAs. Early diagnosis of APS and prophylactic treatment is crucial to prevent recurrent thrombosis.

Conclusions: In the case of symptomatic APS, early diagnosis is crucial to exclude recurrent thrombosis by implicating secondary prevention, where the vitamin K antagonists are preferred over antiaggregant or direct oral anticoagulant treatment.

Keywords: antiphospholipid antibody syndrome, recurrent stroke

CADASIL - when to suspect

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Background: Cerebral autosomal dominant arteriopathy with subcortical infarcts and leukoencephalopathy (CADASIL) is a hereditary cerebral small vessel disease caused by mutations in NOTCH3 gene expressed on pericytes and vascular smooth muscle cells to maintain vascular contractility in adults. Mutations in NOTCH3 contribute to vessel's dysfunction and induce cerebral infarction, white matter disease and microbleeds. Main clinical features include migraine with aura, recurrent subcortical ischemic events, mood disturbances, progressive cognitive impairment and acute encephalopathy. The onset is in the 3rd and 4th decade of life. Prevalence of CADASIL is estimated at 2 to 5 people in 100,000, although this number varies depending on population.

Case description: A 60-year-old man was referred to the Genetic Clinic for suspected CADASIL. Initial clinical symptoms occurred at the age of 38, when he was hospitalized for mood disturbances. The MRI performed then revealed periventricular zones of T2 hyperintense signal. Based on follow-up MRIs the patient was diagnosed with multiple sclerosis or acute disseminated encephalomyelitis and wasn't aware of the actual disease for the next 20 years. At the age of 58, following an episode of impaired consciousness and a seizure attack he was admitted to a hospital and got a MRI done that revealed periventricular white matter degeneration and lacunes. The patient was diagnosed with CADASIL. The diagnose was confirmed with molecular testing, a known pathogenic mutation in NOTCH3 p.Arg90Cys was found. The medical history of 2 other members of the family is consistent with the final diagnosis.

Conclusions: CADASIL is a rare condition where radiological findings may suggest the right diagnosis which is confirmable by genetic testing. Taking into account impact on individual's life and possible consequences for genetic counseling in the family, it is necessary to reach diagnosis in shortest possible timeframe.

Keywords: CADASIL, NOTCH3, subcortical infarcts, leukoencephalopathy

COVID-19 in the course of relapsing-remitting multiple sclerosis

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Background: Multiple sclerosis (MS) is a chronic inflammatory neurodegenerative disease resulting in various neurological symptoms, physical disabilities, and cognitive impairment. It is characterized by demyelination and neuronal loss seen as characteristic lesions in MRI. The most common subtype is relapsing-remitting MS (RRMS).

Case description: A 38-year-old patient diagnosed in RRMS recovered from SARS-CoV-2 infection in May 2020. At the beginning of the infection, she presented severe headaches, vertigo, dizziness, and after 2 days later-conjunctivitis, disturbed smell, and taste that lasted about a week. Disease-modifying therapy with dimethyl fumarate was discontinued for the time of infection (18 days) and introduced 3 weeks after negative PCR test results. Any other medications were used due to infection and the patient was not hospitalized. During the time of infection, the patient started to present cognitive and emotional impairment, such as memory impairment, inability to learn, concentrate, and anxiety, also hearing loss. The results of the psychological tests indicated mild neurocognitive dysfunctions.

The symptoms lasted for about 6 months, then learning abilities and concentration improved after the introduction of piracetam in the treatment plan while hearing impairment persists. After the COVID infection, electroencephalogram results were abnormal with focal changes in the left frontotemporal region. Demyelinating plaques in MRI were stable with no active lesions. Relapse neither accrue during the time of infection nor after. Nowadays, the general and neurological condition of the patient is stationary and the immunomodulatory treatment is continued.

Conclusions: Although COVID-19 is a life-threatening disease for specific groups of patients, it seems to not worsen the clinical and radiological outcomes of RRMS patient treated with dimethyl fumarate. The course of the SARS-CoV-2 infection was not more severe. Any relapses were observed after COVID-19 infection.

Keywords: multiple sclerosis, relapsing-remitting MS, COVID-19

The silent executioner – the case study of rhabdoid meningioma

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Introduction: Meningiomas are the most common brain tumors, most of them are benign, however 1-3% have been described as malignant. Among those, there is a very rare, while vastly aggressive, rhabdoid meningioma, regarded as WHO grade III. This tumor is associated with rapid growth, high incidence of recurrence and worse survival rate than others. It requires immediate diagnosis and treatment, however there is lack of clear guidelines, and data are mainly based on case reports.

Case description: 48 years old woman, without comorbidities, started to suffer with strong, drug-resistance headaches, causing awakenings during the night. Computer tomography examination revealed a tumor in the left temple lobe. Frontotemporal craniotomy has been performed in the Neurosurgery Department. The postoperative histopathology report showed rhabdoid meningioma. In patients with this diagnosis postoperative radiotherapy is required. Patient has been admitted to the Department of Oncology at University Clinical Centre in Katowice and received 30 Gy/15 fractions out of prescribed 60 Gy/30 fractions. During the treatment the neurological state of the patient has deteriorated. The treatment has been put on hold.

Conclusion: Rhabdoid meningioma is a rare condition, however due to its aggressiveness, it can become life-threatening in the span of just few months. Thorough analysis of every case might help to indicate the best medical management of this disease.

Keywords: rhabdoid meningioma, WHO grade III, brain tumour

The epidemic of the 21st century. Smartphone – a work tool or a source of addictions?

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Introduction: Phonoholism is the excessive and harmful use of a mobile phone, becoming an addiction not only among children and adolescents. Nowadays, we observe the prevalence of this phenomenon among adults more often. Using a cell phone for several hours may lead to somatic and psychological symptoms such as headaches and depression.

The aim: To assess the impact of smartphone use on human health.

Materials and methods: 308 people with an average age of 25.42 ± 5.8 years, 213 women (69.16%) and 94 men (30.52%), took part in an anonymous questionnaire consisting of the following elements: Hospital Anxiety and Depression Scale (HADS), Mobile Phone Problem Use Scale (MPPUS-9), and original questions regarding headaches, sleep quality, and the subjective assessment of the use of mobile phones and the objective evaluation based on data from the "Stay Free" for the Android operating system and "Screen Time" for IOS. The questionnaires were collected between February 24, 2021, and March 20, 2021.

Results: 27 respondents (8.77%) obtained a score on the MPPUS-9 scale, which proved problematic use of mobile devices. In this group ($MPPUS \geq 53$ points) respondents watched movies on their mobile devices more often (35,2 vs 63,0% $p=0,025$) and morning sleepiness was more frequent ($MPPUS < 53$ vs. $MPPUS \geq 53$) (40,6 vs. 66,7% $p=0,048$). Among excessive users headaches were more frequent (64.1% vs. 88.9%, $p=NS$). Excessive users scored worse on HADS-A (anxiety) (A 6,69 vs. 9,00 $p=0,002$) and HADS-D (depression) (4,17 vs. 6,25 $p=0,010$). They were characterized by 58 minutes longer screen time (4h5min vs. 5h3min) - objectively measured, which was a statistically significant result ($p=0,037$).

Conclusion: Excessive use of the telephone negatively affects somatic and mental health.

Keywords: phonoholism, headache, depression, sleep disorder

Short and long-term outcomes in symptomatic Chiari malformation I patients undergoing posterior fossa decompression and duraplasty with or without tonsillectomy and evaluation of postoperative outcomes predictors: a multicenter retrospective study

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Background: Chiari malformation type I (CMI) is defined as a caudal displacement of the cerebellar tonsils through the foramen magnum. While numerous studies proved the superiority of additional duraplasty (PFDD) over bone-only posterior fossa decompression (PFD), the differences between PFDD and additional cerebellar tonsils resection (PFDR) remain unclear.

The Aim: This study aimed to compare the short and long-term clinical efficacy of PFDD and PFDR and evaluate the predictors of postoperative outcomes in those patients.

Materials and methods: A retrospective analysis of patients who underwent PFDD or PFDR between 2010 and 2018 for CMI in 7 medical centers was performed. Clinical outcomes were assessed during the hospital stay (short-term outcomes) and at the latest available follow-up (long-term outcomes), applying additionally Chicago Chiari Outcome Scale (CCOS). Syringomyelia course was evaluated at the latest available follow-up.

Results: 73 patients – 55 in the PFDD and 18 in the PFDR group - were included. Short-term outcomes showed that patients undergoing PFDD revealed a higher improvement rate ($p < 0.001$) and were more likely to remain in the stable clinical state ($p = 0.006$) than patients who underwent PFDR. Notably, long-term outcomes did not differ between PFDD and PFDR groups. Mean CCOS scores were 12.05 in the PFDD group and 11.98 in the PFDR group ($p > 0.05$). Moreover, cerebellar signs ($p = 0.047$), PFDD technique ($p = 0.009$), syringomyelia presence ($p = 0.126$), and lack of motor disturbances ($p = 0.025$) formed the most appropriate model indicating positive predictors of postoperative outcomes.

Conclusions: Although the PFDD technique revealed better short-term outcomes, the long-term outcomes were comparable between PFDD and PFDR. We presume that lack of short-term clinical improvement in PFDR patients does not predict overall poor outcome, rather the need for further long-term evaluation. Despite worse short-term outcomes in the PFDR group, both techniques are equally effective. However, PFDD appeared to be a positive predictor; therefore, we point out that PFDD is likely to be superior to PFDR.

Keywords: Chiari malformation type I, posterior fossa decompression, duraplasty, tonsillectomy, predictors, long-term outcomes

Can the expression profile of interleukins be used to classify glioma's grade in the future?

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Background: Glioblastomas multiforme (GBM) are one of the most common primary brain tumors, characterized by high malignancy with a very poor prognosis in most cases. The World Health Organization divides gliomas into grades I-IV depending on their histology and molecular parameters. The survival times of patients with GBM, despite the implementation of intensive treatment, often do not exceed one year. For this reason, early and accurate diagnosis of brain tumors is particularly important for more effective treatment. For diagnostic purposes the determination of the expression profile of selected genes can be used.

The aim: The aim of this study was to assess the usefulness of determining the profile of changes in gene expression encoding interleukins, in particular IL-8 and IL-14, in differentiating the grade of astrocytic gliomas.

Materials and methods: Tissue samples were obtained initially from 9 patients with diagnosed astrocytic brain tumor in histological grade II-IV who underwent surgical treatment at the Department of Neurosurgery and Clinical Department of Medical University of Silesia in Sosnowiec. Total RNA isolation was performed using TRIzol® reagent as recommended by the manufacturer. The expression profile of genes encoding interleukins was determined by HGU133A oligonucleotide microarrays. The analysis of the results was accomplished using the PL-Grid Infrastructure.

Results: Microarray analysis demonstrated that the gene expression level of IL-8 and IL-14 rises with the increasing malignancy of the tumor. In the grade II glioma, significantly lower expression of these interleukins was observed than in the samples collected from patients suffering from grade III or IV glioma.

Conclusions: Based on the obtained results, it can be concluded that IL-8 and IL-14 have significant influence on the severity of glioma. Differences in the expression profiles of these genes may prove helpful in the diagnosis of the grade of glioma and contribute to the selection of a more effective treatment method.

Keywords: glioma, IL-8, IL-14, microarrays analysis

Metastasis of breast cancer to pituitary adenoma. Case report

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Introduction: Metastases to the pituitary adenoma are an extremely rare clinical phenomenon and uncommon location of intracranial metastasis. In contrast to adenomas, which are the most common pituitary tumor lesions, described only 30 cases of cancer metastasis to the pituitary adenoma. These, in turn, usually affect the elderly, already diagnosed with a metastatic malignant process. The symptoms are nonspecific and are found only in 18% of cases, including mainly diabetes insipidus and visual field defect.

Case description: A 61-years-old woman was admitted to the neurosurgery department due to a visual disturbance of significant degree, progressing for 2-3 months. The patient had been treated for 8 months for advanced left breast cancer with metastases to the L4 vertebrae and to the liver. Magnetic Resonance Imaging (MRI) of the head revealed the 23x27 mm lesion in suprasellar and intrasellar area. The lesion was isointensive in T1-weighted imaging and featured peripheral enhancement after contrasting medium administration. The T2-weighted image showed an intermediate signal intensity. The picture suggested a macroadenoma of the pituitary gland. The patient underwent endoscopic endonasal transsphenoidal removal of the lesion. The histopathological examination revealed ultrastructural features of two neoplasms occurring side by side - adenocarcinoma and gonadotrophin oxytocin pituitary carcinoma. The histopathological picture of adenocarcinoma was consistent with breast cancer metastases.

Conclusions: The clinical course and symptoms of pituitary adenoma metastases are similar to these of the parasellar tumors. The rarity of metastases to the pituitary adenoma, as well as the lack of specific clinical and radiological features, make it difficult to differentiate pituitary adenoma metastasis from other more typical pituitary lesions. In cases of atypical pituitary lesions in oncological patients, neurosurgeons should be especially careful and send the entire pathological masses for histopathological examination to allow the exact assessment of the two components of the tumor. The correct diagnosis could only be made thanks to the histopathological examination.

Keywords: pituitary metastasis, endoscopic endonasal transsphenoidal surgery, pituitary adenoma, breast cancer metastasis, tumor to tumor

Petroclinoid ligament and Dorello's canal anatomic variability and their clinical implications

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Background: The petroclinoid ligament (PCL) creates the roof of the Dorello's canal (DC). Close relationship with various significant anatomic structures, as the abducens nerve and the petroclival venous confluence, plays an important clinical role. From a surgical point of view, proper knowledge of these variations enable using PCL as a landmark in numerous neurosurgical skull base procedures.

The aim: Our goal was to assess anatomic variability of the petroclinoid ligament (Gruber's ligament/PCL) and Dorello's canal with emphasis on their further clinical implications.

Materials and methods: We dissected 94 sides from 47 skull base specimens of adults (avg. age- 54,9 years; 36 males; 11 females). The arteries were injected with colored latex to facilitate the dissection. The PCL and DC area were dissected with microsurgical techniques using magnification 2-10X (OPMI PZO/Zeiss). We investigated: shape, structure and attachment points of ligament. Measurements of the PCL, DC and neighboring skull base structures were completed using morphometric software and microscope ocular ruler. Moreover, the angle of PCL according to the body planes was evaluated.

Results: We have observed all previously defined types of PCL, with the butterfly's type being most common (35,11%; n=33). In a few specimens the ligament was duplicated, ossified or hypoplastic. The mean length of the PCL was 12,9 mm ($\pm 2,4$ mm). The PCL origin/insertion were significantly variable- petrous apex and its neighbouring bone to the area between posterior clinoid process and upper clivus. The DC was 1,7 mm ($\pm 1,2$ mm) wide, 7,9 mm ($\pm 3,5$ mm) long. PCL relation to the sagittal plane varies between specimens from 22°20'37" to 66°48'52" (avg.- 43°9'54").

Conclusions: A PCL and a DC are both highly variable structures. Specific anatomical configurations of these structures may influence the different susceptibility of the CN VI (located laterally or medially in Dorello's canal) to injury during skull base surgical approaches and cranio-cerebral trauma.

Keywords: anatomic variability, neurosurgery, petrosphenoidal ligament, Dorello's canal

Irritable brain syndrome or bowel's migraine? - the link between migraine and IBS

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Background: Migraine is one of the most prevalent headache disorders. Patients with migraine suffer from other diseases such as Irritable Bowel Syndrome more frequently than general population. So far, no studies have been conducted in Poland concerning comorbidity of migraine and IBS. Also, little is known about their mutual effect.

The aim: Our study aimed to assess the prevalence of IBS in migraine patients and to establish a connection between the incidence of IBS and the course of migraine.

Materials and methods: 268 patients (255 women and 13 men) diagnosed with migraine according to the ICHD-3 criteria, aged between 18 and 74 (mean age 34.8 ± 11.3 years) participated in our study. Rome IV criteria were used to diagnose participants with IBS. The study included authorial demographic and medical history questionnaire.

Results: Among 268 patients suffering from migraine, 19 were diagnosed with IBS (7.1%). Among patients with migraine and IBS, a significantly higher prevalence of migraine with aura was observed - 73.7% vs 43.4% (Fisher test, $p=0,015$). No more statistically significant links were found in other variables such as gender, age, obesity, association between frequency and severity of migraine and the coexistence of IBS and the prevalence of associated symptoms among patients with migraine.

Conclusions: The prevalence of IBS is higher among patients suffering from migraine than in general population. Higher correlation was observed in case of patients suffering from migraine with aura. However, the exact mechanism responsible for this remains unknown, thus requires further research. It is very important to identify the underlying mechanisms which may enable to optimize appropriate therapy of both medical conditions.

Keywords: migraine, aura, irritable bowel syndrome, gut brain axis

Significance of early and repeated rehabilitation following a traumatic brain injury: a case report

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Background: Traumatic brain injury is a complication of motor vehicle accidents that causes physical, cognitive and social issues. Coordinated efforts of the rehabilitation team are especially significant to achieve maximum functional activity of the patient.

Case description: We present a female patient who experienced a severe traumatic brain injury in a car accident. Early rehabilitation was started right away, the main method being physical therapy. The patient was experiencing feelings of anger and hopelessness towards her situation. A month after the accident the patient's Barthel index was 5 points. Three months later, the score has increased to 20 points and continued to increase to 40 points over the following month. By the end of this phase, the patient was able to eat served food and walk with the help of a walker or other people. Significant changes in the patient's independence and autonomy were observed over 5 years when the patient was attending repeated rehabilitation. The patient's emotional state has significantly improved: anger and resentment were much less common. Due to applied repeated rehabilitation episodes over the period of 5 years, the Barthel index has increased from 40 to 100 points, indicating complete independence of the patient. The most adverse factors influencing the life of the subject were general health disorders and reduced circle of friends, which lead to psychological stress. Marriage and birth of a child, support from loved ones, positive thinking, enjoyable activities motivated the subject to follow through with rehabilitation treatment and improve her state of autonomy.

Conclusions: During five years of rehabilitation after a motor vehicle accident, major changes were observed in our patient's autonomy and independence. This case report outlines the significance of both early rehabilitation in the acute phase and repeated rehabilitation in the later phase of a severe traumatic brain injury.

Keywords: rehabilitation, traumatic brain injury, Barthel index

The influence of seasonality, vitamin D supplementation and other extrinsic factors on relapse occurrence in patients with relapsing-remitting type of multiple sclerosis

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Background: Recognizing the impact of environmental circumstances of relapse occurrence in Multiple Sclerosis (MS) patients allows for better control over the course of the disease. This study aimed to analyze the effect of the following factors: disease span, seasonality, vitamin D supplementation, sleep disorders and infections on frequency of attacks in MS patients.

Materials and methods: The study was conducted using a survey among MS patients admitted to the Department of Neurology in Central University Hospital in Katowice in the years 2018-2020 and among the members of peer support groups for MS patients on social media. The survey included questions about disease onset, number of attacks overall, in the last year and their seasonality, types of treatment, viral and bacterial infections, types of sleep disorders and vitamin D supplementation. MedCalc was used for statistical analysis.

Results: Out of 126 patients, 97 (77.0%) were women and 29 (23.0%) were men. Mean age was 36.5 and mean disease span 8.50 years. The average number of attacks was 7.6. Male patients experienced more attacks per year than female (2.48 and 1.83 respectively, $p=0.04$). Positive correlation between increasing disease span and the number of attacks per year (av. 5.43) was observed. The highest number of patients experienced relapses in fall (48) compared to summer and winter when the least attacks occurred (38). 103 (81.7%) patients took vitamin D supplements, however male patients were less likely to (65.5% compared to 86.6% for female, $p=0.01$). 78 patients (61.9%) experienced sleep disorders out of which the most prevalent was insomnia (36, 28.6%). 85 patients (67.5%) had an infection in the 6 months preceding the attack. 51 patients (40.5%) implied a viral infection and 34 (27.0%) bacterial.

Conclusions: External factors play a key role in frequency of attacks in relapsing-remitting type of MS, which makes them an integral part of patient education for the physician. Patients especially experience less attacks while supplementing vitamin D.

Keywords: multiple sclerosis, relapsing-remitting, relapse, vitamin D

SESSION OF NON-INVASIVE CARDIOLOGY

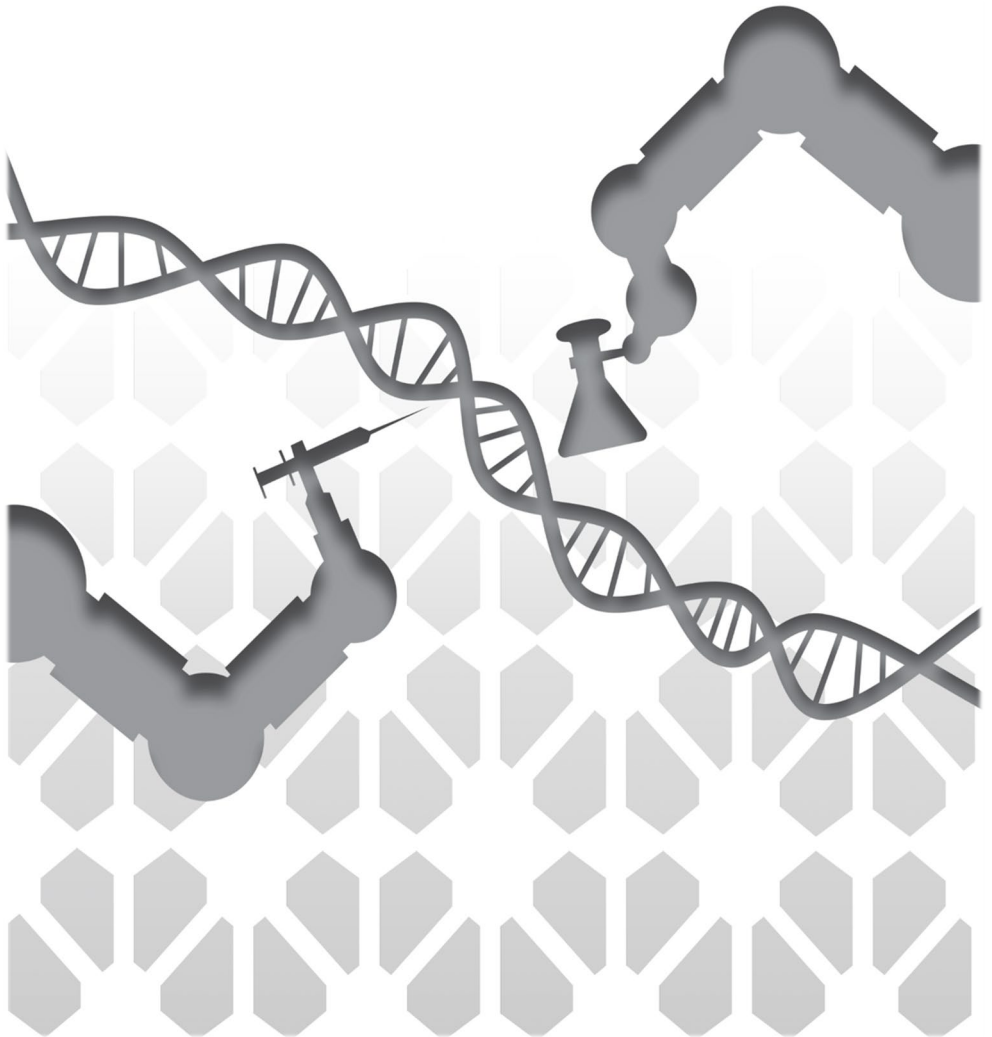


Table of contents

The Peguero-Lo Presti electrocardiographic criterion – a useful tool for detecting left ventricular hypertrophy in severe aortic stenosis.....	244
Prognostic significance of inflammatory white blood cell-associated haematological values for atrial fibrillation early and late relapse after direct current cardioversion	245
Valsartan reduces the level of soluble ST2 and preserves left ventricle contractility in patients with a dual-chamber pacemaker	246
Cardiac papillary fibroelastoma: a histochemistry and immunohistochemistry study of four cases	247
Unusual presentation of congenital aortic valve defect - more data, more doubts in 10 years follow-up.....	248
Wild at heart – multiple mechanisms of cocaine induced myocardial infarction	249
Efficacy of electrical cardioversion in relation to occurrence and type of functional mitral regurgitation in patients with atrial fibrillation.....	250
De novo dilated cardiomyopathy - various clinical scenarios leading to temporary success	251
Does the ability to predict left ventricular hypertrophy differ between R- and S-waves voltage in aortic stenosis?.....	252
Ventricular tachycardia in 3 channel Holter recordings - indicators suggesting ventricular origin of arrhythmia	253
Vital Genome Persistence in the Myocardium of Patients with Dilated Cardiomyopathy	255
Evaluation of the pharmacotherapeutic impact on contractility recovery in patients with newly diagnosed, acuteonset dilated cardiomyopathy	256

The Peguero-Lo Presti electrocardiographic criterion – a useful tool for detecting left ventricular hypertrophy in severe aortic stenosis

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Background: Traditional electrocardiographic (ECG) criteria for left ventricular hypertrophy (LVH), introduced in the pre-echocardiographic era of diagnosis, have a relatively low sensitivity (usually not exceeding 25–40%) in detecting LVH. However, a novel Peguero-Lo Presti ECG-LVH criterion was recently shown to exhibit a higher sensitivity than the traditional ECG-LVH criteria in hypertension.

The aim: Our aim was to test the diagnostic ability of the novel Peguero-Lo Presti ECG-LVH criterion in severe aortic stenosis.

Materials and methods: We retrospectively analyzed 12-lead ECG tracings and echocardiographic records from the index hospitalization of 50 patients with isolated severe aortic stenosis (mean age: 77 ± 10 years; 30 women and 20 men). Exclusion criteria included QRS >120 ms, right or left bundle branch block, left anterior fascicular block, a history of myocardial infarction, more than mild aortic or mitral regurgitation, and significant LV dysfunction by echocardiography. We assessed the relations between echocardiographic LVH (LV mass index >95 g/m² in women and >115 g/m² in men), LVH detected by the traditional ECG criteria as well as the novel Peguero-Lo Presti criterion, defined as the sum of the amplitude of the deepest S wave in any lead and the S wave in lead V4 ≥ 2.8 mV in men and ≥ 2.0 mV in women.

Results: Echocardiographic LVH was found in 32 out of 50 study patients. Compared to the traditional ECG-LVH criteria, the sensitivity of the Peguero-Lo Presti criterion in detecting LVH was higher (55% vs. 16–34%), while the specificity was lower (72% vs. 78–100%). Cohen's kappa, a measure of concordance between ECG and echocardiography with regard to LVH, was 0,24 for the Peguero-Lo Presti criterion and 0,08–0,17 for the traditional ECG-LVH criteria.

Conclusions: Our preliminary results suggest a better agreement of the novel Peguero-Lo Presti ECG criterion than the traditional ECG-LVH criteria with echocardiographic LVH in severe aortic stenosis.

Keywords: left ventricular hypertrophy; ECG; echocardiography; aortic stenosis

Prognostic significance of inflammatory white blood cell-associated haematological values for atrial fibrillation early and late relapse after direct current cardioversion

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Background: Recurring atrial fibrillation (AF) after direct current cardioversion (DCCV) is clinical challenge, with contribution of inflammation in arrhythmia perpetuation and therapeutic resistance. White blood cells (WBCs) and their subtypes are inflammatory markers with predictive significance suggested, yet association for secondary AF prevention is not thoroughly evaluated.

The aim: To evaluate role of inflammatory WBC-associated haematological values (WBC, neutrophil (Neu), lymphocyte (Ly) count, Neu-Ly ratio (NLR)) for AF early (1-month) and late (12-month) relapse prediction after DCCV.

Materials and methods: Patients with persistent AF, admitted to Latvian Centre of Cardiology for elective DCCV and restored sinus rhythm were enrolled. Baseline data on demographics, medical history and laboratory markers was acquired. 1-, 3-, 6-, 9-, 12-month follow-up interviews were conducted, focusing on sinus rhythm maintenance. SPSS was used for statistical analysis, with AF relapse odds as main endpoint in logistic regression ($\alpha=0.05$).

Results: 103 patients were included, with AF relapse rate 23.3% after 1 month and 43.7% after 12 months. For 1 month, statistically significant impact on AF relapse odds was absent for all parameters – WBCs (OR1.034;95%CI0.727-1.471;p=0.852), Neu (OR0.662;95%CI0.262-1.673;p=0.383), Ly (OR0.904;95%CI0.469-1.742;p=0.762), NLR (OR0.838;95%CI0.381-1.843;p=0.661). Analyzing 12-month results, higher WBC count demonstrated significant influence on outcomes, each extra value increasing AF recurrence prospects by 43.3% (OR1.433;95%CI1.017-2.018;p=0.040). There was no significant association with AF relapse likelihood for other markers – Neu (OR1.192;95%CI0.681-2.086;p=0.539), Ly (OR0.968;95%CI0.678-1.384;p=0.860), NLR (OR0.849;95%CI0.520-1.384;p=0.511).

Conclusions: Significant prognostic contribution of WBC count for late AF relapse was established, highlighting practical potential of this accessible haematological marker for elective DCCV candidate selection.

Keywords: atrial fibrillation, electrical cardioversion, arrhythmia recurrence, inflammatory markers, white blood cells

Valsartan reduces the level of soluble ST2 and preserves left ventricle contractility in patients with a dual-chamber pacemaker

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Background: Permanent right ventricle pacing leads to left ventricle remodeling, systolic dysfunction, and symptomatic heart failure in the long run. Valsartan is well known for its preventive anti-remodeling function in post-infarction heart remodeling.

The aim: To assess valsartan's effect on left ventricle function in patients with the second and third-degree atrioventricular block with the first-time implantation of a dual-chamber pacemaker.

Materials and methods: This was a randomized, double-blind, placebo-controlled single-center study. One hundred eligible patients were assigned in a 1:1:1 fashion to receive placebo, valsartan 80mg or 160mg once daily, respectively. Echocardiographic assessment of left ventricle geometry and its systolic and diastolic function were performed at baseline and twelve months. Global longitudinal strain (GLS) was measured off-line with EchoPac software. We present the baseline data for 100 enrolled patients and follow-up data for 88 patients who have completed the study. Data in valsartan arms are pooled in one group. The concentration of soluble ST2 was measured in duplicates with Aspect Reader (Critical Diagnostics).

Results: Mean soluble ST2 concentration has increased in the placebo group by 9.4% and has decreased by 43.3% in the valsartan group ($P=0.01$). LVEF has decreased in the placebo group and valsartan group by 8.3% and 3.3% respectively ($P=0.01$). LV end systolic volume has increased by 18.8% and 9.7% in the placebo and valsartan groups ($P=0.01$). Patients who received valsartan had significantly more preserved GLS compared with the control group at 12 months ($17.5 \pm 2.5\%$ vs $14.2 \pm 3.1\%$; $P=0.01$).

Conclusions: Valsartan has a protective effect on left ventricle remodeling and function. It may be useful in the prevention of pacing-induced heart failure. A decrease in soluble ST2 concentration may help explain the alternative mechanism for the protective role of valsartan.

Keywords: valsartan, pacemaker, left ventricle contractility

Cardiac papillary fibroelastoma: a histochemistry and immunohistochemistry study of four cases

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Background: Cardiac papillary fibroelastomas (CPFs) are rare benign cardiac tumors with poorly understood etiology. The lesions usually occur on the surface of valve leaflets. It is still debated whether these lesions represent a regenerative or reactive process of the endocardium. Histologically, CPF are lesions covered by a single layer of endocardial endothelium (EE). The majority of previous data on CPF focused on its clinical course and treatment modalities. Only a few reports tried to explain the histogenesis of these lesions.

Case description: All four CPF tumors were percutaneously removed from the tricuspid valves by a new approach known as the “snare over cryocatheter” technique (dr Krzysztof Kaczmarek, MD, Lodz Medical University, Poland: doi.org/10.1093/eurheartj/ehw516). The removed masses were divided and fixed separately for histochemistry and immunohistochemistry. For immunohistochemistry, frozen sections were incubated with murine monoclonal antihuman antibodies: anti-CD68 (clone KP1, Thermo Scientific), anti-CD34 (clone EP373Y, abcam), anti-vimentin (clone Vim 3B4, DAKO), and anti- α -SMA antibodies (polyclonal Gene Tex). For visualization, the EnVision method (DAKO EnVision Kit / Alkaline Phosphatase detection system) was used according to the manufacturer's instructions. The primary antibody was omitted from negative control slides.

Conclusions: All cases presented typical histological features of CPF with bundles of papillary projections with a collagenous core surrounded by a single layer of EE. These cells presented positive staining for CD34 and von Willebrand Factor on cryostat sections by immunohistochemistry indicating its endothelial origin. Some of the EE cells were positively stained by anti- α -SMA and anti-vimentin antibodies by immunohistochemistry suggesting their ability for trans-differentiating into mesenchymal cells. Occasionally, peripheral blood mononuclear cells, monocytes macrophage-like cells and fibroblastic cells were also observed.

Keywords: cardiac tumor, cardiac papillary, fibroelastoma, histochemistry, immunohistochemistry, case report

Unusual presentation of congenital aortic valve defect - more data, more doubts in 10 years follow-up

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Background: Congenital heart defects are the second most frequent cause of infant deaths in Poland. Some congenital defects are diagnosed just after delivery and others in benign form may be a problem in childhood or even in adults.

Case description: We present 10 years follow-up and consecutive diagnostic dilemmas in a 24 years old male with a mild mental impairment and congenital heart defect – unicuspid aortic valve. The unicuspid aortic valve was functionally incompetent – both aortic regurgitation and stenosis was observed in echocardiography. Additionally, a significant left ventricle (LV) hypertrophy was observed that seemed to be independent to the complex aortic valve pathology. For a long period of observation it was difficult to determine whether the LV hypertrophy is relevant to the combine valve disease or is of other etiology. The patient was asymptomatic and fur-ther observation was indicated. Recently, he started to complain about slight limitation of physical activity (NYHA class II), cardiac arrhythmias, and pain in the lower extremities. Dur-ing hospitalization a number of examinations were performed in order to extend the diagno-sis, assess the progression of the presumptive defect and to determine the possibility of a therapeutical approach. During an cardiac magnetic resonance (CMR) scan the LV concen-tric hypertrophy and its hyperkinesis was revealed. Because of a suspicion of Anderson-Fabry disease, amyloidosis or hypertrophic cardiomyopathy some additional tests and myo-cardial biopsy.

Conclusions: Presented clinical case shows that unicuspid aortic valve is still not well-known enough and probably often goes unrecognized as a defect. Additionally, the complex form of valve structural and functional incompetence along with inadequate LV remodeling makes the im-aging assessment very difficult. Moreover, a young patient's age, long asymptomatic period and subsequently slight symptoms, potent concomitant diseases make the decision about further treatment much more difficult.

Keywords: congenital heart defects, cardiology, pathophysiology, cardiovascular

Wild at heart – multiple mechanisms of cocaine induced myocardial infarction

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Background: Cocaine use can result in cardiovascular complications: myocardial infarction (MI), arrhythmia, cardiomyopathy and hypertension (HT). Anabolic-androgenic steroids (AAS) intake is linked with HT, cardiomyopathy and lipid metabolism derangements.

Case description: A 37-year old man was admitted to the Cardiology Department two days after the occurrence of prolonged retrosternal chest pain at rest. The patient was after ingestion of alcohol, cocaine and tetrahydrocannabinol (THC). The medical history embraced smoking, using the growth hormone (GH) and AAS in the past. Physical examination with no deviation. Blood pressure was 130/90 and heart rate 72/min. In electrocardiography (ST elevation up to 3mm in V2-V5) - features of anterior wall MI were present. In laboratory tests - troponin T rise (1,99ng/ml), d-dimer (503ng/ml). Echocardiography showed concentric left ventricular hypertrophy (max. thickness: 19mm) and apex hypokinesis. The patient underwent an immediate coronary angiography but no significant abnormalities were found. Magnetic resonance imaging (MRI) confirmed heart damage of vascular aetiology involving an apex and partial interventricular septum (IVS) and suspicion of partial IVS rupture. ECG Holter Monitoring with no significant arrhythmias. Conservative treatment was implemented: enoxaparin, ASA, atorvastatin, captopril, beta blockers, electrolytes iv. The patient was discharged after 4 days in good general condition with a recommendation for further treatment.

Conclusions: The presented case is an example of potent unusual aetiology of AMI (thrombotic, Prinzmetal's angina, Takotsubo cardiomyopathy) in patients with left ventricle hypertrophy of multifactorial origin (hypertrophic cardiomyopathy, athlete's heart, secondary hypertrophy due to AAS, GH). Taking into account the results of additional tests, the probability of particular factors can be assessed that constitutes an interesting basis for academic discussion.

Keywords: case report, myocardial infarction, hypertrophic cardiomyopathy, anabolic steroids, cocaine

Efficacy of electrical cardioversion in relation to occurrence and type of functional mitral regurgitation in patients with atrial fibrillation

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Background: Recent studies have changed the perception of rhythm control in the treatment of atrial fibrillation (AF). Functional mitral regurgitation (fMR) can be both a cause and a consequence of AF and may influence rhythm restoration procedures.

The aim: To assess the efficacy of electrical cardioversion (ECV) in relation to the occurrence and type of fMR and the therapy used in patients with AF.

Materials and methods: A retrospective analysis included 182 consecutive patients with AF on optimal medical therapy (OMT) undergoing ECV. Based on the results of transthoracic echocardiography the study group was divided into: 20 (11%) patients without MR, 132 (82%) patients with fMR: 77 (58%) patients with atrial fMR (afMR; LVEF \geq 50%, LA dilatation) and 55 (42%) patients with "classic- ventricular" fMR (vfMR; LVEF $<$ 50%). Patients with severe MR and organic MR were excluded from the study. Analysis involved clinical characteristics, efficacy of ECV, amount of energy as well as applied pharmacological treatment.

Results: Hypertension was more frequent in the fMR group compared to patients without MR ($p=0.02$). Comparison of afMR and vfMR groups revealed that vfMR group has: a greater incidence of chronic kidney disease ($p=0.01$) and coronary heart disease ($p=0.02$); more frequent use of diuretics at discharge ($p<0.01$); greater LA diameter and LA area ($p<0.01$; $p<0.01$). The efficiency of ECV was high in each group (95%- without MR, 84%- fMR, 84%- afMR and 84%- vfMR). The presence of fMR did not affect the efficacy of ECV ($p=0.2$) and did not require the use of more energy ($p=0.4$) in comparison to patients without MR. There was no difference between patients with afMR and vfMR in terms of effectiveness ($p=0.9$) and the amount of energy needed for ECV ($p=0.8$).

Conclusions: Efficacy of ECV is high among AF patients on OMT regardless of the incidence and type of fMR.

Keywords: functional mitral regurgitation, atrial fibrillation, electrical cardioversion

De novo dilated cardiomyopathy - various clinical scenarios leading to temporary success

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Background: Post-inflammatory dilated cardiomyopathy (DCM) is a condition that can lead to acute heart failure (HF). We present three cases of HF exacerbation in patients with post-inflammatory DCM in whom treatment used (mainly levosimendan therapy and ICD implantation) led to temporary therapeutic success.

Case description: A 25-year-old patient with post-inflammatory DCM (confirmed in MR in 2018) presented to the ER due to exercise-induced and nocturnal dyspnea with cough. From 2013, he was hospitalized several times due to HF decompensations. Transesophageal echocardiography (TTE) revealed progression of impairment of LVEF (20%) and deterioration of severe mitral and tricuspid valve regurgitations. The patient required intensive care, was treated with Entresto 24/26 and finally was qualified for ICD implantation.

A 35-year-old patient with a history of spontaneous hypertension and HF due to post-inflammatory DCM was admitted due to another incident of HF decompensation (NYHA IV class) with features of impending cardiogenic shock. A thrombus in the left ventricle was detected in TTE. MR with contrast revealed chronic post-inflammatory severe LV dysfunction and pericardial effusion. During the hospitalization the patient was implanted with an ICD and anticoagulation was administered.

A 36-year-old patient with DCM and severe HF (who improved after the last hospitalization) and polymyositis was admitted to the hospital because of HF exacerbation (NYHA III). Earlier, the patient's condition improved after Levosimendan and Entresto. MR revealed: LVS dysfunction with hypoakinesia, heart muscle damage progression. During hospitalization the patient's condition got worse rapidly. Despite the resuscitation and immediate qualification for ECMO, the patient died.

Conclusions: DCM in young patients is characterized by poor prognosis, needs long-term treatment and an individual approach to patients.

Keywords: dilated cardiomyopathy, heart failure, levosimendan, sacubitril/valsartan, cardiverter-defibrillator

Does the ability to predict left ventricular hypertrophy differ between R- and S-waves voltage in aortic stenosis?

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Background: Aortic stenosis (AS) is the most prevalent heart valve disorder associated with left ventricular hypertrophy (LVH). Electrocardiography (ECG) used to be a traditional method to detect LVH. However, ECG importance has decreased over years and echocardiography has emerged as a main technique to diagnose LVH.

The aim: Our aim was to compare the predictive ability of the amplitude of R-waves and S-waves in individual ECG leads among patients with severe AS.

Materials and methods: We manually analyzed ECG tracings of patients hospitalized in our center for severe isolated AS. Exclusion criteria encompassed a history of myocardial infarction; His bundle branch block, more than mild aortic or mitral regurgitation or significant LV dysfunction. Echocardiography was a reference method to diagnose LVH. The receiver operating characteristic (ROC) curve analysis was applied to assess the ability of the voltages of R-waves and S-waves in individual ECG leads to predict echocardiographic LVH across all possible threshold values of the voltage.

Results: Out of 83 pre-screened subjects with complete data, 50 patients entered the final analysis, including 32 subjects with echocardiographic LVH. Based on the ROC curve analysis, the ability to predict echocardiographic LVH was higher for S-waves than R-waves (mean area under the ROC curve [AUC]: 0.62–0.70 vs. 0.58–0.65).

AUC Mean [95% confidence interval] p-value

RV5 0,64 [0,47- 0,81] 0,10

R V6 0,58 [0,41- 0,76] 0,36

Max R V5/6 0,65 [0,48- 0,82] 0,08

R I 0,58 [0,41- 0,75] 0,35

R aVL 0,61 [0,44- 0,77] 0,22

S III 0,62 [0,45- 0,79] 0,16

S V1 0,70 [0,54- 0,86] 0,015

S V2 0,66 [0,50- 0,82] 0,06

S V3 0,68 [0,52- 0,83] 0,02

Conclusions: Our finding can be linked to a better representation of abnormal wavefront propagation in LVH by the latter part of the QRS complex, corresponding to the S-wave.

Keywords: aortic stenosis; left ventricular hypertrophy; ecg; echocardiography

Ventricular tachycardia in 3 channel Holter recordings - indicators suggesting ventricular origin of arrhythmia

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Background: Ventricular tachycardia is an arrhythmia that up to this day remains a diagnostic challenge as it requires confirmation of ventricular origin and differentiation with supraventricular tachycardia, which oftentimes can be very difficult. Algorithms like VT score, Brugada score or Wellens score help with that differentiation in standard 12-lead ECG, but there are no algorithms for 3 channel Holter recordings.

The aim: To assess whether it is possible to diagnose ventricular tachycardia based on 3 channel ECG based on chosen indicators.

Materials and methods: The study was based on 29 ECG Holter recordings from patients with implanted ICD in whom VT occurred during Holter recording and ventricular origin was confirmed during device interrogation. Following indicators were assessed: for all three channels: duration of QRS, VT cycle, atrioventricular dissociation, positive or negative concordance. For each channel separately: type R or type QS of QRS complex, RS > 100ms, RS duration and notch in R or Q of QRS complex.

Results: Each parameter occurs with following frequency: atrioventricular dissociation 51,7%, positive concordance 6,9% and negative concordance 17,2%. Study parameter in different channels: type R in I 10,3%, type QS in I 37,9%, RS > 100ms in I 13,8%, notch in R in I 10,3%, type R in II 20,7%, type QS in II 31,0%, RS > 100ms in II 17,2%, notch in R in II 13,8%, type R in III 27,6%, type QS in III 55,2%, RS > 100ms in III 0%, notch in R in III 13,8%. Average duration of QRS 164,5 ms, average VT cycle 473 ms, average RS time in I 100 ms, average RS time in II 105 ms, average RS time in III 0 ms.

Conclusion: In conclusion confirmation of ventricular origins of tachycardia based on 3 channel ECG seem to be difficult and further search for other indicators is required, therefore the study will be continued.

Keywords: VT, holter

Long-term observation after neonatal Arterial Switch Operation (ASO) in patients with Transposition of the Great Arteries (TGA)

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Background: Simple Transposition of the Great Arteries (TGA) is lethal heart defect possible to correct only on neonatal period. Short time results are excellent, but long term still unknown. Open question are consequences of coronary strategy replacement, work of pulmonary valve in aortic position as well as scars in great arteries (after LeCompte manouver)

The aim: In this research we want to assess safety and efficacy of this correction method in adult patients.

Materials and methods: A retrospective and descriptive analysis of clinical data of all adult patients with TGA hospitalized in our center in years 2012-2021 was performer. Medical records were analyzed for baseline pts' characteristics, the most common complication and reinterventions.

Results: We included to this study 32 adult patients with mean age 19,3 years old, 11Female (34,4%), 21Male (65,6%). They were under control of the SCCS in Zabrze. Anatomical correction of this abnormality among our group was made mostly in SCCS, but also in various Medical Centers in the first year of life. The main problem after operation were myocardial ischemia and supra-valvular pulmonary stenosis.

The most frequent late complication after ASO was consecutively pulmonary regurgitation -51,5% pts : mild - 64%, moderate - 36%, aortic regurgitation - 44,5 % pts: mild - 60%, moderate - 26%, severe -14%, pulmonary stenosis 39,3% pts, including significant pulmonary stenosis -15,2%). Balloon valvuloplasty of aortic stenosis was performed in 3,2% pts, and in 34% pts with pulmonary stenosis. Additionally, were chest pain - 9,4%, positive exercise stress test - 3,2%, abnormalities in coronary angiography - 3,2%. Average LVEF was 63,07 %. (min 40%). Most frequent ECG abnormalities: PRBBB - 33%, PAC - 9,4%, RBBB - 9%, nsVT - 6%, first degree AV block - 6%, second degree AV block - 3,2%, third degree AV block - 3,2%. 6,2% pts required cardiac pacemaker implantation. Mean NYHA score was I. None of our patients required Arterial Switch reoperation.

Conclusions: ASO is a fully secure and highly effective method of correction TGA. Patients require constant follow up and, in some cases, even medical intervention. We need to conduct longer observations of this group of patients to have more detailed report about their condition.

Keywords: TGA, arterial switch operation, pulmonary regurgitation, pulmonary stenosis, arterial stenosis, adult patients, ASO

Vital Genome Persistence in the Myocardium of Patients with Dilated Cardiomyopathy

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Background: The impact of myocardial viral persistence on the long-term clinical outcome of patients with dilated cardiomyopathy (DCM) is still open to question.

Materials and methods: Fifty-two patients with Dilated Cardiomyopathy (34M, 18F, mean age of 44.9) were finally enrolled and followed by a median of 3.8 years with respect to death or heart transplantation. Studied patients were clinically stable for at least 6 months before hospitalization. They underwent coronary angiography, endomyocardial biopsy. Specimens were examined by histo-, immunohistochemistry; the viral genomes of parvovirus B19 (PVB19), cytomegalovirus (CMV), Coxsackie's B virus (CVB), and hepatitis B, C viruses (HBV and HCV) were studied by real time polymerase chain reaction.

Results: Forty-two out of 52 patients were available for clinical follow-up. The viral genome was detected in the myocardium of 32 out of 42 patients. Among the viruses studied, cytomegalovirus and CVB were the most frequently found. Nine out of 42 patients achieved the predefined study endpoint. No statistically significant correlation was found between the presence of persistent viral genome and study endpoint. No statistically significant relationship between viral genomes studied and immunohistology results was detected.

Conclusions: High prevalence of viral genome in the myocardium of patients with Dilated Cardiomyopathy did not have an influence on their long-term clinical outcome.

Keywords: dilated cardiomyopathy, heart failure, endomyocardial biopsy, viral genome

Evaluation of the pharmacotherapeutic impact on contractility recovery in patients with newly diagnosed, acuteonset dilated cardiomyopathy

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Background: Dilated cardiomyopathy (DCM) as one of the common reasons of heart failure (HF). Characteristics and prognosis of patients with newly diagnosed DCM and HF are still not known thoroughly.

The aim: To evaluate pharmacotherapeutic impact on Left Ventricular Ejection Fraction (LVEF) recovery in newly diagnosed DCM heart failure patients.

Materials and methods: Twenty seven newly diagnosed DCM HF patients (20 males, 52.8 ± 16.4 years, NYHA 2.36 ± 0.7 , LVEF $25 \pm 10\%$) were respectively analyzed at baseline and after follow-up period (12.8 ± 15 month). Inclusion criteria: an acute-onset HF, LVEF $< 40\%$, normal coronary an-giography. Based on control, follow-up echocardiography the patients were divided according to the LVEF improvement into: "recovery" (LVEF improvement $> 5\%$; $n=14 / 52\%$) and "non-recovery" ($\Delta\text{LVEF} \leq 5\%$; $n=13 / 48\%$) groups.

Results: "Recovery" group showed lower baseline LVEF (31.8 ± 9.3 vs $19.2 \pm 6.1\%$; $p < 0.01$) and lower incidence of arterial hypertension (31% vs 73% ; $p=0.04$). At follow-up, patients had received reninangiotensin antagonists (ARNI/ACE-I/ARB; 23 patients; 85.2%), β -blockers (26 patients; 96%), loop diuretic (22 patients; 81.5%), mineralocorticoid receptor antagonist (25 patients, 92.6%). Among pharmacotherapy, patients from "recovery" group had prescribed higher dose of loop diuretic (equivalent dose of furosemidum: $38 \pm 27\text{mg}$ vs $72 \pm 43\text{mg}$; $p=0.046$) with no other differences in medications, neither frequency nor dosage.

Conclusions: Prescription of the higher dose of loop diuretic may have positive effect on LVEF re-recovery in newly diagnosed DCM HF patients. Lower baseline LVEF may be a positive predictor of contractility recovery.

Keywords: heart failure, dilated cardiomyopathy, pharmacotherapy

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SESSION OF NON-INVASIVE CARDIOLOGY II

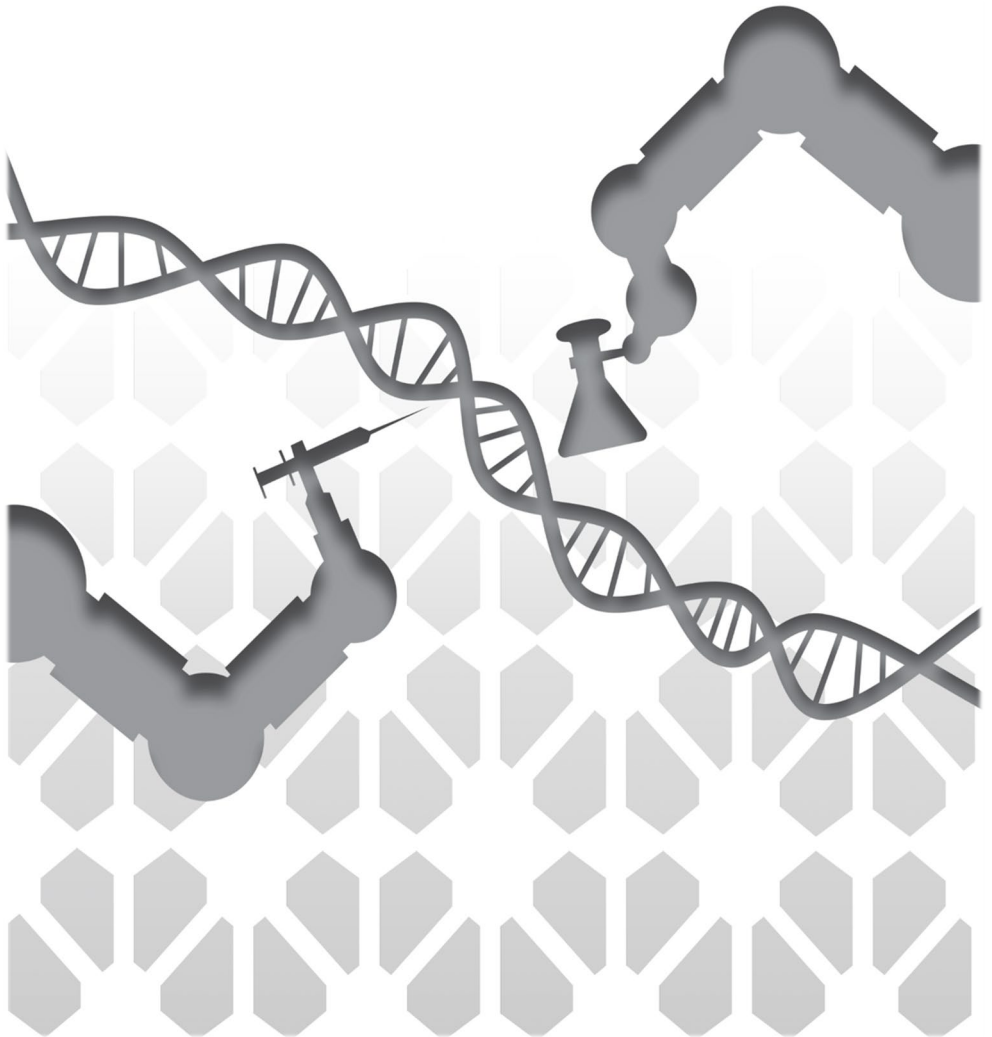


Table of contents

Pulmonary embolism according to age - clinical characteristic management and prognosis	260
Recurrence of left ventricular systolic function and NYHA functional class in patients with newly diagnosed, acuteonset dilated cardiomyopathy	261
Non-invasive risk factors in patients with acute ischemic stroke	262
Between-specialty Controversies on the Treatment of Cardiovascular Diseases During Pregnancy: A Questionnaire Study	263
CHA2DS2-VASc score - new fortuneteller for NSTEMI patients?	264
Acute myocardial infraction in COVID-19 and non-COVID-19 patients.....	265
Does the location of an ischemic stroke correlate with different types of cardiac arrhythmias?	266
Hypertrophic cardiomyopathy and ECG criteria for detection of left ventricular hypertrophy	267
Correlation of patient's functions with risk factors for cardiovascular disease in systemic lupus erythematosus patients	268
Sacubitril/Valsartan: across the spectrum of patients with heart failure with reduced ejection fraction.....	269
Prevalence of Obstructive Sleep Apnea in patients with Pulmonary Arterial Hypertension.	270

Pulmonary embolism according to age - clinical characteristic management and prognosis

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Background: Pulmonary embolism (PE) is the third, after stroke and myocardial infarction, the most common cause of mortality from cardiovascular causes. It makes PE a major clinical challenge, especially in ageing populations.

The aim: Comparison of clinical presentation, management and in-hospital prognosis in patients with PE in three age groups.

Materials and methods: This is a retrospective, single-center study, which involved 101 patients (F/M: 40/61pts) with PE. Patients(pts) were divided into three groups according to age: young group (≤ 45 yrs, mean age: 36 ± 8.1 yrs, $n=27$), control group (46-75 yrs, mean age: 63.3 ± 7.6 yrs, $n=44$) and elderly group (≥ 76 yrs, mean age: 82.3 ± 4.7 yrs, $n=30$).

Results: Higher percentage of females was observed in the elderly group in comparison to the control group (63.3% vs 27.3%; $p=0.002$). There was no difference in sex ratio between the young and control group (33.3% vs 27.3%; $p>0.05$). The most common sign of PE was dyspnea – it occurred more often in younger pts (81.5% pts vs 59% of controls vs 63.3% of older pts; $p=0.04$). Troponin T and D-dimer levels increased with age: $R=0.65$, $p<0.001$ and $R=0.4$, $p<0.001$, respectively. Saddle PE affected 7.4% of young, 11.4% of control and 10% of older patients ($p>0.05$). Thrombolysis was administered in a similar percentage of pts in each group. The sPESI was the highest in the elderly group (1.3 ± 0.7 vs 0.7 ± 0.8 in control vs 0.4 ± 0.8 points in the younger group; $p=0.001$). Elderly patients had a higher risk of in-hospital cardiac arrest (6 pts, 20% vs pts, 4.5% in the control group, $p=0.043$) and death (3 pts, 10% vs none of pts in the control group, $p=0.03$). One patient had in-hospital cardiac arrest and died (3.7%) in the younger group ($p>0.05$ vs control group).

Conclusions: Dyspnea was the most common sign and was present more often in the younger group. Troponin T and D-dimer level correlated positively with age. The elderly group had poor in-hospital and predicted 30-day outcomes compared to other groups.

Keywords: pulmonary embolism, sPESI, in-hospital mortality

Recurrence of left ventricular systolic function and NYHA functional class in patients with newly diagnosed, acute-onset dilated cardiomyopathy

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Background: Dilated cardiomyopathy (DCM) is the most common form of cardiomyopathy among primary myocardial diseases. It tends to worsen progressively and may lead to heart failure (HF)

The aim: To assess relation between changes in echocardiographic parameters and clinical outcome in patients with newly diagnosed DCM HF.

Materials and Methods: Twenty-seven newly diagnosed DCM HF patients (20 males, 52.8 ± 16.4 years, NYHA 2.36 ± 0.7 , LVEF $25 \pm 10\%$) were respectively analyzed at baseline and after follow-up period (12.8 ± 15 month). Inclusion criteria: an acute-onset HF, LVEF $< 40\%$, normal coronary angiography. Based on control, follow-up echocardiography the patients were divided according to the LVEF improvement into: "recovery" (LVEF improvement $> 5\%$; $n=14 / 52\%$) and "non-recovery" ($\Delta\text{LVEF} \leq 5\%$; $n=13 / 48\%$) groups.

Results: Whole study group showed significant LVEF increase ($25 \pm 10\%$ vs. 32 ± 8 ; $p < 0.01$) with improvement in "recovery" group ($19.2 \pm 6.1\%$ vs 34.6 ± 7.6 ; $p < 0.001$) and no LVEF change in "non-recovery" group (31.8 ± 9.3 vs 29.1 ± 7.1 ; $p = \text{ns}$). „Recovery” group showed lower baseline LVEF ($19.2 \pm 6.1\%$ vs. $31.8 \pm 9.3\%$; $p < 0.01$) and lower incidence of accompanying arterial hypertension (31% vs 73% ; $p = 0.04$). Together with ΔLVEF , follow-up echocardiography demonstrated higher LV dimensions reduction in "recovery" group left ventricular end-diastolic diameter (LVEDD; $8.4 \pm 9.9\%$ vs. $-1.6 \pm 8.5\%$; $p = 0.03$) and left ventricular end-systolic diameter (LVESD; $14.8 \pm 13.7\%$ vs. $1.5 \pm 10.5\%$; $p = 0.02$). Whole study group showed significant NYHA class improvement (2.4 ± 0.7 vs. 2 ± 0.6 ; $p = 0.046$) but only "recovery" group showed HF symptoms reduction (2.5 ± 0.8 to 1.8 ± 0.6).

Conclusion: In patients with newly diagnosed DCM HF the recurrence of left ventricular systolic function is accompanying with reduction of HF symptoms.

Keywords: dilated cardiomyopathy, heart failure, recurrence

Non-invasive risk factors in patients with acute ischemic stroke

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Background: Recently, the diagnosis of cardiogenic stroke is rising. The most common cause remains atrial fibrillation (AF). Significance of sudden cardiac death risk factors in a group of such patients is unknown.

The aim: The aim of our study was to assess sudden cardiac death risk factors such as HRV, HRT, DC parameters in patients with acute ischemic stroke.

Materials and methods: The study group consisted of 95 patients (46 female, age 60 ± 14 years), divided into two subgroups based on the localization of the brain stroke: TACI – total anterior circulation infarct (35 patients), non-TACI – other locations. The 2 years follow-up was performed, the composite endpoint, which consisted of the confirmed atrial fibrillation or next brain stroke or hospitalization or death was defined. The parameters were calculated from 7-days Holter recording (Reynolds Healthcare Sentinel and qthRT software). Parameters of HRV: SDNN, RMSSD, pNN50; HRT: onset, slope and DC were assessed.

Results: Patients with composite endpoint during the follow-up had lower RMSSD, pNN50, HRT slope, DC than patients without composite endpoint: ($22,4\pm 11$ vs. $30,3\pm 12$; $p=0,02$); ($4,2\pm 5$ vs. $6,9\pm 6$; $p=0,03$); ($5,1\pm 6$ vs. $8,1\pm 8$; $p=0,04$); ($6,4\pm$ vs. $8,2\pm 9$; $p=0,04$), respectively. HRT onset was higher in the group with composite endpoint in comparison to the one without it ($-0,63\pm 2$ vs. $-1,99\pm 2$; $p=0,005$). SDNN values were statistically insignificant. Scores obtained from CHA2DS2-VASc and HAS-BLED scales were higher in the group with composite endpoint than in the group without it (CHA2DS2-VASc score: $5,2\pm 2$ vs. $4,3\pm 1$; HAS-BLED score: $2,5\pm 1$ vs. $2,3\pm 1$, respectively).

Conclusions: Patients with composite endpoint had lower values of all assessed death risk factors, apart from HRT onset, which was higher in a group with composite endpoint. It may suggest higher risk of SCD in this group. However, further investigation of these parameters is necessary.

Keywords: brain stroke, heart rate variability, heart rate turbulence, sudden cardiac death, deceleration capacity

Between-specialty Controversies on the Treatment of Cardiovascular Diseases During Pregnancy: A Questionnaire Study

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Background: Management of cardiovascular disease (CVD) during pregnancy is challenging and usually requires evidence-based decisions due to limited strong-evidence data in this field, especially in rare conditions.

The aim: To compare the attitudes of anesthesiologists, cardiologists, and gynecologists towards diagnostic and treatment of potentially life-threatening CVDs during pregnancy.

Materials and methods: Cross-sectional questionnaire-based study was performed among 111 doctors (55 anesthesiologists, 36 cardiologists, 20 gynecologists). Answers to 19 questions describing personal opinions were recorded using a 5-item Likert scale.

Results: Opinions regarding 8 questionnaire statements (42%) varied substantially between specialties ($p < 0.05$). The most important controversies concerned the following opinions: 1) "thrombolysis should only be used in pulmonary embolism with cardiogenic shock": 52.7% of anesthesiologists, 80.4% of cardiologists, 25.0% of gynecologists ($p < 0.001$); 2) "women with the antiphospholipid syndrome should restart treatment with vitamin K antagonists from the second trimester of pregnancy": 12.7% of anesthesiologists, 69.4% of cardiologists, 20.0% of gynecologists ($p < 0.001$); 3) "woman with symptomatic pulmonary hypertension should have a Swan-Ganz catheter inserted for labor": 20.0% of anesthesiologists, 11.1% of cardiologists, 55.0% of gynecologists ($p = 0.001$).

Conclusions: Diagnostics and treatment of CVD in pregnancy remain controversial. A multidisciplinary approach is recommended to ensure the safety and effectiveness of management in these unique medical conditions.

Keywords: pregnancy, cardiovascular disease, pulmonary hypertension, pulmonary embolism, heart failure

CHA2DS2-VASc score - new fortuneteller for NSTEMI patients?

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Background: CHA2DS2-VASc score is used to estimate ischemic stroke risk for non-valvular atrial fibrillation. Components forming this acronym, such as hypertension and diabetes mellitus, are known risk factors of premature death in patients with cardiovascular disease that can later manifest as NSTEMI.

The aim: To determine the effectiveness and usefulness of the clinical application of the CHA2DS2-VASc score in the prediction of 5-year survival among patients with NSTEMI.

Methods and materials: This retrospective observational study included 150 patients (50% female, median age of 73) hospitalized at 1st Chair and Clinic of Cardiology, Medical University of Silesia in Katowice in 03.11.2013 - 23.12.2014. Inclusion criteria considered age between 65-80 years and NSTEMI. Patients with a history of cancer were excluded from the study. The analysis covered clinical characteristics and five-year survival.

Results: Death was reported in 68 (45.3%) patients within 5 years since the NSTEMI episode. The group in which death was recorded presented significantly higher results on the CHA2DS2-VASc score (median 5 vs 4; $p < 0.001$). The groups also presented significant differences in terms of peripheral atherosclerosis (30.9% vs 15.9%; $p = 0.029$), diabetes (63.2% vs 34.1%; $p < 0.001$); as well as infarction-related complications in the form of arrhythmias (26.5% vs 8.5%; $p = 0.007$) or left ventricular failure (16.2% vs 3.7%; $p = 0.011$). Higher CRUSADE score was noted in the group with reported death (mean 42.275 vs 37.78), which was close to statistical significance ($p = 0.056$). No differences between groups regarding GRACE and TIMI scores were observed.

Conclusions: The CHA2DS2-VASc score could be a useful tool in predicting death in patients with NSTEMI and clinical trials regarding this topic should be expanded. CHA2DS2-VASc score could be taken into consideration in clinical practice in NSTEMI patients in the future.

Keywords: CHADS-VASC score, NSTEMI, 5-year survival,

Acute myocardial infraction in COVID-19 and non-COVID-19 patients

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Background: Severe acute respiratory syndrome coronavirus 2 (Sars-Cov2) has affinity to cardiovascular system via ACE receptors, what may lead its major impact on the clinical course of acute myocardial infraction (AMI).

The aim: The aim of the study was to compare in-hospital course and 3-month survival of AMI patients with and without Covid-19 infection in pandemic period.

Materials and methods: Overall, 150 consecutive patients with AMI hospitalized at one tertiary reference cardiology center, between October 2020 and January 2021: 30 with COVID-19 (mean: age 74.5 years; 40% STEMI; 40% with radiologically confirmed pneumonia) and 120 without COVID-19 infection (mean: age 69.2 years; 31% STEMI; 5% with radiologically confirmed pneumonia) were enrolled into the study. Analysis involved clinical characteristics, laboratory tests, results of imaging methods, in-hospital as well as 3-month survival rate.

Results: COVID-19 patients were older ($p=0.029$), had significantly lower left ventricular ejection fraction ($p=0.019$), higher troponin I ($p=0.006$) and CK-MB ($p=0.031$) levels. Infected subjects presented higher level of d-dimer (12x normal range), hsCRP (16x normal range) and IL-6 (260x normal range). In COVID-19 patients troponin I concentration positively correlated with hsCRP level, white blood cells count and neutrophils count. Primary PCI was performed in 68% COVID-19 and in 90% non-COVID-19 patients ($p=0.03$). Hospitalization was longer in COVID-19 subjects ($p=0.003$) and atrial fibrillation was more frequent in this group ($p=0.014$). Both in-hospital mortality (33% vs 13%, $p=0.004$) as well as 3-month mortality (53% vs 20%, $p=0.001$) was higher in COVID-19 group.

Conclusions: COVID-19 infection significantly modifies a clinical course of AMI. There is observed more severe myocardial damage related to inflammatory activation and less invasive reperfusion treatment, prolonged and complicated hospitalization and higher 3-month mortality rate.

Keywords: acute myocardial infraction, COVID-19, SARS-CoV2

Does the location of an ischemic stroke correlate with different types of cardiac arrhythmias?

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Background: Atrial fibrillation is a common reason for acute ischemic stroke, and so stroke patients usually undergo diagnostics towards this type of arrhythmia. Few studies analyzed other cardiac arrhythmias, and such analyses may be useful in determining the type of arrhythmia in different stroke locations. Most patients who suffered a stroke have an ECG Holter test performed.

The aim: The aim of the study was to estimate the frequency and type of cardiac arrhythmias in patients with stroke.

Materials and methods: We studied 317 patients with ischemic stroke (152 men, avg. age 71), who have a 24-hour Holter recording performed. We collected clinical data and Holter results from over 3 years period (2018-2020). All patients underwent 24 Holter ECG monitoring. Patients were divided into groups according to types of stroke: non-TACI (n=256; 80,8%), TACI (n=15; 4,7%) and TIA/RIND (n=46; 14,5%).

Results: The mean results in patients with TACI, non-TACI, TIA/RIND were, for CHA2DS2–VASc score: $4,87\pm 1,92$, $4,68\pm 1,57$, $5,13\pm 1,48$; for NIHSS: $10,92\pm 7,49$, $5,06\pm 4,99$, $1,67\pm 1,61$; for medium HR: $75,53\pm 12$, $70,59\pm 12$, $69,26\pm 12$ respectively. In patients with TACI, the percentage of EAT (53,33%) and AF (13,33%) were higher than in non-TACI (40,23% and 8,20%) and TIA/RIND (36,96% and 4,35% respectively). While the percentage of VT, bradycardia <40s and pause >2s in patients with non-TACI were higher (respectively 8,59%, 3,91%, 3,52%) than in TACI (no such) and TIA/RIND (4,35%, 6,52%, 2,17% respectively).

Conclusions: ECG Holter is a useful test for detecting clinically relevant cardiac arrhythmias, which can be risk factors in patients with acute stroke. Highest CHA2DS2–VASc score was obtained in patients with TIA/RIND. EAT and AF appeared more frequently in patients with TACI, while non-TACI stroke patients were more likely to develop VT, bradycardia and pause. The significant cardiac arrhythmias in this group of patients may have important implications for further therapeutic procedures.

Keywords: ischemic stroke, cardiac arrhythmias, ECG Holter

Hypertrophic cardiomyopathy and ECG criteria for detection of left ventricular hypertrophy

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Background: Hypertrophic cardiomyopathy (HCM) is a common genetic heart disorder (1:200-500) diagnosed by imaging methods and related to increased risk of sudden cardiac death (SCD). Adequate ECG interpretation seems to be a widely accessible screening tool for HCM.

The aim: The aim was to assess ECG signs of left ventricle hypertrophy (LVH) in HCM population especially in relation to SCD-risk score.

Materials and results: Retrospective analysis of consecutive HCM patients (pts) hospitalised in tertiary cardiology center between 2017-2020 was performed. ECG records were analysed and the presence of 8 different LVH criteria was verified. SCD risk score was calculated according to ESC guidelines and 3 groups were separated: <4%, 4-6%, ≥6% of 5-year risk of death.

Results: Overall 53 pts (age:54.7±15; 62%M) were diagnosed with HCM. The most frequent ECG LVH criterion was the positive Cornell Voltage (40%; p<0.05) and the least frequent was the high amplitude of R in V5/V6 (11%; p>0.05). LV overload features (T wave inversion) were present in 83% pts.

ECG criteria of LVH were positive in 37pts (70%; 32%-1 criterion; 68%≥2 criteria).

ECG criteria of LVH were positive in 21(62%; 38%-1; 62%≥2) pts with low (<4%, n=34), in 4 (100%; 25%-1; 75%≥2) pts with intermediate (4-6%, n=4), and in 12 (80%; 33%-1; 67%≥2) pts with high (≥6%, n=15) SCD-risk score.

ECG criteria of LVH are present only in 70% of pts with HCM. Positive ESC LVH criteria are more frequently observed in pts with higher SCD-risk score. It is crucial to interpret ECG together with a detailed analysis of LVH origin.

Keywords: Hypertrophic cardiomyopathy, Electrocardiogram, Left ventricular hypertrophy, Sudden cardiac death Diagnostic

Correlation of patient's functions with risk factors for cardiovascular disease in systemic lupus erythematosus patients

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Background: Patients suffering from systemic lupus erythematosus (SLE) are had with a higher risk of developing cardiovascular disease (CVD). Pathogenesis involves antibody production and generalized inflammation of many different organs.

The aim: The main aim of the study was the evaluation of carotid femoral pulse wave velocity (cfPWV), 6 minute walk test (6MWT), ankle-brachial index (ABI) and left ventricle ejection fraction (LVEF) in patients suffering from Systemic Lupus Erythomatosus (SLE) and comparison of those parameters with control group.

Materials and methods: Patients with SLE were prospectively enrolled in the study in the time from X 2018 to II 2021 in the 2nd Department of Cardiology. Activity of SLE was measured by SLE Disease Activity Index (SLEDAI-2K). Each patient underwent the measurement of cfPWV, 6MWT, and ABI. Data was compared between patients with SLE and the control group, which had been chosen in respect of age and sex as well as in cardiovascular disease risk.

Results: The experimental group consisted of 65 patients of age 57.21 ± 10.89 , 24 with SLE and of 45 patients in the control group of age 54.82 ± 11.45 . ABI was higher in SLE group (1.22 ± 0.06 vs. 1.10 ± 0.10 , $p=0.0038$). In case of 6MTW, SLE group was statistically different (520.55 ± 85.39 vs. 616.08 ± 90.26 m, $p=0.0002$). GCS treatment was correlated with Alx ($r = 0.9182$, $p = 0.05$). Negative correlation was determined between disease activity and lower LVEF ($r= -0.8930$, $p=0.007$). Positive correlation between 6MTW score and ABI was determined ($r=0.9838$, $p=0.16$) and no correlation was found with cfPWV ($r=0.2501$, $p=0.750$). No correlation between cfPWV and ABI ($r=0.8431$, $p=0.1570$).

Conclusions: Activity of the disease is a significant parameter that impacts differences in the assessment of the cardiovascular system in comparison to the control group. SLE patients treated with GCs and smoking had a higher risk of CVD than the control group. Activity of SLE could be a potential factor that causes LV damage.

Keywords: systemic lupus erythematosus, pulse wave analysis, left ventricular dysfunction, walk test

Sacubitril/Valsartan: across the spectrum of patients with heart failure with reduced ejection fraction

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Background: Combination of neprilisin inhibitor (Sacubitril) and angiotensin receptor blocker (Valsartan) is a new promising therapeutic option in patients (pts) with heart failure with reduced left ventricular ejection fraction (HFrEF). It is now recommended ahead of all other renin-angiotensin-aldosterone system inhibitors, however, our experience in this field is limited.

The aim: To compare clinical profile and mortality in pts with HFrEF receiving and non-receiving Sacubitril/Valsartan (S/V).

Materials and methods: Overall 613 pts (507M, mean age 67.1 ± 11.7) with HFrEF hospitalized (the first hospitalization for HF) in 2018-2020 were enrolled into retrospective cross-sectional analysis. The study population was categorized into pts receiving [82 / 13.4% pts (71M, mean age 63.8 ± 13)] and not-receiving [531 pts (436M mean age 67.7 ± 11.4)] S/V. Then based on S/V subgroup included age, sex, BMI and LVEF matching was performed by using the 1:1 nearest neighbour method without returning. Finally two groups (S/V and nonS/V) of 64 pts were obtained and analysed regarding clinical characteristic and mortality in 1-2 year follow-up.

Results: In S/V group a higher percentage of pts with post-infarction cardiomyopathy ($p=0.003$), atrial fibrillation ($p=0.017$), cardiac resynchronization therapy ($p=0.038$) were observed. There was no difference in mortality between the groups (S/V group: 18 / 28%pts, 17 M; nonS/V 18 / 28%pts, 18M). In both groups mortality was associated with higher NYHA class (S/V group: $p=0.037$; nonS/V group: $p=0.05$). In nonS/V group advanced tricuspid regurgitation ($p=0.02$) increased and coexisting hypertension ($p=0.004$) and coronary arterial disease ($p=0.049$) decrease the death incidence.

Conclusions: Our current experience in S/V therapy is limited to the extremely severe pts with HFrEF. Mortality in HFrEF population is high and advanced HF seems to be the most important factor influencing the high death ratio.

Keywords: heart failure, heart failure with reduced left ventricular ejection fraction, sacubitril/valsartan

Prevalence of Obstructive Sleep Apnea in patients with Pulmonary Arterial Hypertension.

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Background: Obstructive sleep apnea (OSA) is a condition associated with repetitive difficulties in ventilation during night. Its relation to pulmonary arterial hypertension (PAH) is widely researched.

The aim: To assess prevalence and severity of OSA in patients with PAH.

Materials and methods: Preliminary analysis was conducted among 54 patients (17 male, mean age 58 ± 16 years) treated for PAH in 1st Chair and Clinic of Cardiology in Katowice. After applying several exclusion criteria (lack of consent, severe respiratory illness) successful final sleep polygraphy was conducted among 16 patients (5 male, mean age 59 ± 16 years, WHO:II/III, mean BMI: 29 ± 8 kg/m²). Apnea/hypopnea index (AHI), Oxygen Desaturation Index (ODI), minimal and mean blood oxygen saturation (SPO₂), minimal, maximal and mean heart rate (HR), percentage of sleep spent snoring (SNORE) and sleep time (T) were measured. Severity of OSA was calculated based on AHI results (<5 none, ≥ 5 and <15 mild, ≥ 15 and <30 moderate, ≥ 30 severe).

Results: Fifteen (94%) patients were observed with OSA (mild/moderate/severe: 8/6/1). Mean sleep time: 6.5 ± 1 hours. Average values measured were as follows: AHI: 15 ± 9 ; minHR: 50 ± 11 bpm; maxHR: 95 ± 18 bpm; meanHR: 70 ± 9 bpm. Median values measured were as follows: ODI: 19.5 (IQR 11.8-42.25); minSPO₂: 77.5 (IQR 64.5-82); meanSPO₂: 86.5 (IQR 80-88.5); SNORE: 1.5% (IQR 1-5%). Patients were evaluated regardless their PAH therapy and WHO/NYHA classification, nonetheless no significant differences between groups with different OSA severity were found.

Conclusions: OSA is a relatively common condition among patients treated for PAH. Evaluation between severity of OSA and stage of PAH and applied treatment requires further research on a larger study group.

Keywords: obstructive sleep apnea, pulmonary arterial hypertension, polygraphy

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SESSION OF PHYSIOTHERAPY AND ORTHOPEDICS

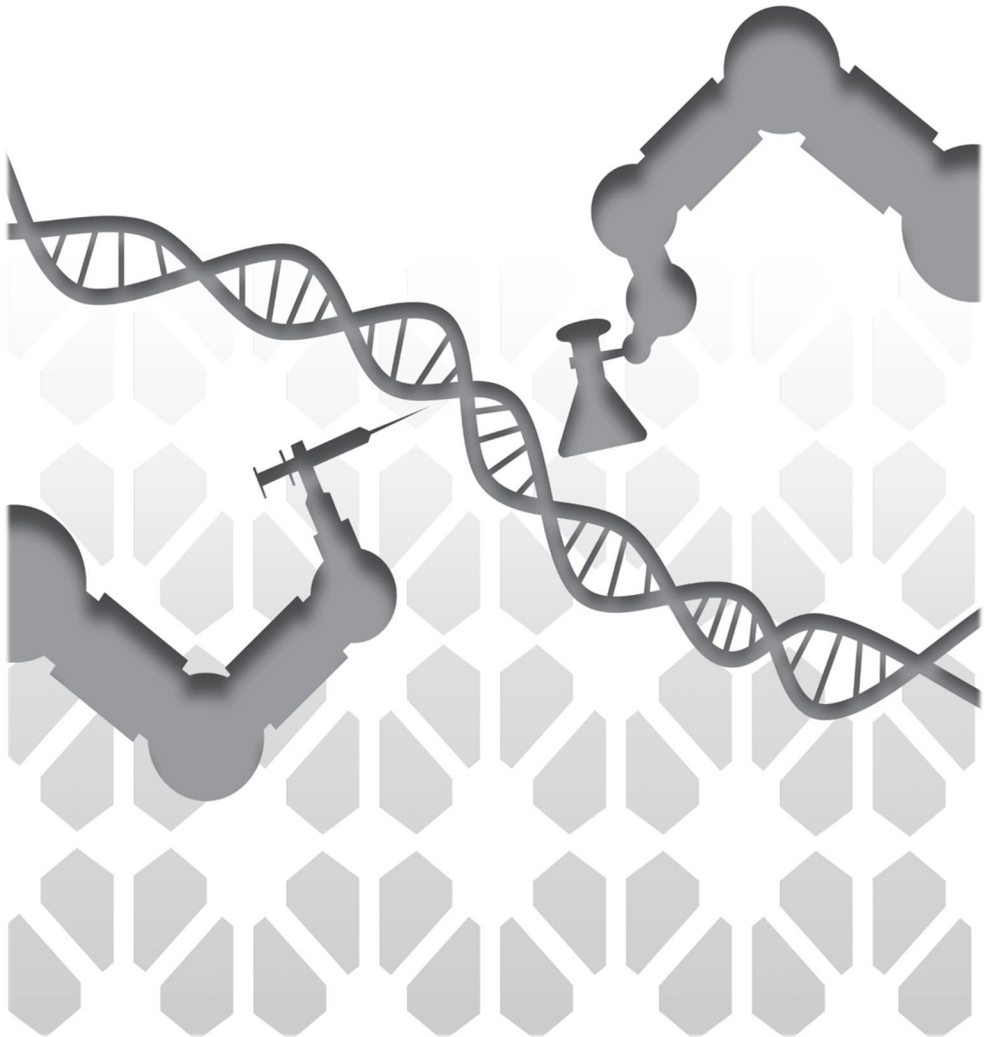


Table of contents

The analysis of injuries and orthopaedic management in polytrauma patients treated in Leszek Giec Upper-Silesian Medical Centre of the Silesian Medical University in Katowice from 2010 to 2019	274
Kirschner wires versus Titanium Plates and Screws in the treatment of metacarpal and phalangeal fractures	275
Differences in subcutaneous thickness of the knee in non-morbidly obese patients.....	276
Open dislocation of the knee joint – a case report	277
Politrauma as a result of a traffic accident – case report	278
„Somewhere on the top of the mountain, we'll all meet together one day...” Mountain sports motives and experiences:running and climbing.....	279
"High mountains, what do you fight with you punishes..." - themes for mountain sports: running and climbing	280
Impact of vibration training on chosen stabilometric parameters in young women and men – pilot study results	281
The sleep quality of medical university students and its relations with the physical activity and another elements of lifestyle	282
Decreased physical activity in adults during the COVID-19 pandemic (a pilot study).....	283
Robotics – pros and cons	284
Comparison of postsurgical complications after total hip and knee arthroplasty in relation to preoperative assessment of health.....	285

The analysis of injuries and orthopaedic management in polytrauma patients treated in Leszek Giec Upper-Silesian Medical Centre of the Silesian Medical University in Katowice from 2010 to 2019

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Introduction: Multitrauma is defined as an injury involving two or more different body parts, with a condition that at least one of these injuries is life – threatening.

The aim: The aim of this study was the analysis of injuries after polytrauma, especially in musculoskeletal system and subsequent treatment.

Materials and methods: The analysis covered data on the treatment of 107 patients (69 men, 38 woman) treated in the Department of Orthopedics and Traumatology in Leszek Giec Upper-Silesian Medical Centre of the Silesian Medical University in Katowice from 2010 to 2019. Data were searched based on code T06 International Classification of Diseases and then were analyzed.

Results: Men below 40 years old were most frequently patients who suffered from injuries after polytrauma. The mean age of patient was 39 years. The leading causes of polytrauma were traffic accidents (62,6%, n=67) and falls from height (23,4%, n=25). Head injuries were diagnosed in 59 (55%) cases, chest injuries in 65 cases (61%) and abdominal injuries in 22 cases (20%). Injuries of musculoskeletal system were present in 55% of all injuries. The most common injuries in musculoskeletal system were fractures of the lower limbs, (38 cases;36%), followed–by pelvis fracture 30 patients (29%) and upper limbs fractures 26 (24,3%). 53 patients (49 %) required orthopedic surgery, mainly intramedullary stabilization of upper (4,7 %) and lower (10,3 %) limb. Operative stabilization of pelvis fracture was performed in 8 % of all patients.

Conclusions: Polytrauma requires surgical treatment in almost half of the cases. Cooperation of many specialists (e.g. trauma surgeons, vascular surgeons, neurosurgeons, orthopedists, anesthesiologist) is essential in the diagnosis and treatment of patients after polytrauma. Maintaining treatment standards is the most important in management of multiple injuries.

Keywords: polytrauma, management, trauma care

Kirschner wires versus Titanium Plates and Screws in the treatment of metacarpal and phalangeal fractures

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Background: Fractures of metacarpals and phalanges are the most common injuries of the upper extremity. Unstable and displaced fractures are usually treated surgically.

The aim: The aim of this study was to compare the therapeutic effect of Kirschner wires (K-wires) and titanium plates and screws internal fixation in the management of metacarpal and phalangeal fractures (ICD-10: S62.2-S62.7).

Methods and materials: The study was conducted as a retrospective evaluation of clinical and outpatient follow-up data and included 80 patients treated in the Department and Clinic of Orthopedics and Traumatology in Katowice between 01.2014-06.2019. There were 58 (72.5%) men, and the mean age was 33.6 ± 11 . Patients were divided into the two groups based on method: 39 (49%) K-wires and 41 (51%) plates and screws group. The clinical end points were time of immobilization and the presence of long-term complications.

Results: The two groups were similar to the age of the patients ($P > 0.05$). Mean time from injury to surgery, hospital stay, and surgery were significantly longer in plates and screws group ($P < 0.05$). Mean time of immobilization was significantly longer in the K-wires group (6.4 vs. 4.8 weeks; $P < 0.001$). All operations were followed by uneventful postoperative recovery. Outpatient clinic follow-up showed no significant differences in complications between K-wires and plates/screws groups (26% vs. 21%; $P > 0.05$).

Conclusions: Regardless of the method, which was used, the treatment was generally efficient. There are no large, randomized studies confirming the superiority of any of these methods. Nevertheless, for now economic factors such as price, time of surgery and hospitalization indicate K-wires predominance.

Keywords: K-wires, plates, screws, metacarpal, phalangeal, immobilization, complications

Differences in subcutaneous thickness of the knee in non-morbidly obese patients

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Background: Total knee arthroplasty (TKA), considered the best treatment option for end-stage osteoarthritis (OA) is currently one of the most common procedures performed in orthopedic surgery. Its success is primarily dependent on surgeon's experience, patients' comorbidities, and implants' fitting. One of commonly described comorbidities is morbid obesity with its implications on both systemic and local level, such as shape of the limb. However, there is lesser number of studies describing such parameters in non-morbid obese patients, which may show more common patterns in patients treated with TKA.

Aim of study: The purpose of this study was to determine whether there are differences in subcutaneous tissue thickness at the femoral, tibial and patellar level between overweight patients and patients with appropriate BMI range who had undergone TKA and whether it is influenced by sex or age.

Material and methods: In this prospective study 60 (18 males, 42 females) patients qualified to total knee replacement (TKR) in the single orthopedic unit were included. Using X-ray examination in anteroposterior and lateral views measurements of subcutaneous thickness were achieved at following levels: femoral - 10cm above the distal femoral condyles surface, prepatellar – from anterior border of the patella, tibial – at and below 10cm of plateau level and pretubercular – from anterior border of tibial tuberosity. Data including age, sex and BMI level of the patients were collected.

Results: Univariate analysis showed significant differences between patients with appropriate BMI level and overweight patients in mean femoral and tibial (at plateau and 10 cm below) subcutaneous thickness (15.8cm vs 17.3cm, $p=0.023$, 13.3cm vs 14.7cm, $p=0.01$, 12.5cm vs 14.0cm $p=0.002$). There were also significant differences between males and females in mean subcutaneous thickness at pretubercular and 10cm below plateau level (8.8mm vs 14mm $p<0.0001$, 14.4cm vs 13.5cm $p=0.042$) However BMI showed significant difference between sexes (M:F 31.5 vs 28.15, $p=0.013$), due to lack of non-overweight male patients. When only patients with BMI over 25 were compared, only pretubercular thickness was found to be statistically significant (M:F 8.9mm vs 16.9mm, $p<0.0001$).

Conclusions: Shape of the lower limb and knee joint is closely associated with BMI levels. However certain measurements are more significantly associated with other variables such as sex, therefore multivariate analysis of patients' distinctive features should be considered.

Keywords: total knee arthroplasty, subcutaneous, thickness

Open dislocation of the knee joint – a case report

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Background: Knee dislocation is the term used to describe the displacement of joint surfaces in a way that prevents them from making contact. Open knee dislocation is a rare but serious injury of the knee joint, usually associated with high force, muscle paralysis, inflammation or cancer.

Case description: The patient was admitted to the Clinic for surgical treatment of an open dislocation of the knee resulting from a multisite injury in a traffic accident. The continuity of many structures within the knee joint was severed. The decision was made to surgically restore the continuity of the tendon of the popliteus muscle, tendon of the biceps femoris muscle, suture of the posterior capsule of the joint, iliac-tibial band, and reinsertion of the LCL to the peripheral attachment with the Super Revo anchor.

The patient was discharged in good general and good local condition with the following recommendations: to maintain the immobilization of the knee joint until the follow-up in the outpatient clinic and to relieve the pressure on the operated lower limb during the recovery period.

Six months after the original operation, the patient was readmitted to the Clinic for surgical treatment of distant sequelae of the injury. An arthroscopic ACL and PCL reconstruction was performed using RM (for ACL) and ST and Gr (for PCL) grafts. The grafts were fixed on the femur with GraftMax-Conmed endobuttons; Genesys Matryx-Conmed interference screws were used in the tibia. After five days, the patient was discharged home in good general condition with recommendations to relieve pressure on the operated limb and to change the dressings regularly until the follow-up in the orthopedic clinic.

Keywords: knee dislocation, trauma, ACL, PCL

Politrauma as a result of a traffic accident – case report

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Background: Collisions and road accidents are not uncommon, and neither are the resulting injuries.

Case description: The patient was admitted to the Department for surgical supplies after a traffic accident, hit by a car. After physical examination, the patient was diagnosed with: a multifracture of the distal end of the left clavicle with slight displacement of splinters; a fracture of the ulnar process of the right ulnar bone with slight displacement of splinters; a fracture of the lateral mass of the sacral bone on the right side with slight displacement of splinters; a bone fragment of approx. 5 mm at the S1 level, without stenosis of the sacral canal; multifracture of the right pubic bone with displacement of splinters; a small amount of free fluid in the pelvis; hematoma within the right piriformis muscle multifracture fracture of the proximal end of the right tibia, with angulation, wedging and displacement of splinters, involving the articular surface of the femoral-tibial joint; multifracture fracture of the proximal end of the right fibula, with displacement of splinters, and the presence of fluid in the epicondylar space.

After examination, preparation and anaesthesiological consultation, the patient underwent surgery, which consisted of: open setting and anastomosis of the right tibia fracture with the use of Medgal lateral LCP plate; open setting and anastomosis of the left clavicle end with the use of Medgal hook plate; open setting and anastomosis of the right ulnar process fracture with the use of Weber girdle; open set-up and anastomosis of the left clavicle with a Medgal hook plate; open set-up and anastomosis of the right ulnar process fracture with a Weber girdle.

The postoperative period in the Department was without complications, the patient underwent rehabilitation. She was discharged in good general condition with recommendations.

Conclusions: The management described above is an effective method of treating multi-organ injuries of similar characteristics.

Keywords: politrauma, multifracture, pelvis, clavicle

„Somewhere on the top of the mountain, we'll all meet together one day...” Mountain sports motives and experiences: running and climbing

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Background: „Somewhere on the top of the mountain, we'll all meet together one day...” This is the chorus of the song, which is talking about journey and lifeline. The mountain sports motives are different, but the aim is always the same—peak.

The aim: The aim was to investigate mountain sports motives: climbing and running. Research the correlation between motives with emotions and experiences.

Materials and methods: 87 people were examined: 39 women (44,8%) and 48 men (55,2%) aged 19 to 33 years (average: 24,89). Selection for research was intentional—there are mountain runners: n=32 (36,78%) and climbers: n=55 (63,22%). The questionnaire consists of two parts: the Motives for Physical Activities Measure—Revised—MPAM-R questionnaire was used to investigate the motives and the original questionnaire concerning emotions and experience of athletes.

Results: The highest averages in the 7-point scale MPAM-R had the following motives: pleasure (5,98), competences (5,91), and fitness (5,62). The lowest had: social (4,76) and appearance (4,54). In the emotions felt in mountain sports (1-5 scale) the highest average had opinions, that physical activity improves awareness of the body (4,72), the mountains give freedom (4,71) and discovering new places in the world (4,57). All motives were correlated with training satisfaction, with affirmative „mountains gives freedom”, and with felling which accompanies mountains landscape and adventure. Rarely the athletes were paying attention to appearance.

Conclusions: People who do mountain sports have high requirements concern activity and they are correlated with pleasure and competencies.

Keywords: mountain running, climbing, sports motives, experience

"High mountains, what do you fight with you punishes..." - themes for mountain sports: running and climbing

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Background: The title of our article was inspired by Sufler's "Shadow of the Great Mountain". Mountains are associated with risk and courage. Everyone in the face of such power must face their weaknesses. The right motivations give us a path of struggle and our own peak.

The aim: Explore the motives for running and climbing. It also examined whether gender, age, training placement and selected sociodemographic variables were related to these recitals.

Materials and methods: 87 people were surveyed: 39 women (44.8%) and 48 men (55.2%) 19-33 years old. These were mountain sports players: running: n=32(36.78%) and climbing: n=55(63.22%). The research tool was the author's questionnaire, consisting of a metric part (gender, age, type of sport, training internship, sociodemographic variables) and author's questions about the motives (7 from which the subjects were to choose 3).

Results: Most people: n=57(65.52%) pointed to the 'self-examination' recital. Further themes are stress discharge(n=37;42.53%), taking care of health (n=35,40.23%). Least people indicated motives: improved physical appearance (n=18; 20.69%), desire to meet people (n=26,44%). However, the most frequently mentioned motive was "taking care of health". The type of sport and gender didn't differentiate motives. Age and training internship hadn't connection with the motives. The differentiating factor of the "self-check" theme was the type of activity cultivated ($p<0.05$) for professional sportsmen, which was more important. Sociodemographic variables were not related to motives.

Applications: The most commonly declared motive was taking care of health.

Keywords: mountain sports, mountain running, climbing, themes

Impact of vibration training on chosen stabilometric parameters in young women and men – pilot study results

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Introduction: Vibration training is popularity gaining form of activity, which offers a lot of possibilities in healthy people training as well as in rehabilitation of sick people. Properly planned can have good impact on proprioception, motor unit engagement in movement, stability and coordination. Development of exercising equipment in last few years gave possibility of precise selection of training parameters in order of achieving wanted effects.

The Aim: The aim of research was to check impact of 4-week vibration training program on chosen stabilometric parameters in young women and men.

Material and methods: 12 people: 3 women (25%) and 9 men (75%) In age 18-26 y. (Av. 22,08; SD=2,61). There were analyzed parameters such as: field of center of gravity projection on base of support, length of center of gravity projection path on base of support, average speed of center of gravity projection movement, length of path and field of center of gravity projection on base of support ratio. All tests were made while standing on 2 feet with eyes opened and closed also with eyes opened while standing on 1 foot (right and left). Tests were repeated after finishing 4-week training program.

Results: Differences between tests done before and after training were in 12 stabilometric parameters. Changes in length of center of gravity projection path on base of support and average speed of center of gravity projection movement appeared to be statistically important in test done on 2 feet with eyes opened. In both cases results from tests done after training program were lower.

Conclusions: Vibration training can improve stability parameters. It is necessary to refine methodology of the training in time and frequency aspects. Assessment of effectiveness and explanation of training mechanism needs more research.

Keywords: stabilometry, vibration, training

The sleep quality of medical university students and its relations with the physical activity and another elements of lifestyle

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Background: Sleep is a functional state in which conscious reception of external signals is stopped. We have smaller reactivity to external stimuli. Physiological sleep allows to regenerate energy. Sleep disturbance may provoke functional impairment both in biological and mental aspects. It significantly lowers the quality of life.

Objective: The aim of the work was to study occurrence of sleep disorders of medical university students and identify relations between these disorders and selected sociodemographic variables and the elements of lifestyle—mainly related to physical activity.

Subject group, methodology: 198 medical university students, aged from 19 to 27, were examined. Survey questionnaire consisting of author's part, the PSQI and SEWL questionnaire were the applied research tools.

Results: Average PSQI score: 6,22 for all participants: 6,50 for women, 5,39 for men. Gender scores differ, but a qualitative assessment showed no variation. Presence of sleep disorders did not differentiate the subject group regarding physical activity, leisure time and total physical activity. No differences were noted in comparisons regarding qualitative assessment of PSQI between field of study, change of residence, having a private room, smoking a cigarette, drinking coffee, alcohol or energy drinks, use of painkillers, assessment of stress susceptibility, adaptation to new situations and coping in university. The factors which differentiated the qualitative assessment of sleep were presence of chronic diseases and coping with personal life.

Conclusions: Each student's sleep quality is an individual matter. Factors influencing sleep efficiency are presence of chronic diseases and coping with personal life.

Keywords: sleep efficiency, students, physical activity, lifestyle

Decreased physical activity in adults during the COVID-19 pandemic (a pilot study)

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Introduction: Obesity is recognized as one of the most common chronic non-communicable diseases. Overweight and obesity have been called the epidemic of the 21st century. Positive energy balance, poor eating habits, low physical activity and emotional problems are the most common contributors to obesity. The current situation related to the COVID-19 pandemic favors decreased physical activity and weight gain.

Aim and objectives: The main objective of this study was to evaluate the impact of lockdown associated with the COVID-19 pandemic on the possibility of overweight and obesity in the adult population. The essence of the study was to analyze the impact of COVID-19 pandemic on the level of physical activity among adults.

Material and Methods: A total of 244 adults participated in the study. The questionnaire was filled in correctly by 237 respondents, who were then qualified for further stages of the study. Data analysis was performed using Statsoft Statistica 13.0 program.

Results: It was observed that most respondents participating in the study changed the mode of work to remote (46%), and 28% worked stationary without any changes. 57 respondents declared that they were unemployed at the time of the survey. It seems disturbing that the level of physical activity during the pandemic was reduced in more than half of the respondents (55%), only 26% increased their level of physical activity during lockdown. Furthermore, it was found that 1/4 of the respondents announced that lockdown did not change their physical activity level in any way. When asked about subjective change in mood during the lockdown, most respondents stated that it worsened (in 60%), 31% of people did not notice any change.

Conclusions: The appearance of COVID-19 pandemic in Poland contributed to a decrease in the level of physical activity and changes in the work mode of many people. At that time also the well-being of the respondents changed.

Keywords: COVID-19, lockdown, physical activity, overweight, obesity

Robotics – pros and cons

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Introduction: Medical sciences and clinical practice are increasingly turning to the latest technology expanding treatment options and increasing its efficiency. Along with rushing development of science and the world being more automated there are some changes in physiotherapy, too. It is noticeable that exercises that were conducted by physiotherapist are more often performed by robots. Is it a change for better?

Aim: The aim of the research had been to check opinion of physiotherapist and physiotherapy's students on the usage of robotics. It was checked whether interviewees were conscious of that kind of robotics' usage and if they considered automatic physiotherapy to be better than traditional.

Materials and methods: The authorial survey was carried out on 620 people – physiotherapists and students of physiotherapy. It contained 23 questions including working with robots, the source of knowledge about physiotherapy's robots and possibility of substituting robots for persons. Subjects were divided into groups in terms of activity in the labor market.

Results: 75,81% people claimed that they had heard about robotics in physiotherapy, while only 33,55% interviewees had seen rehabilitation robots live. Most of the respondents (56,3%) believed that robots are able to partially replace the manual work of a physiotherapists. In opinion of 25,83% therapists the patients responded better to automatic therapy.

Conclusions: Most of the respondents are interested in working with robotic equipment. Professionally active respondents more often consider automatic therapy to be more effective.

Keywords: robotics, robots, physiotherapy

Comparison of postsurgical complications after total hip and knee arthroplasty in relation to preoperative assessment of health

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Introduction: Arthroplasty is a surgery to restore a motion to a joint by replacing the osteoarthritic changes with artificial elements. As every surgery THA and TKA come with the possibility of postoperative complications.

The aim: The purpose of this study was to review and compare the postoperative complications after both total hip and knee arthroplasty basing on the patients ASA score and age.

Materials and methods: The Department of Orthopedics and Traumatology of SUM database was queried from March 2017 to February 2018 (ICD-10 M16) and from January 2019 to May 2019 (ICD-10 M17) to identify patients diagnosed with hip and knee osteoarthritis, respectively. 195 patients who required THA (95 patients) and TKA (100 patients) have been qualified for the study. The average age of patients was 67.3 years. All patients were compared based on their age and ASA score.

Results: Patients were divided according to ASA class. Of those who qualified for THA surgery complications occurred in 17 patients (17.89%): 2 patients with ASA I (20%), 5 patients ASA II (10%), 9 patients ASA III (32%) and 1 patient with ASA IV (33%). Of those qualified for TKA surgery complications occurred in 12 patients (12%): 0 patients with ASA I, 6 patients ASA II (12%), 6 patients ASA III (15.4%). In THA there was a significantly higher incidence of complications in patients with ASA III than ASA II ($p < 0.01$), whereas in TKA there was no statistically significant correlation.

Conclusions: In both types of surgery the number of postoperative complications is growing with higher ASA score. Besides, our study showed higher number of complications after THA than TKA.

Keywords: osteoarthritis, total knee arthroplasty, total hip arthroplasty, ASA score

SESSION OF PSYCHIATRY AND SEXOLOGY

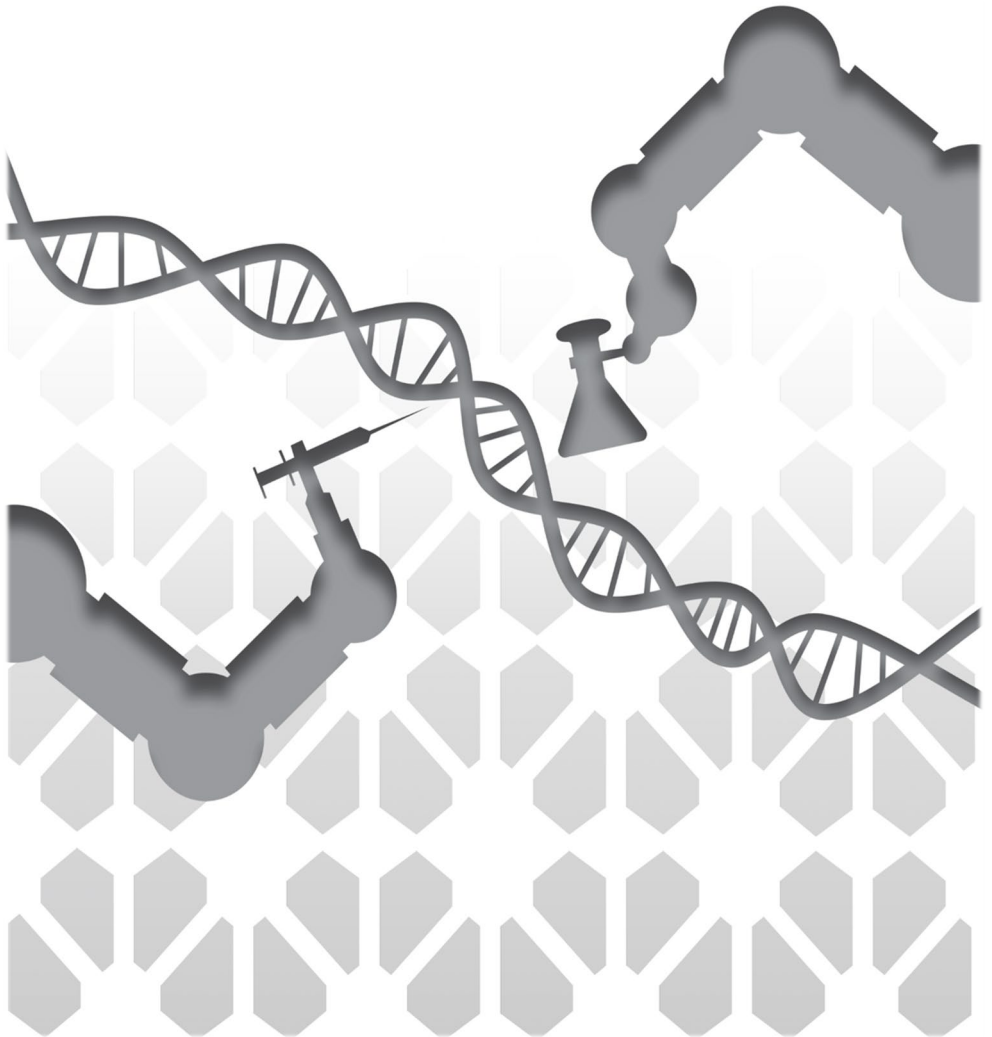


Table of contents

Masturbation and sexual life among polish Internet users.....	288
The relationship between the Dark Triad and the occurrence of anxiety and depression within society during the pandemic.....	289
Quality of life including the sexual life of those staying in prisons	290
Condom – knowledge and use among women and men	291
Unfulfilled Art Enthusiast With Schizoid Personality Disorder	292
Does the burnout ever stop? The investigation among medical students.....	293
„Medical student disease" – a myth or a real disease entity?- cross-sectional study among Silesian students	294
Growing problem of chemsex in a group of young adults in Poland	295
Alexithymia and related disorders among social media users	296
Vegan diet to improve quality of life and sex of woman	297
Acceptance of the disease and quality of life in patients with type 1 and type 2 diabetes ..	298
Assessment of knowledge and beliefs concerning mental disorders among medical students – preliminary report.....	299
How to keep the fire of motivation burning?	300

Masturbation and sexual life among polish Internet users

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Introduction: In the past, it was once believed that masturbation should not be practised, as it may be a cause of neuropsychiatric disorders. In present according to World Health Organisation attitude masturbation is included as part of normal child development and it aids to discharge the sexual tension in adults. The amount of research and data in literature about importance and spread of masturbation is still insufficient.

Aim: The aim of this pilot study was omni-directional analysis of masturbation including gender differences and influence of mentality or religion.

Methods & Materials: The study was based on anonymous, over the Internet survey composed of 25 closed-ended question. It started in 2020 and still goes on. So far 1201 men and 1011 women get involved.

Results: Among masturbating men 25% (n=301) have sexual disorder during intercourse, mostly 11,5% (n=137) erectile dysfunction and 8% (n=98) excessive sex drive. Among masturbating women 36,5% (n=365) have sexual disorder during intercourse, mostly - 20% (n=207) dyspareunia and 14% (n=138) vaginal dryness. COVID-19 pandemic has no effect on masturbation frequency in 60% (n=1313) participants, in 26% (n=563) participants it increased frequency and in 14% (n=300) decreased frequency.

Conclusions: The research has shown that men masturbate more often than women, from the other hand women have sex more often than men.

Keywords: masturbation, sexual life, internet

The relationship between the Dark Triad and the occurrence of anxiety and depression within society during the pandemic

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Background: The COVID-19 pandemic of 2020 and its consequences were associated with the rise of new stress factors which had a large impact on mental health within Polish society. During this crisis many individuals were more likely to develop various mental disorders, such as anxiety and depression. Individuals who exhibited the characteristics of the Dark Triad - psychopathy, narcissism and Machiavellianism - belonged to the most vulnerable group. These individuals showed notable depressive tendencies, which negatively affected their everyday lives. Additionally, a low sense of empathy and self-centeredness resulted in a lack of social support from others, which can be helpful in overcoming crises.

The aim: This study's aim was to assess the mental condition of Polish citizens and to determine the relationship between personality traits and the severity of symptoms of anxiety and depression.

Materials and methods: 604 adult Polish participants took part in an online survey which was conducted via social media. Levels of anxiety and depression were measured using the Polish version of the Hospital Anxiety and Depression Scale, while the Dark Triad was assessed using the Polish version of the Dirty Dozen.

Results: The results indicated a significant deterioration of mental health in Polish society during the pandemic: a notable increase in depression symptoms was observed in 26% of respondents. Anxiety symptoms were elevated in 63% of cases. The intensity of Dark Triad traits showed a positive correlation with the occurrence of symptoms of depression. Further, narcissism showed a positive correlation with the severity of anxiety symptoms.

Conclusions: Our study showed the importance to provide special psychological and psychiatric help to people with higher levels of Dark Triad traits. Taking this measure is especially important during difficult life situations and crises

Keywords: pandemic, Dark Triad, anxiety, depression

Quality of life including the sexual life of those staying in prisons

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Background: The theme of this work is the quality of life including the sexual life of those staying in prisons. These people are socially maladjusted and have caused harm another person. Prisoners must adapt to new conditions and regulations, and prevailing rules living in prison. An inseparable element of this life is also sexuality and the need for its fulfillment.

The aim: The aim of the study was to assess the quality of life, including the sexual life of people in prisons.

Methods & Materials: The study was conducted among 125 prisoners, and statistical analysis covered the responses of 117 inmates in prisons. The obtained data was analysed using IBM SPSS Statistics.

Results: The results of this research indicate that prisons do not provide prisoners with the possibility of cultivating contacts with relatives and satisfying their sexual needs. Nevertheless, staying in a prison usually does not affect the quality of contacts with relatives and it is rated mainly at the level 4 and 5 on a 5-point scale. Prisoners most often assess their stay in prison negatively, i.e. at level 1 on a 5-point scale. With age, the frequency of selecting a higher rating increases. Prisoners are not satisfied with their lives and have low scores on the SWLS and are moderately highly satisfied with sex life - according to the results in the KSS. The main form of satisfying sexual arousal among inmates is masturbation. Most prisoners masturbate several times a week. Nowadays, there are isolated cases of aggressive sexual behavior, forced homosexual intercourse and change of sexual orientation as a result of staying in a correctional facility.

Conclusions: There are limited options in prisons, only in the form of unsupervised visits or passes. However, this raises concerns as to whether dissatisfaction will lead to an increase in aggressive sexual behavior and coercion into homosexual intercourse. As the conducted research shows, this phenomenon is present at the moment, although relatively rarely.

Keywords: quality of life, sexuality, prisoners

Condom – knowledge and use among women and men

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Introduction: Sexual activity is associated with the use of contraception and personal protective equipment. A condom is the only device with a dual protection function as it will protect you against both STIs and unplanned pregnancy.

The aim: The aim of the study was to determine the state of knowledge about condoms and the degree of their use in the group of women and men of different ages.

Materials and methods: A diagnostic survey using the CAWI method was used as a research method. The research tool was the original questionnaire. The research material consisted of 757 people (385 women and 372 men) aged 18-32. The obtained data was analyzed using IBM SPSS Statistics.

Results: According to the respondents, the condom is an effective contraceptive protection in 91-99%. In the study group, 89.5% of men and 68.6% of women feel no resistance to buying a condom, while it occurs in 22.9% of women and 7.8% of men. Regardless of age, the most common place to buy a condom was a shop / market, and among those aged 18-22 they also made purchases at a pharmacy and at a petrol station. The respondents also indicated where the condoms were stored: in the cupboard (41.1%), while 11% in the wallet. Another place of storage was a bag (3.6%) and a pocket (0.7%). The study also showed that among the respondents there are people who have experienced condom failure - the most common is a crack. A significant proportion of the respondents who experienced the unreliability of the condom used admitted that it could have been wrongly selected or installed incorrectly.

Conclusions: In Poland, the purchase of condoms is easy and affordable for everyone, regardless of age, gender and place of residence. The respondents unanimously agree that both partners should be responsible for contraception, but this does not coincide with who is actually responsible for it. Both women and men have knowledge of the correct moment to put a condom on and take it off.

Keywords: reproductive health, contraception, condom

Unfulfilled Art Enthusiast With Schizoid Personality Disorder

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The aim: The aim of this study is to discuss the case of a 27-year-old man with schizoid personality disorder (F60.1). Patients with this disorder appear as withdrawn people. They cannot find a balance between the desire of interpersonal contact or intimate attachment to others and the fear associated with it. It leads to their alienation and escape to internal fantasy world. These people are usually very creative. This case study based on detailed interview with the patient, data from three hospitalizations in the day ward of neurosis in Upper-Silesian Medical Centre in Katowice, Sentence Completion Test, Symptom Checklists KO „O” and a Life Inventory.

Results: The man has been struggling with personality disorders since childhood mostly caused by his dysfunctional family. He used to go to psychologist for 13 years. Now for the third time he's attending group therapy in a day ward of neurosis. Initially, it was planned to refer the patient to The Center for People with Special Needs. Before starting group therapy, he had problems with basic activities enabling independent functioning. The patient has problems with building relationships and suffers from anxiety disorders related to it. The man considers himself unique because of his artistic and mathematical talent. He composes music, wants to write a book, set up a theatre and claims that he is able to discover a lot in math, but does not implement it while living in a fantasy world. The patient believes in the power of his intuition and having prophetic dreams.

Conclusions: Therapy brings results – the patient thinks more wisely about the future and begins to have interpersonal contacts.

Keywords: schizoid personality disorder, psychotherapy

Does the burnout ever stop? The investigation among medical students

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Background: Occupational Burnout (OB) is a condition that can severely impair work efficiency and mental health.

Aim: (1) To assess the prevalence of OB in medical students (MSs) of 2nd and 5th years in Medical University of Silesia (MUS), Wrocław Medical University (WMU) and Medical University of Białystok (MUB). (2) To assess the change of OB in a follow-up group after a year.

Materials and methods: The initial survey was performed in 01.2020 and the follow-up in 01.2021. An OLBI questionnaire consisting of 16 questions was used to evaluate OB. The cutoff point for discerning low OB was determined at 44 points, moderate OB at 52 and high OB at 60 out of 64 points possible. The survey was sent to MS's in 2nd and 5th year of medical universities listed above and in the follow-up to students that participated in the initial research and consented to a participation in a follow-up study.

Results: The study group comprised 377 MSs (34% males, median age 23 years, IQR 21-24); 61% from MUS (37% 2nd year); 17% from WMU (29% 2nd year); 22% from MUB (28% 2nd year). Median OLBI score counted 46 points (IQR 40-51). The overall number of students assessed with OB was 223 (60%). Out of this 28% were 2nd years and 72% were 5th years. 138 out of 223 students (62%) were classified as low OB, 78 (35%) as moderate OB and 7 (3%) as high OB. The follow-up group comprised 29 MSs (48% males, median age 24 years, IQR 23-25). 23 (79%) students were assessed with OB (58% low, 17% moderate, 3% high). Average OLBI score was calculated as 48 points (SD±7). 19 students (66%) were assessed with higher OLBI score in comparison to 2020 (average 5p increase), In 8 of them OB classification escalated. 9 MSs (31%) had lower OLBI score (average 5p decrease). In 4 of them OB classification was reduced.

Conclusions: The majority of MSs was assessed with an OB of at least 44 OLBI points. The study shows a high prevalence of OB

Keywords: occupational burnout, students, cohort study

„Medical student disease" – a myth or a real disease entity?- cross-sectional study among Silesian students

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Background: There is a widely known stereotype about medical majors repeated by generations of medical practitioners called „medical student disease". It's based on a belief that unexperienced students are prone to develop pathological fear of medical conditions they are studying about. Limited knowledge can lead them to the misunderstanding of their own symptoms and self-diagnosis of serious disease they studied about.

The aim: The aim of the study was to examine two populations of students - medical and non-medical ones in order to compare their level of hypochondriacal behavior and health-related anxiety. Moreover we looked for other factors which might have had an influence on hypochondria and nosophobia among them.

Materials and methods: The proprietary questionnaire was completed by 606 students (303 medical students of the Medical University of Silesia in Katowice and 293 students of the 3 largest non-medical universities in Katowice).

Results: The results of study show that medical students receive same scores on a scale nosophobia as students of non-medical universities ($p=0,5$). The analysis of hypochondriacal behavior showed significantly higher results in non-medical students group ($p=0,02$). The higher medical students were at the stages of academic education, the higher the results of nosophobia they obtained. In the entire study group female received higher score in relation to the fear of illness ($p = 0.001$). People with mental disorders achieve significantly higher results of nosophobia ($p < 0.001$ in the entire group) and of hypochondria ($p < 0.001$ for the entire cohort).

Conclusions: Our study challenge the widespread belief that medical students, compared to their peers, are overly anxious about their own health. Gender and having a mental illness are predictors of hypochondria and nosophobia. The prevalence of depression and anxiety disorders in the population of Silesian students seems to be significant.

Keywords: hypochondria, nosophobia, medical students

Growing problem of chemsex in a group of young adults in Poland

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Background: Chemsex is a sexual practice involving having sex under the influence of voluntarily consumed drugs in order to facilitate intercourse or increase satisfaction. It is the most popular in MSM communities (man who have sex with man). Interest in this practice is gaining more and more popularity in highly developed countries.

The aim: Examination of the popularity, current knowledge and active participation in chemsex of young adults (19-35 years of age) in Poland.

Methods: The research was conducted in the form of two-part questioner, which was shared on different social media platforms. 1290 people participated in the study.

Results: Among the studied group, 13% (171 people) took an active part in chemsex, the majority (72%) were homosexual or bisexual. The most common motivation was the desire to obtain greater satisfaction from the intercourse (60.9%) and experience new impressions (65.2%). The most popular among the substances used in chemsex are MDMA, poppers, and mephedrone. Problems with sleep, and difficulty in focusing attention and concentration were the most common health consequences reported by the responders.

Conclusions: Chemsex is becoming more and more popular in Poland. People who have taken active part in it, in consequence, suffer from more frequent addictions to psychoactive substances, infections with sexually transmitted diseases and mental health disorders. This is related to the growing need to help such people in specialized medical centers and for wider access to reliable information about chemsex.

Keywords: chemsex, drugs, MSM, addiction

Alexithymia and related disorders among social media users

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Introduction: Alexithymia is a cognitive-affective impairment characterized by the inability to identify, differentiate and describe experienced emotions.

The aim: The objective our study was to investigate associations between alexithymia and other traits such as emotional intelligence or ability to identify emotions among social media users.

Methods and materials: The study was conducted, in a form of an online questionnaire for Facebook and Instagram users. Toronto Alexithymia Scale (TAS-20) was used to assess levels of alexithymia, Beck Depression Inventory to measure risk of depressive disorders, Empathy Quotient (EQ) scale to determine emotional intelligence and Reading the Mind in the Eyes (RMiE) scale to determine the ability to identify emotions. The study included 809 respondents with a median age of 22, among which 654 (80,8%) were female.

Results: 427 (52,8%) patients were classified as alexithymic. We found statistically significant correlation between levels of depressiveness and alexithymia ($r=0,54179$; $p<0,00$) as well as lower emotional intelligence quotient and alexithymia ($r= -0,4474$; $p<0,00$). Alexithymia was also negatively correlated with age of respondents ($r=-0,16$; $p<0,05$) and was more frequent among women (84,3% vs 77%; $p<0,0084$).

Conclusions: In general population studies, the prevalence of alexithymia has been approximately 10%. Overrepresentation of alexithymia in our sample proposes to its possible link to social networks users. Contrary to some publications alexithymia seems to be a phenomenon distinct yet linked to depressive symptoms. Therefore, it might account for the risk factor for its development. Our outcomes seem to contradict suggestions that alexithymia is a stable trait across lifetime but rather it might be decreasing with age.

Keywords: alexithymia; depression; empathy; emotion recognition

Vegan diet to improve quality of life and sex of woman

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Background: Vegan diet is a dietary regime that includes plant-based products and excludes any sort of animal products. This diet is getting more popular in recent years. Society has been gaining more awareness about the consequence of eating animal products.

The Aim: The purpose of the study was to investigate effects of veganism on health, sexual life and physical endurance. For this purpose, we compared, by internet poll, women remaining on a vegan diet to their feelings before switching to this lifestyle, as well as women that consume animal products.

Materials and methods: In this study 124 answers were collected from women and 1 from non-binary person. The participants were asked 26 questions, 15 of them were from CSFQ questionnaire. Vegans additionally answered questions comparing their past with their present.

Results: 35 vegans and 90 women on different diets took part in the study. Majority of participants were in their twenties. We have noticed the biggest difference in between vegans' feelings about their past and present, especially in their opinion about health condition. Over 40% of vegans rated their current health as very good, while only about 6% of them could grade their health in this way before switching to a vegan diet. When it comes to sexual aspects, women who eat animal products are more likely to experience sexual arousal, however vegans have reported that they reach orgasms more often. Also, vegans emphasized that satisfaction with their sports condition had increased.

Conclusions: The results allowed us to indicate that a vegan diet has an effect on the subjective improvement of the well-being, quality of sexual life and physical condition of woman. Researchers believe that this study shows how big the impact of our diet is to our life. The topic requires more research to evaluate objective indicators, but we hope that this work will contribute to promoting a vegan diet even as a kind of psycho-diet

Keywords: vegan, libido, sex, physical condition, quality of life

Acceptance of the disease and quality of life in patients with type 1 and type 2 diabetes

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Background and objectives: Acceptance of the disease is one of the most important elements in the process of adaptation to life with a chronic illness. The aim of the study was to assess the relationship between disease acceptance and quality of life in patients with diabetes.

Methods: The number of 101 patients with type 1 diabetes and 90 patients with type 2 diabetes were included in the study and examined by using of AIS, SF-36, SWLS and HADS scales.

Results: Statistically significant worse acceptance of the disease was found in patients with type 1 diabetes compared to patients with type 2 diabetes. Both groups did not differ in the assessment of quality of life. Patients with t1dm showed positive correlations of the level of disease acceptance with physical functioning and the psychological scale.

Among patients with t2dm, the age of the subjects and the duration of the disease correlated negatively with the acceptance of the disease and women showed better acceptance of the disease than men. Patients who accepted the disease more often presented lower severity of anxiety and depression symptoms as well as better metabolic control in both studied groups.

Conclusion: Patients diagnosed with type 1 diabetes showed worse acceptance of the disease compared to patients with type 2 diabetes. Acceptance of the disease affected the quality of life only in the group of patients diagnosed with type 1 diabetes. In both study groups, better disease acceptance correlated with lower anxiety and depression symptoms and better metabolic control.

Keywords: disease acceptance, diabetes, quality of life.

Assessment of knowledge and beliefs concerning mental disorders among medical students – preliminary report

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Background: Most people find it difficult to justify the difference between a psychologist, psychiatrist, and psychotherapist, and the necessity of psychiatric treatment is an unacceptable problem. Despite this, the recently intensified social movements promoting equality and tolerance towards otherness, as well as attitudes and social beliefs about people with mental disorders, are full of stereotypes. It seems that psychiatry, as a branch of medicine, has recently emerged from the shadow of its often difficult and sometimes controversial history. Forms of diagnostic, social beliefs about the mentally ill patients and psychiatry in general strengthen the centuries-old tradition of isolationism as a method of dealing with mental problems of community members. It seems that doctors, and medical students should be free from stereotypes about patients with mental disorders.

The aim: Analyze the knowledge about mental disorders and attitudes towards mental diseases.

Methods and materials: The survey was conducted in a group of 94 fifth-year students of medicine, including 59 women and 34 men, aged 24.34 ± 1.28 years.

Results: In the conducted research, personal contact with a psychiatrist due to problems with their own mental health was declared by 23% of respondents. In the analysis of the questionnaire on beliefs, as many as 83% of respondents considered that mental illness is a cause for shame. At the same time, 81% of students would consult a psychiatrist if someone from their relatives suggested it, and 54% saw no problem in informing their friends about this fact. When asked about the use of electroconvulsive therapy, 95% of respondents answered that it is still a method used in specific indications in the field of mental illness. In the study group, 15% of people considered that psychotropic drugs were mainly used to control aggressive behavior, and 58% indicated that they are addictive.

Conclusions:

The image of a person with mental disorders, as assessed by medical students, does not differ from the stereotypical approach of the general public.

The results of the research suggest the necessity of promoting the knowledge and shaping the right attitudes among future doctors.

Keywords: students, knowledge about mental disorders, beliefs

How to keep the fire of motivation burning?

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Introduction: Several factors are connected to developing Occupational Burnout (OB) in early career. Identifying and modifying those factors in the student population can prove helpful in preparing the proper strategies to combat the effects of OB.

Aim: To assess factors connected to prevalence and severity of OB of Medical Students (MSs) of Medical University of Silesia (MUS), Wrocław Medical University (WMU) and Medical University of Białystok (MUB).

Methods and materials: This survey was performed in 01.2020. A self-designed questionnaire consisting of 40 questions regarding demographics, mental health, lifestyle and subjective evaluation of attended university as well as an OLBI questionnaire consisting of 16 questions was used. Cutoff point for discerning low OB was determined at 44 points, moderate OB at 52 and high OB at 60 out of 64 points possible. The survey was sent to MS s in the 2nd and 5th year of the above medical universities.

Results: Students who present better quantity and quality of sleep, travel more often, spend more time on curricular activities and exhibit higher satisfaction with their university are significantly less burnt out ($p<0.01$). Those who changed their habitat, were previously diagnosed with mental illnesses are significantly more prone to suffering from OB ($p<0.05$).

Comparison of students with and without OB regarding sexual activity, time spent on various hobbies and usage of substances (i.e alcohol) did not show significant differences.

Conclusions: Our study shows the importance of proper quality and quantity of sleep along with regular changes of environment in the form of traveling in combating OB. Choosing the adequate place of study is also crucial in preventing OB as higher satisfaction with a university correlates with lower burnout measured with OLBI scale.

Keywords: occupational burnout, students, risk factors

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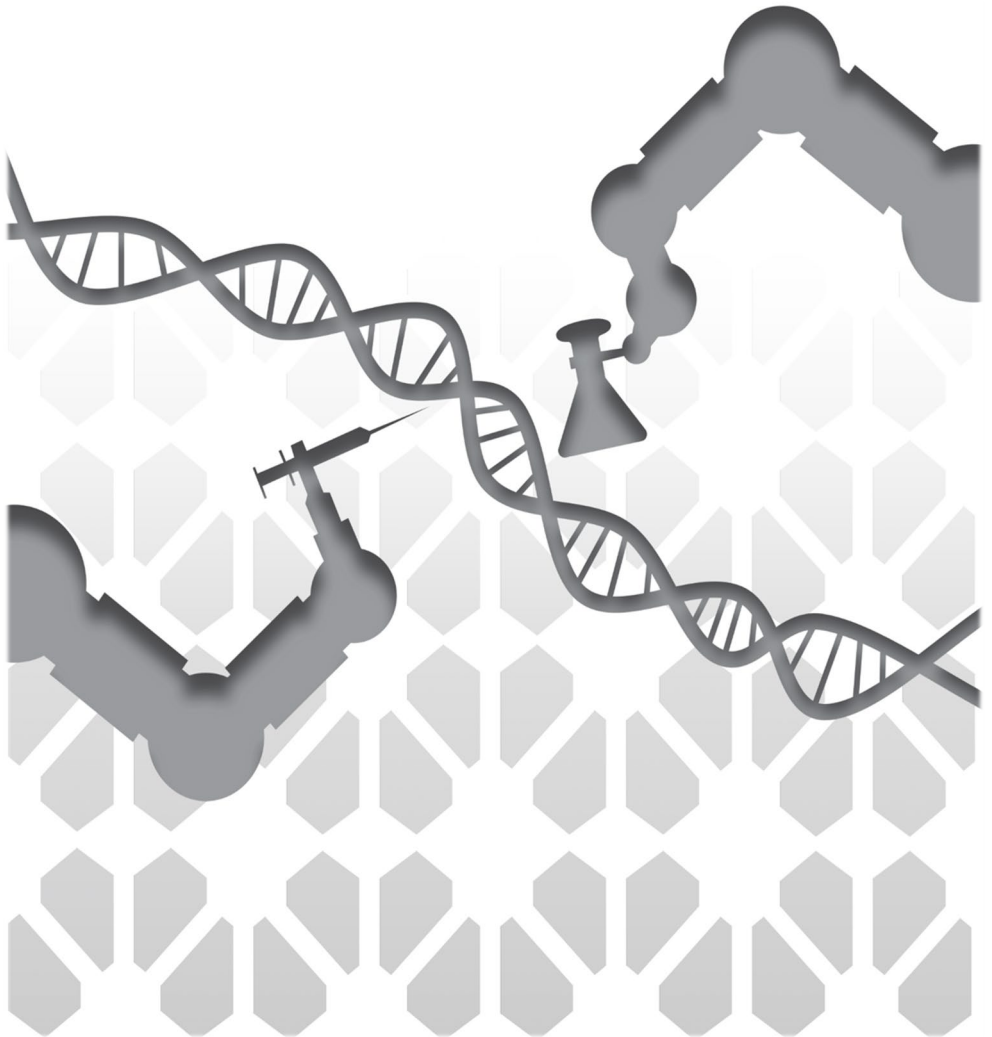


Table of contents

Oral hygiene from the perspective of a midwife	304
Patients' knowledge about ointments containing hydrocortisone and ointments with antibiotics used on skin lesions.....	305
Close look at medical students – basic ophthalmic knowledge and its use verified by the last year's academic online lecturing	306
Causes of diarrhea. The use of widely available anti-diarrheal drugs in the minds of patients	307
Purchase of drugs outside of pharmacy in the aspect of patient's safety	308
Patients' awareness about substances causing Photosensitization phenomenon	309
What is and what is not a risk factor for arterial hypertension? Knowledge of medical students in this field.....	310
Awareness of high school students about HPV and cervical cancer	311
Does more knowledge mean less fear? Study of knowledge and attitude towards prenatal screening among Polish women	312
The state of knowledge of students of the medical faculties, Medical University of Silesia, Katowice about malignant melanoma and their prophylactic actions.....	313
Lifestyle of students of School of Medicine (SMK) in Katowice: an interesting between-generation comparison.....	314
The awareness of patients about drugs' storage at home.....	315

Oral hygiene from the perspective of a midwife

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Background: Good oral hygiene among pregnant women is important because it prevents diseases in both, the mother, and the foetus. Proper oral health behaviours during the pregnancy period has an impact on the formation of healthy teeth in the offspring.

The aim: The aim of the study was to evaluate the knowledge of midwives on what constitutes healthy oral hygiene in infants and school-age children.

Materials and methods: The data was collected from 185 midwives approached on the internet forums, and who filled out a questionnaire.

Results: The average age of the was 32 years (min. = 22, max. = 59). Another important aspect studied was the methods for caring for milk teeth. All respondents declared that milk teeth should be looked after in the same way as permanent teeth. According to most midwives who took part in the study, parental checks on their offspring's oral hygiene should take place until their children reach the age of 12 years. However, only a small percentage of the respondents (n = 4; 2.16%) believed that parents should supervise their children during their daily dental hygiene routine up to 2-3 years of age. Knowledge about the recommended use of fluoride toothpaste was also assessed. Only 36.22% of the respondents provided the correct answer which states the use of fluoride even when the first tooth comes out.

Conclusions: The study showed that midwives have knowledge about oral hygiene in children, but it is not at a sufficient level that can provide an appropriate level of education in this area for future mothers.

Keywords: midwives, oral hygiene, newborns, infants

Patients' knowledge about ointments containing hydrocortisone and ointments with antibiotics used on skin lesions

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Background: Ointments containing hydrocortisone and ointments with antibiotics are one of the most common used salves available without a prescription. They are abused by many patients and used improperly. This study was divided into two parts.

The aim: The aim of this work is to verify patients' knowledge about indications and safe using ointments containing hydrocortisone and antibiotics.

Materials and methods: An anonymous questionnaire was conducted via the Internet and personally. 524 respondents participated in the survey, 393 woman and 131 men in different age groups.

Results: Part I: 14,9% of the respondents declare knowledge about twice higher hydrocortisone content in Maxicortan than in Hydrocortisonum and Hydrocort. Up to 30% of people think that ointments containing hydrocortisone have an antibacterial effect.

Part II: 35,5% of people declare knowledge about antibiotic ointment content. 35,5% of the patients think that ointments with antibiotics can be used for the treatment of herpes. About 55% of the respondents who used that ointments used it later on the other skin lesion without any consultations with a doctor or a pharmacist.

Conclusions: All collected data show that patients have basic knowledge about ointments with hydrocortisone and antibiotics, but it has to be supplemented by Pharmaceutical Care, which was stated by the majority of respondents.

Keywords: ointments, hydrocortisone, salve with antibiotics, Pharmaceutical Care

Close look at medical students – basic ophthalmic knowledge and its use verified by the last year's academic online lecturing

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Background: The change of lecturing system into mostly online classes due to pandemic of SARS-CoV-2 should be followed by high level of knowledge regarding eyesight care, as well as use of safety & work hygiene with screen devices. Educational omissions within this scope can lead to serious health consequences.

The aim: assessment on the medical students' knowledge and practical use of the knowledge regarding basic ophthalmic issues, as well as the use of safety & work hygiene with screen devices. Analysis of 436 answers to a bilingual survey conducted on the medical students from (answers number): Poland (157), Spain (104), Indonesia (72), Tunisia (103). Question concerned basic issues on visual impairments and their correction, as well as knowledge on safety & work hygiene with screen devices and its use. Used statistical methods: Pearson's Chi-square test, Fisher's Exact Test, Spearman's Rank Correlation Coefficient.

Results: The level of basic ophthalmic knowledge in Poland (in the group of >6 correct answers out of 11) stands on 71.34%, Spain 25%, Indonesia 30.56%, Tunisia 15.53%. Only in Poland aforementioned level increases with the student's year: 1st–38.46%, 2nd–42.86%, 3rd–57.58%, 4th–78.79%, 5th–88%, 6th–85.71%. In the whole surveyed group >6 correct answers provided 76.14% students with refractive errors, while without any provided 66.54%. All the above results are statistically significant ($p < 0.05$). There is no notice of statistical correlation between higher level of basic ophthalmic knowledge and safety & work hygiene compliance in Poland. 95% of Polish students didn't know about/get informational materials (safety & work hygiene) provided by university.

Conclusions: Even after one year of online classes caused by pandemic, knowledge and use of safety & work hygiene with screen devices is relatively low, even though basic ophthalmology knowledge stands on a proper level. Practical use of ophthalmic knowledge should be further looked into.

Keywords: eyesight care, safety & work hygiene, screen devices

Causes of diarrhea. The use of widely available anti-diarrheal drugs in the minds of patients

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Background: Diarrhea is a common condition that can affect any age group. It is especially dangerous when it appears in the pediatric and geriatric population. An important factor in the correct therapy of diarrhea is to learn about the etiology and the use of appropriate treatment methods. The causes of diarrhea can be different, so the treatment should take into account the causative agent of this ailment.

The aim: The aim of the study was to assess awareness of the causes of diarrhea and the use of anti-diarrheal drugs.

Materials and methods: The data was collected using an anonymous survey, which was completed by 259 people – 192 women and 67 men. 82% of respondents declare that they know the causes of diarrhea. In the studied population of people there is awareness of etiological factors such as food (96%), stress (79%), bacterial / viral infections (80%), improper diet (76%).

Results: The respondents know the ways to eliminate diarrhea, i.e. hydration (73%), taking electrolytes (63%), proper diet (62%), taking anti-diarrheal drugs (55%). Despite the knowledge and use of anti-diarrheal preparations (Medicinal carbon – 55%, Stoperan, Laremid – 51%, Smecta – 40%, Nifuroxazide – 32%) 57% of respondents do not know that medicinal carbon adsorbs (binds) not only bacteria and their toxins but also medicines. 40% of those surveyed are not aware that long-term use of loperamide can cause constipation. In addition, 61% do not realize that diarrhea due to bacterial / viral infection should not use anti-diarrheal drugs.

Conclusions: The vast majority of respondents are willing to take advantage of pharmaceutical advice regarding the treatment of diarrhea as part of Pharmaceutical Care, which demonstrates the significant need for this pharmaceutical service.

Keywords: anti-diarrheal drugs, loperamide, medicinal carbon, Pharmaceutical Care

Purchase of drugs outside of pharmacy in the aspect of patient's safety

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Background: Currently, more and more people are choosing to buy medicines in places other than the pharmacy. The storage conditions of drugs being sold outside the pharmacy often differs from the norms and pharmacy rules. Patients should be aware of the use of medications with food and alcohol, as well as some interactions between medications taken by them.

The aim: The aim of the study was to determine where patients most often buy medicines and whether they are aware of the dangers connected with the use of medicines purchased outside the pharmacy.

Results: The obtained results indicate that respondents do not trust sellers of medicines without medical education. However, despite the important role of health care and information provided by the pharmacist, over 63% of respondents occasionally buy drugs outside the pharmacy. 54,8% of people is aware of assessing the suspension or withdrawal of drugs from the market and control of this phenomenon in the pharmacy, as well as about insufficient control in other drug sales places. Over 72% of users are aware that the wrong storage of medicines can change its composition and induce adverse effects. 23% of respondents do not see anything wrong in taking a painkiller the next day after drinking alcohol, and 33% are not aware of the risk of ulcer disease in these actions.

Conclusions: The conducted study pointed the importance role of healthcare in contact with the patient and their education. Patients should be learnt to buy medicines in places where they are both properly stored and sold by a qualified and skilled team of pharmacists, which can be provided by the development of Pharmaceutical Care.

Keywords: non-pharmacy turnover, drug storage, interactions

Patients' awareness about substances causing Photosensitization phenomenon

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Background: Photosensitivity is a side effect caused by various substances, mainly by pharmaceuticals, which appears as abnormal skin reactions during exposure to the UV radiation. There are two types of this phenomenon: photoallergy and phototoxicity. Nowadays, more and more OTC drugs containing photosensitizing substances are accessible to patients without proper pharmaceutical consultation. Furthermore, antibiotics, such as tetracycline are commonly prescribed during summertime.

The aim: The goal of this work is to verify patients' knowledge about various substances which cause photosensitization phenomenon.

Materials and methods: The data was collected with anonymous survey filled online as well as in person. The questionnaire was filled out by 333 people, 252 women and 81 men from different age groups.

Results: 83,5% of the respondents declared they were familiar with photosensitization phenomenon, while only 67,9% were aware of potential side effects after the exposure to UV radiation. Even fewer - 52% of the responders were able to distinguish between phototoxicity and photoallergy. The vast majority claimed that during summertime the medications taken most commonly contained some NSAIDs but over 56% had not been informed about proper precautions with regards to the UV light exposure. 89,2% of patients were aware of the presence of the photosensitizing substances in nonmedical products, but only 27,9% of them were able to identify all of them.

Conclusions: The results show that patients have basic knowledge about photosensitization, despite the lack of knowledge about the specific substances that may cause it. This could potentially cause serious injury to patients' health. Another troubling factor is that most patients obtain their knowledge mainly from non-medical sources which clearly demonstrates the need to make pharmaceutical care more accessible.

Keywords: photosensitivity, phototoxicity, photoallergy, pharmaceutical care

What is and what is not a risk factor for arterial hypertension? Knowledge of medical students in this field

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Background: Hypertension is a common and important risk factor for cardiovascular disease. This study analyzed the level and scope of knowledge of medical students about the influence of various factors on the risk of hypertension.

Materials and methods: To this study were included 356 medical students (71.1% women; 28.9% men). The study used an original questionnaire consisting of closed questions. The study was conducted as a quantitative method, using the CAWI technique.

Results: According to the respondents, the factors that clearly increased the risk of hypertension were: presence of hypertension in parents (49%), a sedentary lifestyle (80%), obesity (94%), excess salt in the diet (77%), daily traditional cigarette smoking (81%), consumption of energy drinks (53%), frequent consumption of alcohol (66%), regular consumption of 2-3 cups of coffee (27%) and aging organism (53%). According to the respondents, the factors that probably increase the risk of hypertension were: male gender (33%), occasional traditional cigarettes smoking (44%), passive smoking (49%), shift work (35%), periodontitis (30%), air pollution (38%), noise (32%), use of painkillers (30%), traveling to high mountains (32%), using hormonal contraception (38%) and vitamin D deficiency (28%). Over 1/5 of respondents stated that sleep apnea or having pets (41%) is not a risk factor for hypertension.

Conclusions: Based on the results of the study, it can be concluded that the knowledge of the respondents about non-classical risk factors for hypertension was insufficient. Some factors were mistakenly classified by the subjects as increasing the risk of hypertension.

Keywords: arterial hypertension, risk factors

Awareness of high school students about HPV and cervical cancer

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Background: HPV - Human Papilloma Virus is one of the most common pathogens among young people. There are different types of HPV, some of them can cause skin lesions like papillas or even promote development of cancers especially cervical cancer.

The aim: The purpose of the study was to investigate knowledge of young adults in reproductive age about HPV and its correlation to cervical cancer. Furthermore, researchers wanted to emphasize the jeopardy of ignorance.

Materials and methods: Study was conducted via internet poll, 397 answers were collected. Participants had to respond to 20 questions, part of them were multichoice ones. Data was collected in January 2021. Process of designing the survey was supervised by the Department of Oncology and Radiotherapy, SUM.

Results: 317 women, 76 men and 4 non-binary people took part in the study, mean age was close to 17 years. More than a half of responses were received from people either from cities of five hundred thousand inhabitants or from villages. Majority of participants were students who were enrolled in biology and chemistry courses. Almost 100% of contributors knew the most common ways of virus transmission such as sexual intercourse, however little did know about complications, for instance more than one hundred of people thought that HPV can lead to Hepatitis C. Surprisingly, 276 students were aware that prophylactic vaccination can prevent HPV infection, nevertheless only 112 of them were in fact vaccinated.

Conclusions: The results indicate that participants tend to show superficial knowledge about HPV. When it comes to more complex questions such as first symptoms, youth weren't able to answer properly. Research team believes that early prophylaxis, including sexual education introduced as soon as possible, is indispensable to reduce the level of morbidity.

Keywords: HPV, prophylactic, cervical cancer, sexual education, internet poll

Does more knowledge mean less fear? Study of knowledge and attitude towards prenatal screening among Polish women

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Background: Prenatal testing is a group of exams of the fetus performed during pregnancy in order to detect malformations and genetic diseases as early as possible. Early diagnosis is extremely important because in some cases it allows to start treatment already during pregnancy, plan the therapy after the baby is born and prepare properly for the delivery.

The aim: The aim of the study was to analyse knowledge and attitude towards prenatal screening among Polish women.

Materials and methods: The research data was anonymously collected using an author survey posted on numerous Internet groups. The study group included 2107 women living in Poland, aged 18-58 (median 32). The respondents' knowledge was estimated via a series of questions about schedule, invasiveness and risks of prenatal screening procedures.

Results: As many as 47.6% of the respondents were not aware of the fact that specialised care for the newborn is one of the aims of prenatal screening. More than a half of the respondents (59%) overestimate the actual risks of invasive testing. On a modified Visual Analogue Scale 73.3% of women indicated fear of invasive testing as 3 or more (0 implies no fear, 5 implies very strong fear). There is a negative correlation between knowledge and fear of non-invasive testing ($r=-0.23$, $p<0.05$, Spearman's rank correlation test).

Conclusions: Knowledge of prenatal screening among women in Poland is fragmentary. This results in fear of performing these tests. Additionally, inability to estimate the risk of complications, which in the case of invasive tests is about 1%, makes women consider these procedures to be more dangerous than they really are. Hence, alongside the development of prenatal care methods, a new approach towards informing society about its benefits is needed in order to decrease the fear associated with the subject and make prenatal screening more prevalent in Poland.

Keywords: prenatal screening, knowledge, attitude, pregnancy

The state of knowledge of students of the medical faculties, Medical University of Silesia, Katowice about malignant melanoma and their prophylactic actions

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Background: Skin neoplasms are one of the most common, among them, malignant melanoma accounts for 5% of all skin neoplasms and is characterized by the highest mortality. The majority of cases of malignant melanoma are diagnosed in an advanced or metastatic stage. The most important procedure is still prophylactic education and avoiding high-risk attitudes.

The aim: To assess the knowledge and use of profilaxy in a group of students of the medical faculties at Medical University of Silesia, Katowice, it has been created a proprietary questionnaire, consisting of multiple and single-choice questions assessing the awareness of basic terms related to malignant melanoma, its prevention and individual actions increasing the risk of getting this type of phenomenon. 205 medical faculty, at various stages of education, voluntarily took part in the survey.

Results: Almost all participants showed knowledge of the concepts, principles of profilaxy, disturbing symptoms, and the possibilities of diagnosis and treatment of melanoma.

Conclusions: It seems that the basic and general knowledge about malignant melanoma in the examined group is high. However, during the process of medical education, attention should be paid to the unspecific, rare location of lesions in melanoma, such as the mucous membrane and eyes. It is also worth emphasizing the importance of age as the risk factor. Additionally, there should be clear information that gender does not play a role in the risk of malignant melanoma. Laser removal of lesions should definitely be indicated as the wrong method of treatment and this position should be explained. It should be pointed out that blood tests and ultrasound are not justified in the diagnosis. To sum up, education should be expanded to include forgotten .

Keywords: melanoma malignant, prophylaxis, education

Lifestyle of students of School of Medicine (SMK) in Katowice: an interesting between-generation comparison

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Background: Lifestyle is a major determinant of health. Maintaining healthy habits reduces morbidity and mortality. This important topic warrants investigation in medical professions.

The aim: The aim of the study was to assess the lifestyle and prevalence of certain chronic diseases of current students of medicine (MSs) of School of Medicine in Katowice (SMK) and to compare it with habits of current doctors – former SMK students (MDs) studying 15 years ago. This cross-sectional survey was performed in 2003/2005 (among MDs) and 2020 (among MSs). In both groups, a validated 20-item author-designed questionnaire was applied. The answers were later categorized as healthy or unhealthy basing on Joint WHO/FAO Expert Consultation recommendations.

Results: The study groups comprised 221 MSs (36% men, aged 23 years; IQR 23-24) and 221 MDs (47% men, aged 21 years; IQR 20-23). Between-group comparisons revealed statistically significantly better regularity of meals ($p < 0.05$), higher coffee consumption ($p < 0.05$), lower salt ($p < 0.05$) and alcohol ($p < 0.05$) intake in MSs group. Representation of fruit and vegetables in diet ($p < 0.01$) and duration of sleep ($p < 0.01$) was also more favorable among current MSs. The 2020 group was more prone to stress ($p < 0.01$) and shown more unsettling reaction than the MDs ($p < 0.01$). Higher prevalence of lipid disorders ($p < 0.05$) and thyroid diseases ($p < 0.05$) was observed also in the MSs group.

Conclusions: This between-generation comparison revealed that the lifestyle of students has generally improved over the years however current students are more susceptible to negative stress reactions and present higher prevalence of certain chronic diseases.

Keywords: lifestyle, medical students, medical doctors

The awareness of patients about drugs' storage at home

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Background: Proper storage of drugs is an extremely important aspect of pharmacotherapy. Preparations with a limited shelf life and which are exposed to inappropriate conditions for a long time, may change their appearance and therapeutic properties causing the loss of potency and seriously reduced the safety and efficiency of pharmacotherapy.

The aim: The aim of the study was to examine the knowledge about the proper storage of drugs.

Materials and methods: The data was collected via Internet and personal questionnaire among Third – Century University participants at Medical University of Silesia. 426 respondents were evaluated, including 332 women and 74 men with various education degree.

Results: The research shows that 89,7% of respondents know that improper storage of medicines has an influence on their effect. Only 43,7% declare that they check if the appearance was change before taking preparations and up to 15,5% indicated that in spite of its modification they take its. The worrying problem is that as many as 26,1% of interviewees sometimes take the drugs after the expiry date, which may be due to the fact that 20% people do not check the medicine cabinet or do this less than once a year.

Conclusions: In conclusion, the majority of patients is aware that the place and conditions of storage of medicines have the impact on their effects. However, more specific questions regarding particular class of drugs show that there is a necessity of further education in this field. This kind of informations should be provided by the pharmacists as part of the Pharmaceutical Care Practice.

Keywords: drugs storage, pharmaceutical care

SESSION OF PUBLIC HEALTH AND HEALTHCARE II

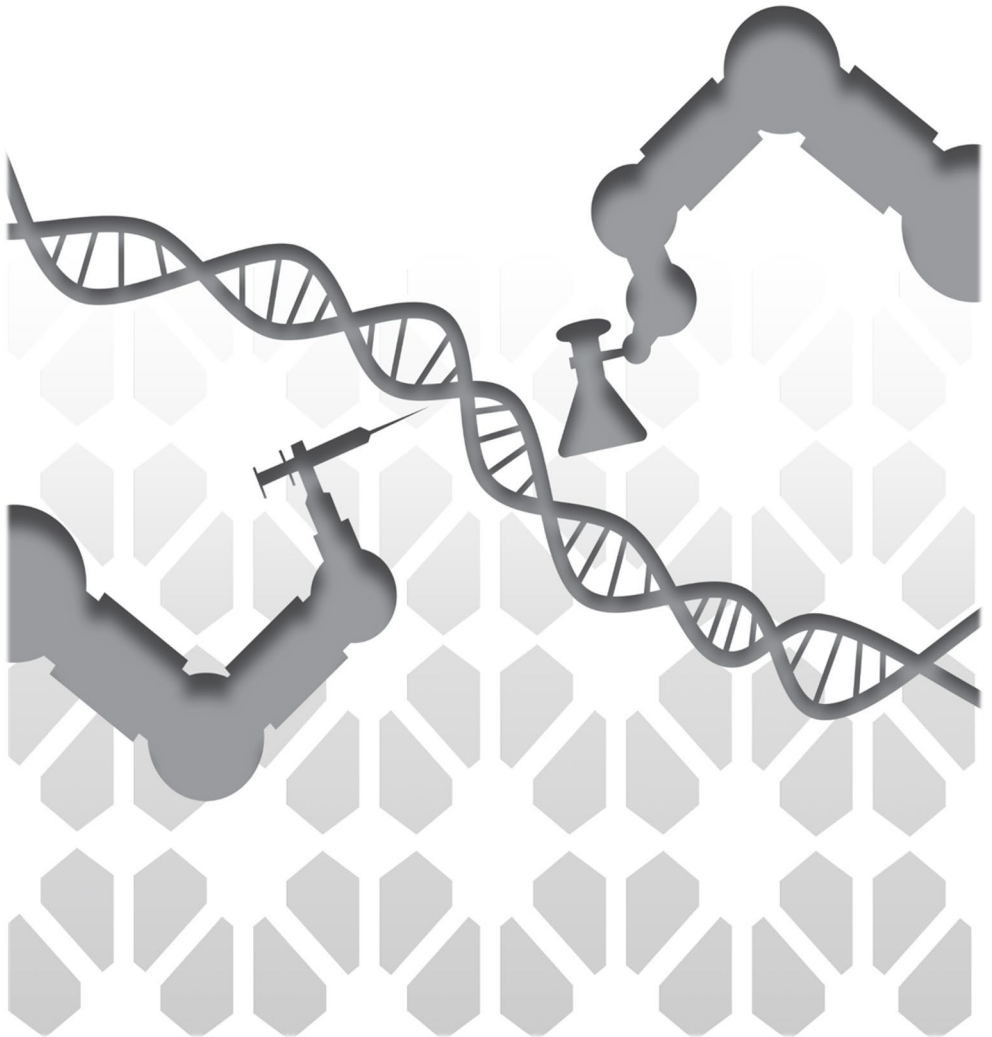


Table of contents

Will a robot doctor replace a real doctor? Hopes and fears related to artificial intelligence application in medicine.....	318
Socio-economic condition, life style, occupational Behavior of the sanitation worker in the selected area of old Dhaka city, Bangladesh.....	319
Self-efficacy in people practicing mountain sports: running and climbing	320
The potential risk of exposure of pets to tick-borne infections of Babesia microti in the selected areas of the Silesian Voivodeship	321
Medical teamwork – the keyword for an effective treatment.....	322
Cell phone addiction as a threat of the 21st century.....	323
Children of the Screens Generation	324
Red blood cell transfusion practice in a single institution in Poland – is there room for improvement?	325
Eating preferences and habits of people with morning and evening chronotype	326
Evidence Based Medicine in the village - a film joke or a real problem?	327
Blood pressure variability in young adults and its impact on cardiovascular risk in a 15-year follow-up.....	328
Subtrochanteric femur fracture: death rate in Lithuania.....	329

Will a robot doctor replace a real doctor? Hopes and fears related to artificial intelligence application in medicine

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Background: Application of artificial intelligence (AI) in medicine has become a fact that raises many extreme opinions and emotions in a society. On the one hand, concerns and doubts stem from the lack of trust towards decision-making robots, but on the other hand there is hope of making health services more accessible in the future.

The aim: The aim of the research was to analyse opinion of Polish society, current and potential patients in particular, on application of artificial intelligence in medicine.

Materials and methods: The data included in the research was obtained from 527 adults of whom 58,8% were male, 40,4% female and 0,8% described themselves as others. The majority of the respondents (57,5%) was at age of 18-30, the minority (2,8%) was 71+ years old. A vast majority of people (88,4%) lived in a city. An original questionnaire, created in Google Forms, was used as a research tool.

Results: The majority of respondents (82.9%) described their attitude towards using AI in medicine as generally positive. Patients' opinion whether AI can replace doctors in some of the specializations were divided: 35,3% thought that it will happen, 46,5% that it will not. While most of the participants (81,6%) believed that direct contact between physicians and patients is necessary during treatment, almost three quarters assumed that physicians will have more time for patients thanks to AI usage (72,9%), waiting time for an appointment will be reduced (81,4%) as well as time of treatment duration (69%). Over a half of patients (58,5%) said that number of misdiagnoses would decrease.

Conclusions: The participants' attitude towards application of AI in medicine was positive. Respondents identified benefits related to the application of artificial intelligence in medical treatment – improvement of the quality of treatment process and better access to health services. Patients' concerns were related to the protection of personal data.

Keywords: artificial intelligence, medicine, doctor, patient

Socio-economic condition, life style, occupational Behavior of the sanitation worker in the selected area of old Dhaka city, Bangladesh

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Background: Sanitation workers play an important role in maintaining the health-hygiene in the communities. Aim: The aim of this study is to find out socio-economic condition, lifestyle, common health problems, occupational behavior of the sanitary workers.

Materials and methods: This was a cross sectional type of descriptive study .149 respondents were selected and data was collected from them by Face to face interview. The sampling technique was Convenient type of non-probability sampling. Structural questionnaire was used as research instrument. Graphical presentation (pie chart), tables were applied and analyzed by SPSS 20 programme.

Results: Among the total respondents 145 (97.3%) were sweeper and 4 were scavenges.67 (45%) were literate.124 lived in Semi Paccya house. 15 (10.07%) had sore throat, 21 (14.09%) had cough,9 (6%) had breathlessness and 16 (10.74%) had chest tightness. 7 (20%) had lacrimation,15 (42.9%) had redness of eye,13 (37.1%) had itching problem in eye. 7 (4.10%) had abdominal pain and 2 (1.03%) had diarrhea. 92 (61.74%) had musculoskeletal pain. 43 (46.7%) had leg pain, 37 (40.2%) had back pain. 31 (20.81%) had knowledge about personal protection equipment, 12 (37.50%) used mask, 8 (25%) used hand gloves. 7 (4.70%) had a regular health checkup. 51 (46.36%) had a habit of taking betel nut, 31 (28.18%) took cigarette, 27 (24.55%) took gul and 1 (0.91%) took tobacco.

Conclusions: The occupational health hazards, the knowledge and attitude about the health conditions and occupation ,socio-economic condition, lifestyle of the sanitation workers are not satisfactory.

Keywords: sanitary workers, occupational behavior, socio-economic condition, personal protection equipment, health hygiene

Self-efficacy in people practicing mountain sports: running and climbing

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Background: We can treat reaching the top of the mountain as an intermediate goal, but the most important element is to shape yourself by experiences encountered on the trail. The thing if during the time while taking your road we win the fight with ourselves is directly connected to our sense of effectiveness.

The aim: The main point of that research was to examine the sense of effectiveness among people practicing mountain sports: running and climbing. We also decided to examine if sex, age, training internship have any connection with the sense of effectiveness.

Materials and methods: 87 people has been examined: 39 women and 48 men in age from 19 to 33 years old. The selection to the research has been done on purpose – they were people practicing mountain sports: running (n=32), climbing: (n=55). The research tool was an original questionnaire, including the metric part and GSES consists of 10 statements– answers are scored on a scale from 1-no to 4-yes.

Results: All of the subjects had a high score of sense of effectiveness, average: 31,57 pt (SD=4,21). They rated their problem-solving skills the highest (average: 3,43 pt), being calm facing difficulties (average:3,38pt), and their ingenuity(average:3,25pt). GES has been differentiated by sex ($p=0,0263$).

Conclusions: Practicing mountain sports– running and climbing has a huge bond with having a sense of effectiveness. Kind of sport, age, and training internship has no connection to GES. The higher level of GES is represented by men.

Keywords: climbing, mountain running, sense of effectiveness, shaping yourself

The potential risk of exposure of pets to tick-borne infections of *Babesia microti* in the selected areas of the Silesian Voivodeship

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Background: Ticks are vectors and/or reservoirs of many pathogens i. a. *Babesia microti* [BM]. Human babesiosis is an emerging infection caused by this protozoan. In Poland the main vector of BM is *Ixodes ricinus*. People and their pets are especially exposed to attacks of this parasite and potential tick-borne infections of BM in the recreational areas such as forests, parks, gardens and fields.

The aim: The aim of this study was to assess the potential risk of exposure of pets to tick-borne infections of BM in the selected areas of Silesian Voivodeship.

Methods: Ticks were collected from pets in veterinary clinics in Zabrze and Lubliniec. The DNA was isolated from 29 females of *I. ricinus*, 1 female and 2 nymphs of *Ixodes hexagonus*. BM in ticks was detected by nested PCR with the use of two pairs of primers specific to the 18S RNA gene. The amplification and re-amplification products were separated electrophoretically in 2% ethidium bromide stained agarose gels and visualized under ultra violet light. The presence of the reaction products of size 238 base pairs [bp] and 154 bp were treated as positive.

Results: In total, BM was detected in 3,1% of the studied ticks. This protozoan was showed in 3,4% of the studied *I. ricinus* ticks. This pathogen was detected only in 1/6 (16,67%) of *I. ricinus* ticks collected from pets in the area of Lubliniec. Whereas, in *I. ricinus* and *I. hexagonus* collected in the area of Zabrze, BM was not found.

Conclusions: The obtained results showed a low risk of exposure of domestic animals and humans to tick-borne infections of BM in the studied areas of the Silesian Voivodeship. However, the potential risk of that infection is higher in areas of Lubliniec and it concerns *I. ricinus*.

Keywords: *Babesia microti*, babesiosis, *Ixodes ricinus*, *Ixodes hexagonus*, Lubliniec, Zabrze

Medical teamwork – the keyword for an effective treatment

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Background: In the treatment of patients with mental disorders, the management of coexisting somatic disorders poses additional difficulties. A case report of a 66-year-old male diagnosed with schizophrenia, as well as with cardiac arrhythmia was presented

Case description: A male suffering from schizophrenia from the age of 23, was admitted to the hospital due to exacerbation of the disease. The patient has been addicted to alcohol since the age of 18. He also manifests signs of metabolic syndrome. Two years ago, due to syncope, the patient was admitted to the cardiology department, where the diagnose of arrhythmias in the form of atrial fibrillation was made. During periods of exacerbation of mental illness, he tends to discontinue the use of both psychiatric drugs and drugs recommended for somatic diseases. Due to the patient's persistent atrial fibrillation, the sudden withdrawal of cardiac medications significantly increases the risk of somatic complications, including stroke.

Conclusions: Effective management of both mental and somatic disorders is crucial, which requires close multidisciplinary cooperation between medical specialists with the patient.

Keywords: schizophrenia, atrial fibrillation, alcohol abuse, somatic and mental disorders

Cell phone addiction as a threat of the 21st century

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Background: Cell phone addiction is a behavioral addiction that can have negative consequences for a person's physical, mental, social or financial well-being. Through the advancement of technology in the 21st century, we are seeing a significant increase in addiction to the phone. Due to the problem and fast development, it is required to watch the number of addicted people to the mobile phone and look for factors that predispose to addiction in order to prevent them.

Materials and methods: The study included second-year students of medical faculties at the Medical University of Silesia in Katowice. A two-piece, anonymous survey was used to hold the research. The first part consisted of socioeconomic questions and the second one was dedicated to The Cell Phone Addiction Questionnaire which assessed the incidence of addiction to them.

Results: The total number of people included in the study was 210, and the number of respondents who correctly completed The Cell Phone Addiction Questionnaire was 206. The average score was 75.52 points +/- 16.99 points, for women 76.31 +/- 17.17 and for men 73.03 +/- 15.93. As the criterion of the threat of addiction to a mobile phone, the values in the range of mean results +2 standard deviations, i.e. from 75 to 109 points, were adopted. People with higher scores were considered addicted to using a mobile phone. In the group of respondents, people at risk of mobile phone addiction constituted 44.66%, while addicted people 4.37%.

Conclusions: The growing rate of addiction to cell phones is a serious problem in the 21st century. Based on our research on medical students the level of addiction to the cell phone turned out to be disturbingly high. It is important to constantly study the scale of the mobile phone addiction and look for factors that predispose to addiction in order to prevent them.

Keywords: behavioral addictions, phone

Children of the Screens Generation

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Background: Regular contact with mobile electronic devices is becoming an integral part of children's lives. Investigation of this phenomenon is necessary to introduce effective ocular prophylaxis. The study aims to examine the use conditions of mobile electronic devices and related eye symptoms among children.

Materials and methods: An interactive anonymous survey based on a self-designed questionnaire was used. Inclusion criteria: parents of children aged 2-14 years and adolescents aged 15-18 years. Exclusion criteria: non-use of mobile electronic devices. The data was statistically analysed.

Results: Among 2629 children, 1.8% do not use mobile electronic devices. 2581 of respondents (59% females, 41% males) divided into age groups were enrolled for further study. The average age of use initiation was 8.3 ± 2.8 years. Those in younger age groups (2-4 years and 5-8 years) started using mobile electronic devices earlier (mean age 2.3 years and 4.8 years, respectively) than those in older age groups. 95% of respondents use these devices daily and 63.2% devote more than 6 hours a day to it. Participants in older age groups are more likely to use other device during breaks from the main one (χ^2 test = 351.56, $p < 0.001$). They also spend more time using these devices in the dark (approximate $T = 26.44$, $p < 0.001$). As many as 67.8% of the examined children experience discomforts while using mobile electronic devices. The most prevalent are headache, eye pain and burning eyes. Among respondents who use mobile electronic devices more frequently, the percentage of children with refractive errors is higher.

Conclusions: The age of starting to use mobile electronic devices is declining. Among older children, there is a tendency to reinforce bad habits while using these devices. It is essential to educate the youth and implement prevention of such behaviours among the youngest in order to avoid the associated ailments in the future.

Keywords: ophthalmology, pediatrics, public health

Red blood cell transfusion practice in a single institution in Poland – is there room for improvement?

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Background: Red blood cell (RBC) transfusion (RBCT) is one of the most frequently performed procedures in inpatients. Aging population and rising number of surgeries performed in elderly population cause an increasing demand for blood products.

The aim: We aimed to analyse RBCT practice at the university-affiliated medical centre in Poland in order to find if there is room for improvement in the current practice.

Materials and methods: We performed a retrospective analysis of all RBCTs performed in the years 2018-2019 at the University Clinical Centre of the Medical University of Silesia. Basic demographic and clinical data of RBC recipients and details regarding RBCTs were retrieved from the hospital electronic health records (AMMS, Asseco Medical Management Solutions, Poland).

Results: In the analysed period 3991 RBCs were transfused to 1133 patients. The most frequent primary diagnoses of RBC recipients were: malignant neoplasm (257; 18.1%), internal bleeding (171; 12%), gastrointestinal disease (143; 10%). The mean number of transfused RBC per patient was 3.5 generally and in individual departments between 1.3 (Neonatology) and 3.9 (Anaesthesiology & Intensive Care). The most frequently used types of RBC were RBC without buffy coat (75.1%) and leucodepleted RBC (20.9%). The overall median pre-transfusion Hb concentration was 74 (IQR 67-81) g L⁻¹. The median Hb concentrations following 1 and 2 units of RBC were 81 (IQR 74-90) and 96 (IQR 88-104) g L⁻¹, respectively.

Conclusions: The analysis of our local RBCT practice showed significant room for improvement. Areas for improvement were the type of ordered RBC, multiple unit transfusions for non-bleeding indications, the lack of lactate determination as the sign of anaerobic metabolism pre-post transfusion.

Keywords: RBC transfusion, anemia, blood management, intensive care

Eating preferences and habits of people with morning and evening chronotype

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Background: Daily human activity is regulated by many factors, including the changing light during the day and night, mealtimes or work schedule. Individual preferences of activity during the day called a chronotype, are related to the functioning of the biological clock. Current research indicates that people with an evening chronotype are more prone to bad habits, not only in terms of eating.

Aim: The aim of the study was to analyse the influence of the chronotype on the preferences and eating habits of the respondents.

Material and methods: The study consisted of two stages. In the first stage, the MEQ-SA questionnaire was used in a group of 197 people in order to establish their chronotype. In the second stage, for which 46 larks and 68 owls were qualified, an author's questionnaire was used consisting of 38 closed questions.

Results: It was showed in the survey that morning type respondents sleep longer than evening types. Almost 1/3 of owls declared that they slept less than 6 hours. People with an evening chronotype were more frequent smokers (34%). However, in the analyzed group, larks smoked more cigarettes per day. Owls were also more likely to snack between meals. 18% of larks and 6% of owls did not snack at all.

Conclusions: Lack of awareness about the chronotype, wrong organization of the day, especially lack of adequate sleep, poor eating habits and addictions, can contribute to the development of negative health effects. Adapting to the biological rhythm and chronotype can prevent selected diseases and bring positive health effects.

Keywords: chronotype, owls, larks, eating habits, snacking

Evidence Based Medicine in the village - a film joke or a real problem?

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Background: Despite the continuous development of medicine, in many regions of Poland there is still a conviction that self-treatment is better than professional medical help. It seems that the above-mentioned view is extremely deeply rooted and propagated, especially in rural regions.

The aim: The aim of the study was to assess the use of health care resources by inhabitants of rural areas and their level of satisfaction with it.

Materials and methods: 148 people (100%) took part in the study, including 98 women (66.22%) and 50 men (33.78%). Proprietary questionnaire containing questions concerning mentioned issue was used in this research.

Results: The most common reasons for medical consultations were: joint, muscle and spine pains as well as breathlessness of the respondents. At the same time, only 46 (31%) people chose self-treatment methods or "neighborhood advice" for ailments such as: headaches and abdominal pain. As many as 99 (67%) of the respondents did not see a doctor in case of injuries. Dissatisfaction with the care provided by the nearest health center was expressed by almost 1/3 of respondents (48; 32%), and the reasons mentioned include: difficult access to doctors and a small number of specialists.

Conclusions: Health care resources were not fully used by the surveyed inhabitants of rural areas, and the level of their satisfaction with health services turned out to be average. It would be reasonable to implement activities aimed at gathering opinions among the inhabitants of rural areas on health care and its resources in order to prepare educational programs conducted by qualified medical workers and, consequently, to increase the quality of provided services and patient satisfaction.

Keywords: health protection, satisfaction, rural areas

Blood pressure variability in young adults and its impact on cardiovascular risk in a 15-year follow-up

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Work's tutor: Łukasz Krzych MD, PhD

Background: Blood pressure variability (BPV) is one of the acknowledged parameters of cardiovascular risk. Little is known about high BPV in young medics and its impact on health-related long-term consequences.

The aim: To assess impact of short- and long-term BPV on cardiovascular risk in young medics in a 15-year follow-up.

Materials and methods: This cohort study covered 70 subjects (59% men, aged 36 years; IQR 36-38) in whom BPV was assessed between 2003 and 2005 using a panel (PS, n=15) and cross-sectional (CS, n=70) epidemiological studies. The primary study group comprised students of SMK without hypertension. BPV was defined as a short-term variability, i.e. 1-day, 7-day and 30-day variations or long-term variability, i.e. 12-month variations. Differences of 5+ mmHg between measurements were considered as high BPV. The outcomes were self-reported in a follow-up by a questionnaire.

Results: Among PS participants, only 1 person developed hypertension and hyperlipidemia in a follow-up. Among CS participants, 6 subjects developed hypertension (33% of them was diagnosed high systolic long-term BPV; HR=0.25; 95%CI 0.05-1.24; 17% had high diastolic long-term BPV; HR=0.18, 95%CI 0.02-1.45), 6 with lipid disorders (83% of them had previously high systolic long-term BPV; HR=0.93; 95%CI 0.82-1.07; 67% had high diastolic long-term BPV; HR=0.95, 95%CI 0.82-1.09) and 1 person developed ischemic heart disease (and had high both systolic and diastolic BPV in previous assessments). No significant associations between any component of the lifestyle of young medics, their BPV and morbidity in a follow-up were found.

Conclusions: High short- and long-term BPV in young medics is a poor predictor of cardiovascular risk in their adulthood. The low incidence of outcomes is a serious limitation of concluding.

Keywords: blood pressure variability, cardiovascular risk, young adults, cohort study

Subtrochanteric femur fracture: death rate in Lithuania

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Background: The highest mortality from a hip fracture is in the first year after injury. Subtrochanteric fractures of the femurs (SFF) are rare compared to other hip fractures. More so, there is a lack of data on frequency and death rate in the group of SFF.

The aim: The aim of the study was to evaluate death rates SFF in Lithuania.

Materials and methods: Data on the epidemiological situation of SFF in a period of 2011 and 2019 of patients over 40 years of age were obtained from the Institute of Hygiene. A total of 4165 patients with SFF were diagnosed (ICD-10 code S72.2). Recurrent data and cases diagnosed not in the hospitals were not included in the further study to select primary patients. Statistical analysis was done using Microsoft Excel 2010, R Commander. Differences between results were deemed statistically significant when $p < 0.05$.

Results: A total of 2165 patients were included in the study from 89 medical institutions in Lithuania, including 1846 women and 957 men (65.86% and 34.14%, respectively). The gender of 17 individuals was unknown. Mean age was 74.96 years (SD 13.58). In total 1577 of the patients with SFF passed away. 160 of those patients died in the hospital setting, the rest – after discharge from the hospital. Mean age of deceased patients was 79.47 years (SD 11.08). Those with SFF had a longer life expectancy than in general population: female had 2.6 years longer, male - 3.5 years. More women than men passed away (59.6 % and 49.7 %, respectively, $p < 0.05$). Death rate did not correlate with hospitalisation duration nor season of the year when diagnosed ($p > 0.05$). The majority of the patients (30.81%) passed away within the first 3 months of the hospitalisation.

Conclusions: Life expectancy of patients with SFF was longer compared to the general population. Death rates correlated with female gender, but seasonality and duration did. Most of the patients deceased within three months of the hospitalization.

Keywords: hip fracture, subtrochanteric fracture, death rate

SESSION OF RADIOLOGY, RADIODIAGNOSTICS AND NUCLEAR MEDICINE

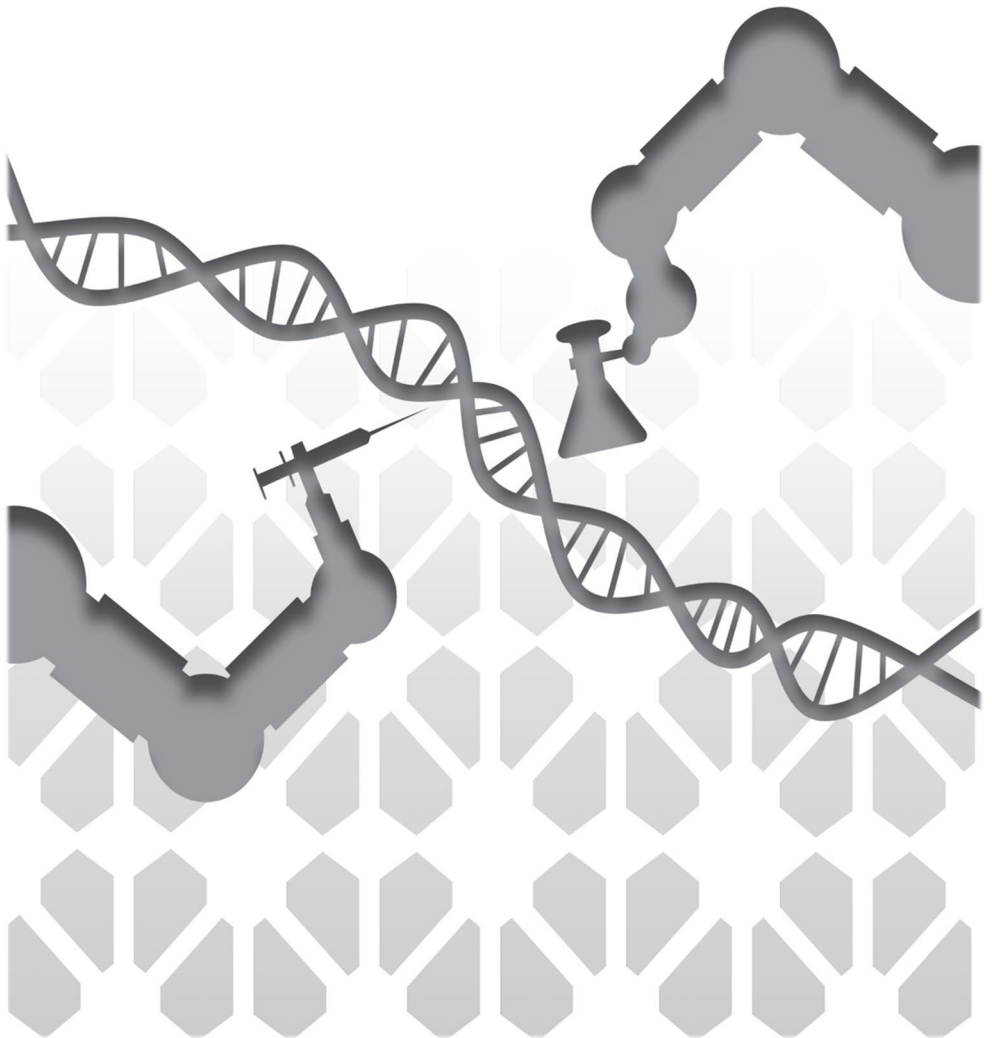


Table of contents

Type III CPAM - A Case Report 332

Deep learning for detection of artefacts on chest X-ray images..... 333

Anatomical variations of celiac trunk and hepatic arteries..... 334

MRI T2 and quantitative DWI-ADC imaging in local colorectal cancer staging and evaluation of therapy response 335

Reconstruction of the bone fracture mechanism in an aviation accident based on post-mortem imaging..... 336

Selective Internal Radiation Therapy using 90Y SIR-Spheres in liver metastatic colorectal cancer. A case report 337

Type III CPAM - A Case Report

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Background: Congenital pulmonary airway malformation (CPAM) is a rare condition (prevalence 1:25000-1:35000) which is caused by inhibition of lungs development around 7th neonatal week. Stocker classified CPAM into five stages (0-IV), based on clinical, microscopic and macroscopic criteria. Type III CPAM occurs in approximately 5-10%, in the form of adenomatoid lesions. It typically involves an entire lobe and has the poorest prognosis among CPAM types (excluding type 0-lethal postnatally).

Case description: The patient, born in 30th week of pregnancy (1160g body weight, 1st twin), was admitted to Neonatal Intensive Care Unit (NICU) at 3 hours of age in critical condition, due to acute respiratory deficiency syndrome (ARDS). A chest radiograph showed a near-total left lung apneumatosi with dextral mediastinal displacement. An exploratory pleurocentesis indicated no fluid presence. Computed tomography (CT) scan, along with general clinical picture, indicated type III CPAM. The treatment of CPAM consisted of synchronized intermittent mechanical ventilation (SIMV). On 8th day of treatment SIMV was changed to non-invasive controlled mechanical ventilation (nCMV). In 48th day of treatment the patient was extubated and transferred from NICU to neonatal pathology department to undergo retinal photocoagulation. After a total of 64 days of hospitalization, the patient was discharged to outpatient care in good condition. A control radiograph, performed at 16 months of age, indicated remission of CPAM, apart from residual shading in the hilum of left lung.

Conclusions: The clinical and radiological picture clearly suggests type III CPAM with traits of spontaneous resolution. The patient did not manifest any set of symptoms or traits suggesting an alternative diagnosis. Although surgical treatment is more common, conservative strategy appeared successful. Yet, no material for histopathological examination was obtained, and therefore the diagnosis could not be unambiguously confirmed.

Keywords: cpam, radiology, radiodiagnosics, ct

Deep learning for detection of artefacts on chest X-ray images

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Introduction: Diagnostic imaging has become a vital element of the healthcare system and its accuracy is crucial for effective treatment. However, with the growing popularity of radiology comes an ever-increasing workload. Motivated by the success of artificial intelligence (AI), especially deep learning in medical image analysis, scientists all over the world work on AI-based tools that assist radiologists in better and faster diagnosis.

The aim: In this research, a Deep Convolutional Neural Network (CNN) was applied to detect 4 categories of objects in digital Chest X-ray (CXR) images.

Materials and methods: As our dataset we used publicly available National Institutes of Health CXR-14 Dataset. First, we manually checked over 112000 CXRs from 32 000 patients in search of 4 types of objects: venous access port (Port), shoulder endoprosthesis (Endo), necklaces, implantable cardioverter defibrillator (ICD), and annotated them using a computer program named the Labellmg. After this, the whole dataset was reviewed again, resulting in 9412 Port, 1963 necklaces, 602 ICD, and 295 Endo annotations. Then we performed the necessary image preprocessing, such as resizing, normalizing, and cropping. Next, using software libraries such as PyTorch Lightning, we trained a convolutional network architecture for object detection called Faster R-CNN.

Results: For a standard object detection metric - COCO, we achieved a score of 0.878 which is, in our opinion, a sufficient result for real world applications.

Conclusions: The proposed CNN model detects artifacts with a certain probability. After further improvements models like that may in the future be employed as computer-aided diagnosis tools in actual practice.

Keywords: object detection, deep convolutional neural network, chest X-ray, medical imaging

Anatomical variations of celiac trunk and hepatic arteries

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Introduction: Celiac trunk is the first branch of abdominal part of aorta, according to proper anatomy, it divides into three branches: left gastric artery, common hepatic artery and splenic artery. It was shown in a literature that there are several types of celiac trunk and hepatic arteries. Clinical awareness of the existence of different types of abdominal vessels may reduce occurrence of complications during abdominal surgeries.

The aim: Frequency assessment of celiac and hepatic arteries anatomical variants.

Materials and methods: Analysis of 102 CT scans of the abdomen with contrast performed by medical students, using following classifications: Pinal-Garcia et al for celiac trunk and Michel's classification for hepatic arteries.

Results: The most frequent type of celiac trunk was trifurcation with the left gastric artery as the first branch, which was present in 45% scans. Celiac trunk with simultaneous trifurcation was observed in 38% cases. 12% of patients had additional branches arising from the celiac trunk, and in 5% there were other anatomical variations. Atypical hepatic arteries variants were perceived in 26% of scans, of which the most frequent was additional hepatic artery arising from left gastric artery (type 5) in 8% of cases.

Conclusions: Trifurcated celiac trunk with left gastric artery as the first branch is the most common anatomical variant. Almost one-third of patients have hepatic arteries originating from vessels other than the common hepatic artery

Keywords: anatomy, celiac trunk, hepatic arteries

MRI T2 and quantitative DWI-ADC imaging in local colorectal cancer staging and evaluation of therapy response

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Introduction: The method of choice for colorectal cancer (CRC) diagnostics, staging and evaluation of therapy is MRI. MRI-DWI ADC values have been shown to predict local advancement of colorectal cancer as well as response to therapy.

The aim was to investigate the usefulness of MRI T2 and DWI imaging quantitative ADC measurement in determining local advancement of CRC and response to therapy.

Materials and methods: Ninety-six CRC patients (F:M;46:50M), mean age 68.5y(range 41-84) received an MRI of 1.5T including T2, DWI sequences pre-therapy and 42 patients received a post-therapy MRI. Pre-therapy apparent diffusion coefficient (ADC) mean values ($\times 10^{-3}$ mm²/s) were calculated using region of interest (ROI) the size of 7-20 mm² in 3 different hypointense areas of the tumor (T-ADC) and 1 area for a lymph node metastasis (N-ADC). Pre-therapy extramural vascular invasion (EMVI+/-) and mesorectal fascia (MRF+/-) involvement were assessed on T2WI.

Results: Tumors were graded: Stage I(n=5),II(n=10),III(n=66),IV(n=14). Pre-therapy T-ADC showed a moderate correlation to N-ADC ($r_s=0.529$; $p<0.001$), weak to cancer stage ($r_s=-0.210$; $p=0.04$), tendency for lower value in higher cT ($r_s=-0.266$; $p=0.027$). cT correlated to cN ($r_s=0.233$; $p=0.022$) and pG ($r_s=0.311$; $p=0.004$) in the primary tumor. EMVI+ was present in 42%, MRF+ in 33% cases. MRF+ was more prevalent in higher grade tumors ($\text{Chi}^2=7.383$; $p=0.025$). Positive response to therapy in the primary tumor was observed in 76%, no response in 19%, progression 5%. In cases where both T and N parameters were down staged, patients often received CRT as their primary therapy ($\text{Chi}^2=7.593$; $p=0.022$). MRF+ was associated with worse response to therapy ($\text{Chi}^2=4.592$; $p=0.032$).

Conclusions: MRI DWI T-ADC and metastatic N-ADC low ADC values correlated with higher pre-therapy T stage but weren't associated with EMVI, tumor grade or response to therapy. MRF+ was more prevalent in higher grade tumors and associated with worse response to therapy.

Keywords: colorectal cancer, MRI DWI, TNM, mesorectal fascia, EMVI, CRT

Reconstruction of the bone fracture mechanism in an aviation accident based on post-mortem imaging

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Background: Traveling by air increased over past few decades. The number of aircrafts increases with small single-engine airplanes representing up to 65% of them. Furthermore, single-engine airplanes hold the highest accident rate. Identification and investigation of bodies of victims involved in airplane disasters is often very difficult due to the massive damage to the body and dismembering, although it may be crucial in the investigation concerning the cause of disaster, especially in small single-engine airplanes crashes. In cases of challenging autopsies like ones of aviation disaster victims Post Mortem Computed Tomography (PMCT) may be a valuable addition to the investigation.

The aim: The aim of the study is to discuss how analysis of bone fractures and other injuries may contribute to the reconstruction of events during an airplane crash.

Material and methods: Two male victims of a single-engine airplane crash, who both had valid pilot license, were firstly scanned in PMCT and then examined during a conventional autopsy. Their bone fractures described in autopsy report and in PMCT scan were analyzed.

Results: Both victims had massive, multiorgan injuries. PMCT showed that both victims presented fractures of occipital condyles, cervical spine, lumbar spine, pelvic bones and neck of femurs, which are common injuries occurring, when a vertical force acts on a body (in this case vertical deacceleration). Furthermore, both victims had fractured facial cranium bones, clavicles, sternum and distal parts of their upper extremities, which are common injuries, when a horizontal force acts on a body (in this case horizontal deacceleration). One of the victims had noticeably more injured right side of the cranium which may suggest his head collided with something in the cockpit or with another pilot. Also, one of the victims had fractures in carpal bones, ulna and radius, suggesting he could firmly grip the yoke at the time of accident, meaning he could be in control of the plane in that moment which has its implication in forensic investigation.

Conclusion: Thanks to the analysis of bone fractures images obtained via PMCT we can imagine the possible falling path of the airplane and we can presume who was in charge of controlling the aircraft at the time of the accident. Due to that, analysis of bone fractures of aviation disaster victims can be valuable in the investigation concerning the cause of accident.

Keywords: fractures, aviation accidents, pmct

Selective Internal Radiation Therapy using ⁹⁰Y SIR-Spheres in liver metastatic colorectal cancer. A case report

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Introduction: The SIR-Spheres are resin microspheres containing beta-emitting Yttrium-90 (⁹⁰Y) isotope with a half-life of 64.1 hours. Radioembolization with ⁹⁰Y microspheres is an emerging treatment method for patients with unresectable progressive primary and secondary liver tumors. The mechanism of action is based on the excessive vascularization of the neoplasm compared to healthy tissue. Microspheres injected into the hepatic artery reach the capillaries supplying the tumor but do not enter the venous circulation.

Case description: A 72-year-old woman with a history of cecum adenocarcinoma is presented. After a complete tumor resection, small foci representing metastasis of colon cancer in two lobes of the liver were found. The patient received chemotherapy. However, progression of neoplastic changes in the liver was observed in control USG. Patient was referred to the Interventional Radiology Department of the MSWiA Hospital in Warsaw in order to qualify for Selective Internal Radiation Therapy (SIRT). On the basis of CT examination, a polycyclic tumor in the right and left lobe of the liver was found. Angiography of the celiac trunk and superior mesenteric artery with administration of ⁹⁹Tc-macroalbumin was performed to measure the tumor isotope uptake and to assess the hepatopulmonary shunt. As a result, the patient was qualified to SIRT procedure. The ⁹⁰Y SIR-Spheres were injected into the right and left hepatic artery. A post therapeutic SPECT-CT revealed proper isotope uptake within the metastatic foci without its extrahepatic accumulation. The patient was discharged from the hospital in good general condition. After SIRT therapy the patient's body temperature increased up to 37.5 C which subsided after antipyretic drugs. A follow-up MR examination was performed after 3 months. There was complete tumor remission in the left lobe and a significant (95%) reduction of the tumor in the right lobe with a visible necrosis inside.

Conclusions: This case showed great response to ⁹⁰Y radioembolization that indicates this procedure as an effective therapeutical option for patients affected by liver metastatic colorectal cancer progressive after conventional chemotherapy. Despite unfavorable prognosis of the disease, SIRT may improve patients' survival rate and the quality of life.

Keywords: case report, radiology, oncology

SESSION OF STOMATOLOGY

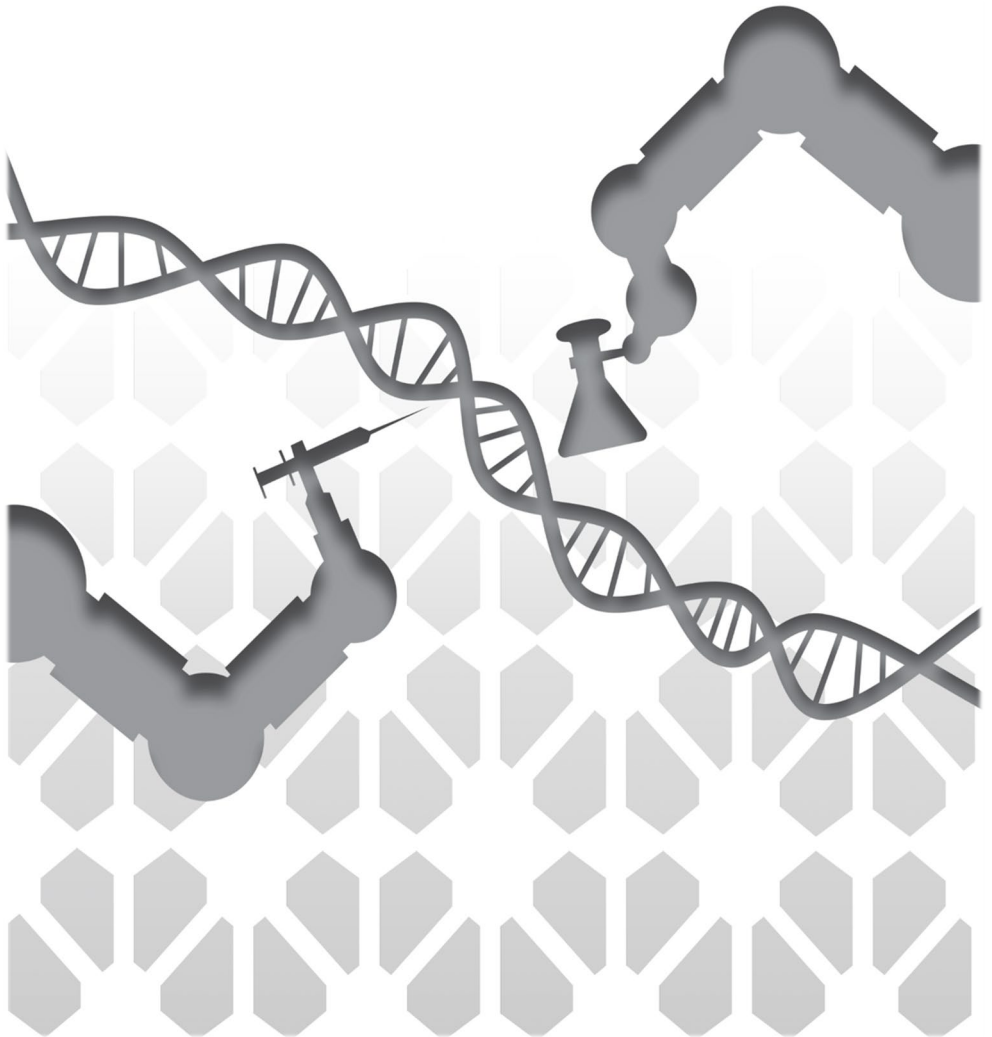


Table of contents

Relevance of Cone Beam Computed Tomography craniocervical and sagittal condylar guidance angle measurements among patients who reported breathing-related sleep disorders	340
The comparison of occlusal patterns and malocclusion disharmonies between children with Down Syndrome and healthy children.....	341
Use of 3D-printed models as an aid in demanding procedures in oral surgery	342
Endodontic treatment regimens and their application in practice survey and comparative study	343
Does home isolation due to the COVID-19 pandemic affect changes in oral hygiene habits? A survey study of adolescents aged 12-14	344
Are the self-made toothpastes able to compete with the commercial ones? - survey research	345
The using of biphasic calcium sulfate in two-stage treatment of dentigerous cyst of the mandible – case report	346

Relevance of Cone Beam Computed Tomography craniocervical and sagittal condylar guidance angle measurements among patients who reported breathing-related sleep disorders

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Background: Berlin questionnaire is a screening tool used to identify potential patients with obstructive sleep apnea syndrome (OSAS). This includes presence and severity of snoring, frequency of daytime sleepiness, and the presence of obesity or hypertension. Moreover, head posture and cervical spine alignment might be affecting severity of symptoms reported by patients with sleep disorders.

Methods: We surveyed 97 patients, both sexes, cephalometric and panoramic views of Cone Beam Computed Tomography (CBCT) scans were extracted. I-CAT vision software was used for evaluation. Examined angles were measured by the same calibrated examiner. Craniocervical angle (NSL/OPT) and the sagittal condylar guidance (SCG) angle values were assessed and compared with Berlin questionnaire.

Results: Craniocervical (NSL/OPT) angle values were significantly associated with occurrence of sleep disordered breathing.

Conclusions: Craniocervical angle may be a potential prognostic factor for obstructive sleep apnea syndrome (OSAS).

Keywords: Cone Beam Computed Tomography, craniocervical angle, sagittal condylar guidance angle, obstructive sleep apnea syndrome, OSAS, Berlin questionnaire

The comparison of occlusal patterns and malocclusion disharmonies between children with Down Syndrome and healthy children

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Background: Down syndrome is one of the most common genetic disorders. Patients with trisomy of the 21st chromosome display a range of abnormalities of varying severity in the oral cavity and the orofacial complex.

The aim: The study aims to analyse and compare occlusion in children with Down syndrome in relation to healthy children in the same age group.

Materials and methods: The research material consisted of 22 children with Down syndrome and 33 healthy children unburdened by genetic defects, all aged 7-16. The extraoral examination included the analysis of facial features in relation to the sagittal, fronto-orbital and Frankfurt planes. During the intraoral examination the following features were assessed: Angle's class, canine class, overbite, overjet, incisor retrusion / protrusion. Abnormalities concerning the structure and number of teeth, dysfunction of the tongue, tension of the mimic and masticatory muscles were analysed as well.

Results: The most common types of malocclusion among DS patients were bilateral partial crossbite - 59% vs 14% within the healthy group and a partial anterior openbite - 33% vs 5%. The prevalence of Angle class III was higher in children with Down syndrome (25% vs 15%). Incorrect overbite was observed in 68% of DS patients compared to 33% in the healthy group (p -value <0.013). 68% of DS patients exhibited incorrect overjet which was only observed in 37% of healthy patients (p -value <0.024). Hypodontia was diagnosed only among children with DS (50%). Muscular hypotonia occurred in 55% of DS patients compared to 4% in the control group. Dysfunction of tongue muscles was also predominant in DS group (41% vs 6%).

Conclusions: Our study finds that there is a positive correlation between Down syndrome and the prevalence of various disharmonies in the stomatognathic system. They include malocclusion, teeth abnormalities concerning their number and structure, hypotonia of mimic and masticatory muscles.

Keywords: orthodontics, Down syndrome (DS), disorders of the orofacial complex

Use of 3D-printed models as an aid in demanding procedures in oral surgery

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Background: Three-dimensional (3D) printing is rapidly becoming a subject of great interest in variety of fields, including dentistry. Due to undeniable need for customization and personalization in dentistry 3D printing technologies give a new perspective in different specialties, including implantology, oral and maxillofacial surgery, dental surgery and prosthetics.

The aim: The aim of this work was to validate benefits that can be derived from 3D printing technologies in a clinical practise and dental education. It was achieved by production customised 3D models in DLP (Digital Light Processing) technology to conduct trainings and simulations of surgeries in the head and oral cavity area.

Materials and methods: The Invesallius 3.0 programme was used to create 3D life-size anatomical models, from the cone beam computer tomography scan, of the patient's jaws. The models were used for a hands-on surgical simulations of a dental procedures.

Results: Simulations performed with a use of 3D models enabled to adapt and practice appropriate surgical approach to maintain high predictability of a procedure. They appeared to be highly beneficial for diagnosis, pre-surgical planning, training and also as a reference during surgery.

Conclusions: Based on the stimulations of various dental surgeries conducted on a 3D models, we are able to infer that 3D printing technology constitute a real aid during complicated surgeries. Use of 3D printing technology enables to replicate, visualize and carefully review a particular patient's anatomy. Thus, planned surgeries become more predictable, less traumatic but also distinguish themselves with a greater accuracy, high efficiency and lower complication rate. Moreover, the physical models might be used in education, for practicing particular procedures to gain better understanding of complex anatomy of an operated area. Last but not least, 3D models might serve as a visual aid for discussing the procedure with a patient allowing them to get acquainted with surgical strategy and the treatment outcome.

Keywords: 3D-model, 3D printing, 3D-printed model, simulation, oral surgery

Endodontic treatment regimens and their application in practice survey and comparative study

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Background: Endodontics is an extremely rapidly developing field of dentistry. Dentists have an increasing selection of techniques, tools and materials to ensure a successful endodontic treatment.

The aim: The endodontic treatment regimens and their application in practice were analyzed, and compared to the data from 2007.

Materials and methods: A dentist survey was conducted through a Google Doc. The link to the form was placed on online dental groups, sent by e-mail to the offices and the questionnaire was also delivered to the dental offices in a printed form. The results were then compared to the article from 2007.

Results: The majority of respondents always perform endodontic treatment procedures on pregnant women, take three X-rays and use a rubber dam during the treatment. Almost all respondents have the opportunity to take an X-ray in the workplace, and the working length is usually measured by the electronic method. The most commonly used methods of root canal preparation are the traditional and crown-down methods, and the most commonly used root canal filling method - the thermal method. Most of the respondents declared the following rinsing protocol: NaOCl and CA or EDTA. Endometer, ultrasounds and microscopes are used in most dental offices, and more than half of the dentists responded that they perform procedures like broken tools removal, obliterated canals clearing, root canal retreatment or treating traumatized teeth.

Conclusions: Polish endodontics has developed over the years. Modern solutions such as rubber dam, endometer, microscope and ultrasounds are used more and more often. The canals are filled with the thermal method, and the popularity of performing complex endodontic procedures has increased. However, it is necessary to conduct further studies comparing the effectiveness of the canal preparation methods and the standardization of the root canal irrigation protocol.

Keywords: endodontic treatment, survey examination

Does home isolation due to the COVID-19 pandemic affect changes in oral hygiene habits? A survey study of adolescents aged 12-14

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Background: The ongoing COVID-19 pandemic has forced changes in the organization of many aspects of life, especially among students. Have home isolation, distance learning, and lack of direct contact with peers influenced changes in adolescents' daily habits, including oral hygiene?

The aim: To assess the impact of isolation during the COVID-19 pandemic on possible changes in oral hygiene habits in adolescents aged 12-14.

Materials and methods: An anonymous survey was conducted among adolescents aged 12-14 using an online questionnaire. The questionnaire was distributed in Silesia and Małopolska provinces, mainly through elementary schools. The questionnaire comprised seventeen questions concerning everyday oral hygiene activities, diet and caries prevention with fluoride during the ongoing isolation and before the pandemic.

Results: More than half of the respondents declared that the daily rhythm set by attending school helped them maintain oral hygiene, which was not as strongly noted during the remote learning period. An inverse correlation was noted with regard to skipping tooth brushing. While the majority of the respondents participated in fluoridation campaigns at school, a substantial minority reported dental visits for tooth varnishing during the pandemic. A high percentage of the adolescents surveyed stated that they usually drink water or unsweetened beverages to quench their thirst. Unfortunately, and alarmingly, almost half of the respondents used energy drinks.

Conclusions: On the basis of the conducted study, a relationship between home isolation and prevention and daily oral hygiene can be observed. Surprisingly, positive changes were noted in some aspects. However, in most cases, lifestyle modification dictated by the COVID-19 pandemic negatively affected the oral hygiene of the surveyed adolescents.

Keywords: COVID-19, oral hygiene habits, questionnaires, adolescents

Are the self-made toothpastes able to compete with the commercial ones? - survey research

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Background: Oral cavity sanitary products have been known to people for a few thousand years. Toothpastes are among the popular ones nowadays. The products have various effects according to their ingredients. Due to their universal character they are available in pharmacies and stores. Despite their character some people decide to make them at home basing on the commonly available ingredients.

The aim: The purpose of the following work is to estimate the popularity of the self-made toothpastes among their users and the ingredients included.

Materials and methods: An internet survey including 9 questions in which 445 participants took part was conducted. Their age, gender and education have been included in the results. The following questions corresponded to the general knowledge regarding toothpastes, justification for the use of natural toothpastes and the ingredients used for their production. The survey was shared on numerous social websites.

Results: 98.2% of the surveyed respondents declare to apply the toothpaste whereas 5.17% emphasize that it is self-made. Within this group women constitute the majority (78.26%), in the age group of 19-25 (43.48%) and secondary education graduates (45.45%). The key factor to motivate the above mentioned is their awareness that some of the ingredients included in the commercial toothpastes may have a negative influence on health (37.14%). The most commonly used ingredient is the coconut oil (48.4%) and the baking soda (48.4%).

Conclusions: Respondents declaring the production of toothpaste constitute a minor number of their users. Their motivation is driven by the need to be aware of the ingredients inside the product, the conviction that some of them may be harmful, care of the environment and hostility towards the corporations. In order to prepare a self-made toothpaste the following ingredients are used: coconut oil, baking soda, cinnamon, mint, cloves, bentonite as well as other commonly used items.

Keywords: toothpastes, natural products, oral hygiene, natural ingredients

The using of biphasic calcium sulfate in two-stage treatment of dentigerous cyst of the mandible – case report

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Work's tutor: Dr n. med. Damian Dudek

Background: Among the patients of the Oral Surgery Department, a significant percentage are people requiring treatment due to the diagnosis of odontogenic cysts in the jaw bones. Most of these cysts, of various etiologies, require surgical treatment. Various methods are used in the surgical treatment of odontogenic cysts; from savers through aggressive to extremely rarely radical. In the group of sparing methods, an interesting alternative to the well-known marsupialization is a two-stage treatment, in which cyst decompression is used first.

Case desription: The authors present a case of two-stage treatment of dentigerous cyst of the mandible. Bond Apatite® was used in the regeneration of the bone defect.

Conclusions: Female patient, age 82 years. In the left side of the cheek and lip the first symptoms were a swollen, pain and Vincent symptom and of course another inflammation signs. The patient had earlier not so big swollen and pain from time to time. We make a two-steps treatment. First step in local anesthesia was a decompression of the cyst and fixation of the drainage for 7 days. We also take a sample to histopathology (diagnosis: radicular inflammatory cyst). Then the overdenture with obturator was done and we observed clinically and radiologically the status in 9 months follow-up (the clinical control was done once a month, and X-rays after 3, 5, 7 and 9 months). The Vincent symptom was disappeared spontaneously after 3 months. After this time we do the next step of the treatment. In global anesthesia we removed this radicular cyst (sended all to the histoapthology, confirmed as a radicular cyst) We filled the bone defect with Bond Appatite (Hydroxyapatite+biphasic Calcium Sulphate, 4 cc). The patient reported medium pain and discomfort in the first four days after surgery. We take uot the sutures and correct the overdenture after 7 days. In next 3 months follow-up we observed very good bone remodeling and keeping the shape of the bone deffect. No inflammatory symptoms was observed and until now patient reported no clinical symthomps.

Keywords: oral surgery, dentigerous cyst, biphasic, calcium

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SESSION OF SURGICAL SPECIALITIES

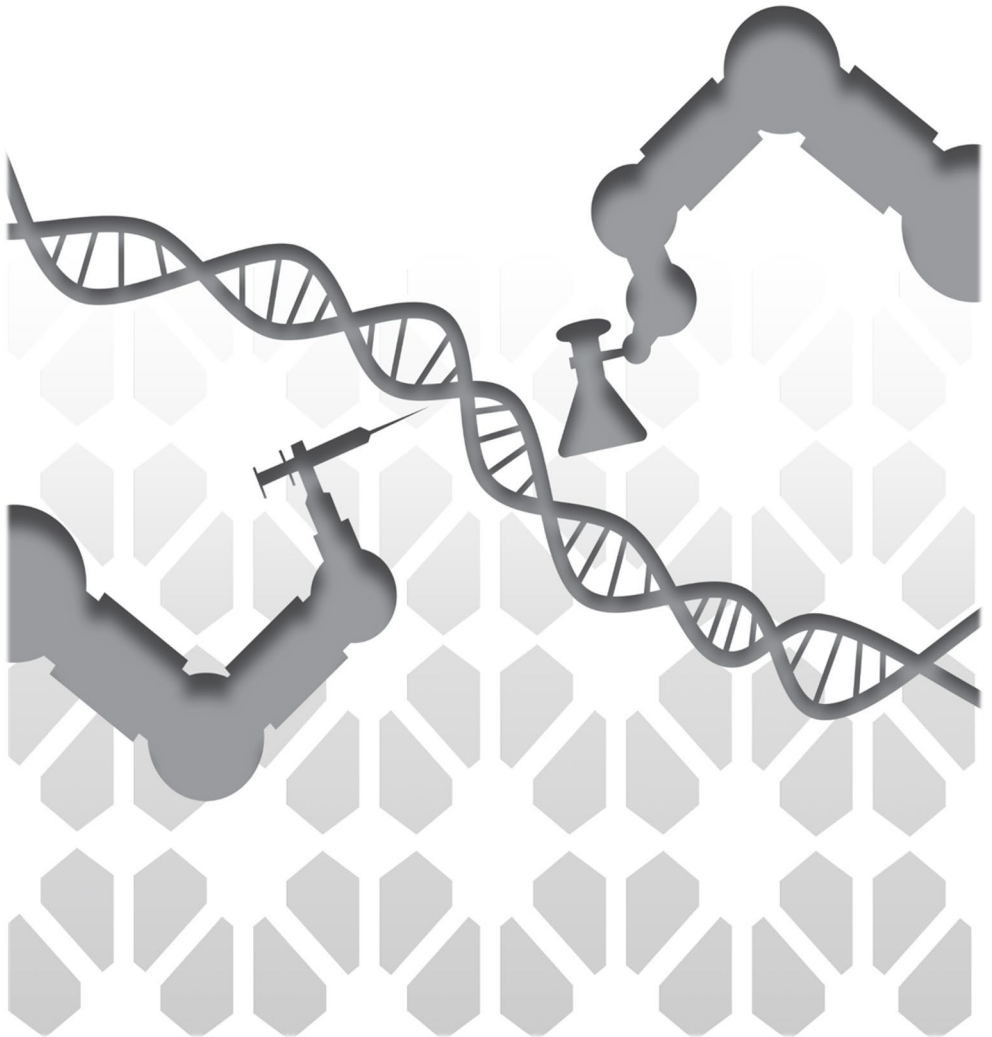


Table of contents

Renal injuries in trauma center.....	350
High neutrophil-to-lymphocyte ratio (NLR) as a prognostic factor of postoperative complications following distal pancreatectomy	351
Bariatric Surgery Index for Complications: its predictive accuracy and usefulness in clinical practice	352
Total pancreatectomy - indications and postoperative outcomes – single centre experience	353
Transduodenal ampullectomy for tumors of the ampulla of Vater – single center experience	354
Renal halving trauma – is it always indication for surgery?	355
Histopathological subtypes of ampullary adenocarcinoma differ in terms of regional stage at resection	356
Familial adenomatous polyposis (FAP) – a rare case report of a 30 years-old patient.....	357
A rare case of a triple synchronous colon cancer in 65-year old patient with no underlying conditions	358
Surgical treatment of ulcerative colitis	359

Renal injuries in trauma center

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Background: Injuries are the third leading cause of death across all ages [1]. In both, adult and children cohorts, urogenital trauma has a cumulative incidence of 10-20%, and the kidney is involved in 65–90% of the time [2]. Renal trauma is often a part of polytrauma. Although these injuries are seldom life - threatening and non - operative methods are preferred (except high grade renal injury), their early diagnosis and management can prevent hemodynamic instability and loss of organ function.

The aim: The aim of this study was the multifactorial analysis of cases of renal traumas.

Materials and methods: The analysis includes data on the management of 33 patients (men = 30, women = 3) in the Clinical Urology Department in Trauma Center in Sosnowiec in the period between 2010 and 2020.

Results: The most common mechanism of renal trauma was blunt trauma, noticed in 82 % of all cases. The mean age of patients was 46 years \pm 20. Non - operative treatment was conducted in 9 cases. 24 patients needed surgery. The severity of injuries was estimated according to AAST scale and the following distribution was noted: grade I = 9, grade II=4, grade III = 5, grade IV =12 and grade V = 3. In 18 cases renal trauma was a part of polytrauma. The most common injuries coexisting with renal trauma were bones fractures (n= 12, in which more often ribs fractures n = 10), pneumothorax (n = 6), lungs contusion (n=5), spleen trauma (n=5) and liver trauma (n=5). None of the patients died due to renal trauma in our study.

Conclusions: The management of renal trauma based on a proper diagnosis and best way of treatment is very important for saving patients' health and for maintaining a good quality of life after trauma. It depends on many factors. The most important of them are the medical team (that consists of well-educated and cooperating health care workers), a proper management of life - threatening injuries and then appropriate treatment by urologists.

Keywords: renal trauma, AAST classification, kidney injuries

High neutrophil-to-lymphocyte ratio (NLR) as a prognostic factor of postoperative complications following distal pancreatectomy

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Background: The inflammatory status of patient influences postoperative complications. An elevated preoperative neutrophil-to-lymphocyte ratio (NLR) can serve as an auxiliary indicator of inflammation and could be associated with the prognosis of postoperative outcomes.

The aim: The aim of this study is to assess the association between preoperative neutrophil-to-lymphocyte ratio (NLR) and the prevalence of early postoperative complications in patients undergoing distal pancreatectomy (DP).

Materials and Methods: In our analysis, we included the data of cancer patients that underwent DP in the Department of Gastrointestinal Surgery between May 2018 and March 2021 (n=43). We collected preoperative data, information about the type and length of surgery, and the prevalence and types of complications following the surgery in patients.

Results: Fourteen of 43 (33%) of patients undergoing DP had postoperative complications detected during hospitalization. The mean NLR in all patients was 3,54, it stood at 2,92 in patients that didn't have any recorded postoperative complications, and at 4,81 in patients with complications, however, the difference was not statistically significant (p=0,252). Eight of the patients with complications had NLR>3 and six had NLR<3 with higher odds ratio of complications for patients with NLR>3 OR=2,96.

Conclusions: Preoperative NLR seems to be a good, although in our study not clinically significant, indicator of increased odds of postoperative complications in patients following DP. Assessment of preoperative NLR could be used as an accessory tool along others in order to provide better postoperative monitoring, management, and care of patients with increased preoperative NLR to minimize the risks stemming from postoperative complications.

Keywords: neutrophil-to-lymphocyte ratio, NLR, distal pancreatectomy, complications

Bariatric Surgery Index for Complications: its predictive accuracy and usefulness in clinical practice

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Background: Bariatric surgery was proven to be the most effective obesity treatment. However, co-morbid conditions in obese patients contribute to the incidence and severity of complications after intervention. Assessment of postoperative adverse outcomes based on preoperative parameters seem to be crucial for surgeons in qualification process. Recently, BASIC score has been proposed as new risk stratification tool for complications after bariatric surgery.

Aim: To validate the performance of BASIC score as the predictor of 30-day complications after bariatric treatment.

Materials and methods: The retrospective analysis included patients who underwent Roux-en-Y gastric bypass (RYGB) or sleeve gastrectomy (SG). The BASIC score was calculated for each patient. The primary endpoint was 30-day postoperative complications including: gastrointestinal leak, gastrointestinal stricture, rhabdomyolysis, bleeding, wound infection, port site hernia and abscess. The score relationship with adverse outcomes was assessed by uni- and multivariate logistic regression. Discrimination was evaluated by area under the receiver operating characteristic (AUROC) whereas calibration by Hosmer–Lemeshow test.

Results: Out of 1250 patients enrolled in our study 817 (65.36%) were women whereas 433 (34.64%) were men with mean age 43 years. 73.84% of patients underwent SG whereas 26.16% of them had RYGB. The most common comorbidities were hypertension (67.04%), diabetes (31.28%) and obstructive sleep apnea (29.04%). Postoperative complications occurred in 9.52% of patients. BASIC score had statistically significant capability of identifying adverse outcomes in logistic regression analysis (OR 3.00; $p < 0.0001$). It demonstrated acceptable discrimination (AUROC 0.73; $p < 0.0001$) and statistically good calibration ($p = 0.24$).

Conclusions: BASIC score can be used in preoperative assessment of adverse outcomes after bariatric surgery. Further external validation of BASIC score at the international level is needed.

Keywords: risk scores, external validation, adverse outcomes, bariatric surgery

Total pancreatectomy - indications and postoperative outcomes – single centre experience

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Background: The role of total pancreatectomy (TP) in the management of pancreatic lesions is still debated. This type of surgery has a relatively high complication rate, associated with complete endocrine and exocrine insufficiency. However, in some cases performing a TP is necessary to achieve margin-negative resection and prevent risk for recurrent disease. The purpose of this study was to identify the indications to a TP and analyze postoperative outcomes of the patients who underwent this operation.

Methods: We retrospectively reviewed the clinical data of 57 patients who underwent TP in the Department of Digestive Tract Surgery in Katowice, between January 2010 and August 2020. We excluded patients who had completion to TP after previous pancreaticoduodenectomy and those who had necrosectomy due to acute pancreatitis.

Results: The most common indications for the surgery were the following: pancreatic cancer (n=18, 31,6%), intraductal papillary mucinous neoplasm (n=13, 22,8%), cancer of the ampulla of Vater (n=5, 8,8%) and neuroendocrine pancreatic tumors (n=5, 8,8%). Majority of patients (n=54, 94,7%) were scheduled for PD, but the TP was also considered and the decision to perform TP was taken during the surgery, due to the lesions involving the whole gland, soft pancreas or risk of pancreatitis in the remnant pancreas. Thirty patients (52,6%) had spleen-preserving TP. Perioperative complications occurred in eighteen cases (31,6%), and the reoperation was needed in nine cases (15,8%). Seven patients (12,3%) died within thirty days after surgery, three of them had the tumor with blood vessel involvement.

Conclusions: Although postoperative outcomes after TP have improved over time, the morbidity and mortality rates still remain high. Selected group of patients may benefit from TP, especially those with entire gland involvement and increased risk of pancreatitis, pancreatic fistula or anastomotic leakage.

Keywords: total pancreatectomy, pancreatic cancer, postoperative outcomes

Transduodenal ampullectomy for tumors of the ampulla of Vater – single center experience

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Background: Transduodenal ampullectomy (TDA) is a surgical local excision method indicated among patients suspected of ampullary tumor, in cases which are not suitable for endoscopic resection or pancreaticoduodenectomy (PD). The purpose of this study was to analyze the perioperative and pathological outcomes of the TDAs.

Methods: We retrospectively reviewed the clinical data of 31 patients who underwent TDA in the Department of Digestive Tract Surgery in Katowice, between January 2015 and September 2020.

Results: Three patients (9,7%) underwent TDA due to a recurrent tumor after endoscopic papillectomy. There was not any conversion to PD required, but in four cases (12,9%) the reoperation was needed as the recurrence of the disease was observed. The most common pathologic findings in removed specimens were tubular or tubulo-villous adenoma with high grade (n=7, 26%) and low grade (n=5, 19%) dysplasia. Postoperative complications occurred in 13 (42%) patients, but only in two cases they were classified as Clavien-Dindo (CD) grade IV.

Conclusions: Transduodenal ampullectomy should be considered as an alternative to pancreaticoduodenectomy and endoscopic treatment in patients with benign ampulla of Vater tumors. It is particularly useful in cases of recurrence after endoscopic resection, as it allows to avoid unnecessary PD. Preoperative evaluation with endoscopic biopsy and intraoperative frozen section are essential to improve long term outcome after TDA.

Keywords: ampullary tumor, ampullectomy, ampulla of Vater, papillectomy

Renal halving trauma – is it always indication for surgery?

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Background: Genitourinary tract injuries are relatively rare – about 10% of all traumas, where kidney is the most commonly affected organ. Renal trauma occur in 5% of all trauma patients. Main symptoms depend on the trauma severity assessed with the use of AAST renal injury scale and may appear as flank tenderness, ecchymosis, tachycardia and hypotension, hematuria. Required interventions include percutaneous nephrostomy tube, ureteral stent, percutaneous drain placement, angioembolization and surgeries such as kidney reconstruction or nephrectomy.

Case description: Male patient, 14 years old, admitted to Pediatric Surgery Clinic with abdominal trauma due to fall. He presented symptoms such as strong abdominal pain, anxiety, emesis, hematuria. CT revealed 5th grade of AAST renal injury scale – lower pole of the left kidney detachment with urohematoma (10,5 x 10,5 x 19 cm). Right kidney showed no signs of trauma. Chest CT did not reveal any abnormalities. Due to patient's hemodynamic stability at the day of admission, multi-organ trauma absence and risk factors for intervention (large perirenal hematoma >3.5 cm and extravasation of urine) presence surgeons decided to implement conservative procedure. Preventive antibiotic therapy was implemented (Cefuroxime, Amoxicillin and Clavulanic Acid). During the whole hospitalization patient required two units of red blood cell concentrate, painkillers and antihemorrhagic drugs. Control CT showed no flow through detached lower pole of the left kidney and correct flow through upper pole with normal urine excretion through left ureter and urohematoma size reduction (10 x 8,5 x 14 cm). Patient was discharged home in good condition with proper recommendations.

Conclusion: Presented case was successfully managed with no-invasive procedure, what confirm that surgery even in 5th grade injury is not always necessary, which is a real benefit for the patient. Hemodynamic stability in isolated kidney trauma allow to implement non-invasive procedure. Moreover, indication for such procedure may be presence of risk factors for intervention. In kidney trauma, the benefits and possible complications of operative and non-operative treatment should be properly balanced to make decision about proper management.

Keywords: renal trauma

Histopathological subtypes of ampullary adenocarcinoma differ in terms of regional stage at resection

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Background: Ampullary carcinoma (AC) is a rare abdominal cancer. If diagnosed at resectable stage, it is treated with pancreatoduodenectomy. Two histopathological subtypes of AC were distinguished: intestinal (I) and pancreatobiliary (PB). However, same AC may show partial intestinal and partial pancreatobiliary differentiation within a single lesion. Such cases are reported as mixed AC subtype (M). Data on histopathological features of mixed AC subtype are limited.

Materials and methods: Fifty-six cases of AC diagnosed in pancreatoduodenectomy samples between 2016 to 2019 were retrieved from a departmental prospective database of pancreatic-duodenal specimens. All of the cases were diagnosed as AC of I, PB, or M subtype, based on H&E features and supportive immunohistochemical assays, when needed. Twenty-three cases were scored as I subtype, 15 as PB subtype, and 18 as M subtype.

Results: M subtype showed highest frequency of regional lymph node metastases (83%) in comparison to I and PB subtypes (48% and 67%, respectively, $p=0.054$). The frequency of duodenal invasion in M and PB subtypes (100%) was significantly higher than in I subtype (78%, $p<0.01$). Invasion of pancreas was frequent in both PB (74%) and M (56%) subtype, in comparison to I subtype (30%, $p<0.05$). pT4 stage as defined by AJCC 2010 staging criteria was diagnosed in 61% of M cases, but in 40% and 26% of PB and I cases, respectively ($p<0.01$). All three AC subtypes were comparable in terms of patients' age and sex proportions, tumor diameters, frequencies of perineural invasion and peripancreatic/periduodenal fat invasion.

Conclusions: Ampullary adenocarcinoma of mixed subtype are resected at more advanced stage in comparison to adenocarcinomas of intestinal and pancreatobiliary subtype. This may be caused by higher biological aggressiveness of tumors which differentiate from intestinal to pancreatobiliary subtype during the regional disease progression.

Keywords: Ampulla of Vater, adenocarcinoma, histopathology

Familial adenomatous polyposis (FAP) – a rare case report of a 30 years-old patient

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Background: Familial adenomatous polyposis (FAP) is a rare autosomal dominant inherited disease caused by APC tumor suppressor gene mutation. The result of the mutation is dysfunctional control of the intestine mucosa cell proliferation. The risk of cancer's development in these mutation carriers is almost 100%. Because of the late occurrence of the first symptoms, most of the patients seek medical attention when the disease is advanced, even progressed to large intestine's cancer. FAP's diagnostics is based on both clinical and genetic assessment. Positive family history is an indication for surgical treatment and oncological supervision of the patient. The treatment of choice is a total colectomy (TC) with making ileal pouch-anal anastomosis (IRA) or proctocolectomy with the formation of an ileostomy.

Case description: We present a case report of a 30-year-old woman with metastatic large intestine cancer (pT4bN1cM1). The patient has a positive family history. She had been diagnosed with FAP at the age of 18 and refused prophylactic surgical treatment then. The TC with greater omentum resection was performed. In the abdominoperineal act, the rectum with tumor, uterus, part of posterior vagina's wall, left adnexa, and parametrium were resected either. The definitive ileostomy was created. No complications during the early postoperative period were observed. The patient was given recommendations and discharged from the hospital.

Conclusions: The operation in patients with FAP is the only way to avoid cancer development and to maintain a relatively good quality of life. The availability of less radical, rectum sparing methods must be presented to each patient at an early stage of the disease. The intensification of the FAP patients' education to achieve a better awareness in order to decrease the cancer transformation rate is needed. The challenge remains to standardize the treatment regimen in the early stages of FAP treatment and to maintain a registry of FAP patients in order to coordinate the care.

Keywords: familial adenomatous polyposis, colorectal cancer, APC gene, surgery, oncology, ileostomy, total proctocolectomy

A rare case of a triple synchronous colon cancer in 65-year old patient with no underlying conditions

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Background: Colorectal cancer is one of the most common cancers in the world. Simultaneous occurrence of at least two tumors in a single patient within 6 months is defined as synchronous colorectal carcinoma (SCC). Based on different studies, the number of SCC accounts for 5% to 13% of all colorectal cancers. Most reports in the literature described only two carcinomas occurring in the large intestine at one time. Patients with more than two tumors accounted for 1,8% to 16,7% of all SCC cases.

Case description: We report a rare case of triple synchronous colorectal carcinoma.

65 -year old patient with abdominal pain and constipation, that have been increasing for six months, underwent preoperative colonoscopy and computer tomography (CT) scan. Both examinations indicated double malignant lesions, first in the splenic flexure and the second in hepatic flexure of the colon. Due to a size of proximal tumors complete colonoscopy was not possible. During the subtotal colectomy, a third lesion has been found in the descending part of the large intestine. Postoperative pathological examination confirmed triple adenocarcinoma that meets the criteria of the SCC.

The patient has not been diagnosed with Familial adenomatous polyposis, inflammatory bowel diseases, Lynch syndrome or any other genetic disease predisposing to colorectal cancer.

Conclusions: Surgical decisions should be individual and based on preoperative examination. Complete colonoscopy may not be possible in all patients because of stenosis. An additional CT scan may not show all lesions because of their sizes. During the operation, whole bowel should always be checked. Due to an extended extensive resection range, laparoscopic operations in patients with SCC are performed less frequently. The importance of intraoperative endoscopy in the detection of SCC is increasing.

Keywords: triple synchronous colorectal cancer, colon adenocarcinoma

Surgical treatment of ulcerative colitis

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Background: Although pharmacotherapy is the therapy of first choice for colitis ulcerosa (CU), surgery continues to play a vital role in the treatment of this long-term inflammatory disease of colon and rectum. The majority of patients suffering from CU will require at least one bowel surgery throughout their life due to the occurrence of various complications. The most common are severe exacerbation, megacolon toxicum, perforation or lack of response to drugs.

The aim: To present the most common indications for surgical treatment of CU, its methods and results alongside with analysing the rate of postoperative complications.

Methods: Our retrospective study embraced 40 patients, who underwent a surgical treatment of CU in the Department of Gastrointestinal Surgery in Katowice, in years 2016-2020. The data was obtained from medical records. We analysed such parameters as age, BMI, duration of the disease, time between the diagnosis and the first surgery, indications for the surgery, type and duration of the surgery and complications. We also analysed the results of morphology of the peripheral blood and biochemical investigations taken at admission.

Results: The patients' average age of 46,8 years. There were 43,3% women and 56,67% me in the analysed group. Most of the procedures were elective (70% of patients). The most common indication for elective surgery was the exacerbation of symptoms. Megacolon toxicum and perforation were the indications for urgent surgery. Those patients were operated in the end-stage of CU and thus were at a greater perioperative risk. The most frequently performed procedure was proctocolectomy, with end ileostomy being formed.

Conclusion: Despite the fact that surgery does not belong to the first line treatment of CU, the complications caused by the illness make it inevitable in a significant number of cases, giving the patients a chance to reduce drug doses and lessen the CU symptoms.

Keywords: ulcerative colitis, surgery, colon, resection, proctocolectomy, ileostomy

SESSION OF SURGICAL SPECIALITIES II



Table of contents

Angiomyolipoma vessels embolization in patient with Pringle-Bourneville's phacomatosis	362
Benefits and risk of the use of the medical compression stocking	363
Keratoconus - symptoms, age of detection and treatment, questionnaire study	364
A giant testicular tumor with hydrocele - case report	365
Corona phlebectatica – epidemiology and pathogenesis in young population	366
Tissue Factor and Tissue Factor Pathway Inhibitor in Chronically Inflamed Gallbladder Mucosa	367
Prevention of spinal cord ischemia via endovascular treatment in Marfan syndrome	368
Is there any link between chronic venous disease symptoms and hormonal contraception?	369
Segmental arteries patency analysis in patients undergoing TEVAR	370

Angiomyolipoma vessels embolization in patient with Pringle-Bourneville'a phacomatosis

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Background: Pringle-Bourneville'a phacomatosis (tuberous sclerosis complex, TSC) is an autosomal dominant genetic disorder, which can be also caused by *de novo* mutation. TSC is caused by mutation in TSC1 or TSC2, which encode hamartin and tuberlin, respectively. In kidney the disease appears as angiomyolipomas, renal cell carcinomas and cysts. Available method of angiomyolipoma treatment is vessel embolization or tumor resection.

Case description: Male Patient, 16 years old, with TSC was admitted to the hospital with urinary tract hemorrhage. He required complementary blood transfusion due to anemia symptoms and hemodynamic instability. CT scan revealed angiomyolipoma (9,5 x 7 x 9,2 cm) in upper pole of the right kidney and vascular anomalies. Moreover, in tumor there was a hematoma (3 x 2 cm) with a breakthrough to the pelvicalyceal system. Some other smaller angiomyolipomas were noticed in liver and both kidneys and a significant blood clot in urinary bladder.

Aortonephrography showed that tumor was supplied by two branches of right renal artery. Patient was qualified to embolization of both branches. After procedure, contrast enhancement of tumor vessels in control angiography was not present. Normal vascularization of the healthy part of the kidney was obtained. Tumor bleeding stopped and the blood clot was evacuated from urinary bladder by continuous flushing through the catheter. Patient was discharged home in good condition. Control USG after one year from the procedure revealed tumor size reduction (3,5 x 3 x 3 cm) and other angiomyolipomas under 1 cm.

Conclusions: The overall effect of treatment in this case was termination of tumor bleeding, blood clot from urinary bladder evacuation and finally tumor size reduction. Extensive angiomyolipoma vessels embolization is a precise, effective and minimally invasive method of treatment, what is confirmed by our case. It should be preferred more than surgical resection due to less risk of severe complication occurrence.

Keywords: pediatrics, urology, angiomyolipoma, tumor, vessel embolisation, TSC

Benefits and risk of the use of the medical compression stocking

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Background: Medical compression stockings (MCS) are one of the effective ways of the acute and chronic venous disease treatment. The use of MCS is also advised in the patients suffering from lymphedema and other types of leg swelling. In the qualification process to the MCS implementation, some contraindications and possible adverse reactions should be taken into consideration. The knowledge concerning the possible contraindications to the MCS and the complications of their use seems to be limited.

The Aim: In the study, the current indications and contraindications provided by the MCS producers were compared with the guidelines on the use of the medical compression stocking.

Methods: The documents of the most recent guidelines on the use of MCS were analyzed, focusing on the indications and contraindications. The information listed in the guidelines were compared with the available information from the 10 compression stocking producers. Secondly, the knowledge of the medical students on the use of the medical compression stocking was checked on the base of the dedicated questionnaire.

Results: The information about possible contraindication to the MCS have been identified in the materials of all (10) MCS producers (100%) with the major differences between the companies. None of the producers updated the list of the indications and contraindications to the currently proposed guidelines and in 60% of the companies the contraindications included only some of the current indications for the use of MCS. The analysis of the results of the study questionnaire are pending.

Conclusion: The effort should be taken to update the information about the proper use of the medical compression stocking—the level of disinformation together with the lack of the precise description of the indications and contraindications for the use of MCS remains significant. The knowledge concerning the proper use of MCS should also be included in the medical student university course.

Keywords: compression, veins, indications, contraindications

Keratoconus - symptoms, age of detection and treatment, questionnaire study

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Background: Keratoconus (KC) is a non-inflammatory, degenerative disorder, characterized by corneal protrusion and thinning. It leads to irregular astigmatism, corneal scarring, and a decrease in the best-corrected visual acuity.

The aim: The study is aimed at the analysis of the Polish patient population with keratoconus in the following areas - most often occurring symptoms, when the disease was diagnosed, treatments and comorbidities.

Materials and methods: The study was conducted as a series of two questionnaires from December 2020 to March 2021 (n=171). The first one was conducted among affected patients of the Department of Ophthalmology in Katowice (n=84) and the second among the patients of the online support group in social media (n=87).

Results: Keratoconus was more prominent binocularly (n=128) and usually was diagnosed between 20-24 years of age. The most common symptoms were a decrease in visual acuity (n=131) and glare (n=91). Moreover, almost 95% surveyed were rubbing their eyes in the past. As many as 40% suffered from allergies. The treatment methods used among respondents were cross-linking procedure (n=80) and full-thickness corneal transplant (n=12). Patients in internet support groups have undergone more often surgical procedures ($p<0,05$), on average they reported more symptoms than patients in the clinic (6 complaints compared to 4; $p<0,05$) and they more often knew on what stadium keratoconus was diagnosed.

Conclusion: Since 30% of people were diagnosed on stage 3 or 4, many of those patients would end up with a worse best-corrected vision or be disqualified from procedures like CXL. Since keratoconus is not a rare disease and the main treatment method stops the progression of the disease, there is a need for widespread education in this field, so they could be diagnosed in earlier stages of progression.

Keywords: Keratoconus, symptoms, treatment, age of detection

A giant testicular tumor with hydrocele - case report

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Background: Testicular cancer is one of the most curable cancers. However, the course of the disease largely depends on the histological type and clinical stage at diagnosis. Despite considerable improvements in healthcare access and increasing public awareness of testicular cancer, there are cases where the tumor size at diagnosis is large, which makes surgical treatment challenging.

Case description: A 30-year-old man was admitted to the hospital due to painless, extremely enlarged scrotum with suspicion of a hydrocele. A computer tomography (CT) scan revealed a tumor of the right testis of 21.5x15x18cm in size, and retroperitoneal lymphadenopathy. The patient underwent right orchiectomy, with an inguinal and scrotal incision. On the macroscopic examination, the dimensions of the resected specimen were 14 x 13 x 12 cm; the histologic examination revealed teratocarcinoma.

Conclusions: Suspicion of hydrocele testis should prompt meticulous differential diagnosis including malignancies as this is essential to provide correct treatment. There is a strong need to increase public awareness in terms of testicular self – examination as well as signs and symptoms of testicular cancer.

Keywords: testicular tumor, hydrocele, teratocarcinoma

Corona phlebectatica – epidemiology and pathogenesis in young population

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Background: Corona phlebectatica (CP) is known as one of the signs indicating the presence of CVD. According to 2012 UIP Consensus on CP, it is a fan shaped pattern of numerous bluish intradermal veins with a diameter <3mm on the medial and/or lateral aspects of ankle and the foot in the inframalleolar area.

The aim: To assess the occurrence of CP in the young population and associate it with concomitant risk factors, symptoms of CVD and venous abnormalities of the lower limbs.

Materials & Methods: The group consisted of 518 young volunteers, age: 20-28. All participants received Venous Clinical Severity Score, Visual Analog Scale of pain and CIVIQ 20 quality of life questionnaire, along with a CVD risk factors and lifestyle survey. Surveys were received from 225 subjects: 30 with CP (the study group) and 195 without CP (the control group). In study group CP was assessed in two severity grades: incipient CP (n=22) and definite CP (n=8). Moreover, to evaluate venous system parameters the venous Doppler ultrasound of lower limbs was performed.

Results: Comparison between study and control group revealed significant differences in: height (respectively, 177.5 v. 170;p=0,006), weight (72.5 v. 63;p=0,003) and gender (with CP: 60%M, 40%F; without CP: 33,7%M, 66,3%F;p=0,005). Significant differences were obtained in the VAS – pain score (0.8 v. 0.0;p=0,004) and the VCSS scale (1.0 v. 0.0;p=0,002). USG examination showed deviations in the superficial vein system among 43% (n=13) CP subjects – VSM was insufficient in 30% (n=10), perforator vein in 13% (n=4), and VSP in 3% (n=1). No abnormality in the superficial venous system was significantly more common in the study group.

Conclusion: CP is associated with the manifestation of CVD symptoms also in the young population. In this group CP do not correspond to the presence of pathology in the superficial venous system of the lower limbs, however their correlation with advancement of CVD symptoms might be the indication of more likely disease development in future.

Keywords: corona phlebectatica, chronic venous insufficiency, risk factors, young population

Tissue Factor and Tissue Factor Pathway Inhibitor in Chronically Inflamed Gallbladder Mucosa

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Background: Etiopathogenesis of chronic cholecystitis is not fully understood. Accordingly, we characterized a tissue factor (TF) and tissue factor pathway inhibitor (TFPI) expression in relation to severity of inflammatory infiltration of the gallbladder mucosa in a chronic cholecystitis.

Case description: We prospectively studied the gallbladder specimens obtained from 54 patients who had undergone cholecystectomy due to chronic cholecystitis. Sixteen autopsy specimens served as a control. To assess TF and TFPI immunoreactivity by immunohistochemistry, the monoclonal anti-human TF and TFPI antibodies were used. The inflammatory infiltration of the gallbladder mucosa was reflected by number of CD3 and CD68 positive cells.

The expression of TF and TFPI differed significantly between the cholecystitis and the control group. Accordingly, TF up-regulation was detected in the mucosal endothelial and interstitial cells whereas these cells were negative in the control. The most capillary endothelial cells of the cholecystitis group presented weak expression for TFPI unlikely to the control where a majority of endothelial cells presented moderate staining for TFPI. The mean number of CD3 positive lymphocytes in the cholecystitis group was 18.6 ± 12.2 but mean number of CD68 positive cells was 29.7 ± 13.9 . In the control sections it was 3.1 ± 1.9 and 8.8 ± 3.9 , respectively ($P < 0.001$). No relationship was found between the severity of inflammatory cell infiltration and studied markers of tissue haemostasis.

Conclusions: The results of the current study suggest that the tissue procoagulant state found may be engaged in the etiopathogenesis of the cholecystitis.

Keywords: coagulation, gall bladder, haemostasis, immunochemistry

Prevention of spinal cord ischemia via endovascular treatment in Marfan syndrome

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Background: Marfan syndrome (MFS) is a connective tissue disease-causing mutation in one of the major proteins of the extracellular matrix. Symptoms of the MFS may vary, nevertheless, regardless of MSF manifestation, the main causes of MSF patient's death are cardiovascular sequels primarily thoracoabdominal aortic aneurysm (TAAA). Staged endovascular treatment of TAAA is preferred in patients with MSF as prevention from spinal cord ischemia (SCI) which may occur in such extensive aortic surgery.

Case description: A 40-year-old patient was admitted to our hospital due to acute abdominal pain. Examination revealed a pulsing bulge in the umbilical region. A patient suffered from MFS aortic insufficiency, mitral valve prolapses, and arterial hypertension. A pre-operative angio-CT scan revealed thoracoabdominal aortic dissection. Aortic diameter was 66 mm and increased by 10 mm in 6 months. In addition, it was very symptomatic, which was a direct indication for a procedure. The CT scan also presented an occlusion of the left subclavian artery.

A cardiac surgeon discarded him from the classical surgical procedure as the risk was considered to be too high. The first stage of the treatment involved stent-graft implantation into the thoracoabdominal aorta with branches to the left iliac artery, left and kidney arteries, superior mesenteric artery, and coeliac artery. The further implantation to the right iliac artery was held off and planned for the next hospitalization. The patient was discharged from the hospital in a good general condition.

Conclusion: The SCI incidence in extensive endovascular procedures is significantly high, so it is important to develop additional SCI prevention methods. One of the solutions is a staged procedure which is preferred in patients with MFS as it is important not to close intercostal and lumbar arteries in a short time as the blood supply of the spinal cord is very limited. This method allows gradual change in spinal cord vascularization.

Keywords: Marfan syndrome, thoracoabdominal aortic dissection, endovascular treatment, spinal cord ischemia

Is there any link between chronic venous disease symptoms and hormonal contraception?

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Background: Chronic venous disease (CVD) is one of the most frequent forms of vein diseases, particularly in a population of women: 40-60% of the entire female population is suffering from it. There are several risk factors that are featured as significant in developing the disease for ex. genetic predisposition, obesity, pregnancy. According to the scientific research, there's one more, controversial reason-taking oral contraception (OCP), especially during a longer period of time. But can it be certain that young women should avoid OCP?

The aim: Confirmation of noticeable influence of applying OCP on developing signs or symptoms of CVD in young women.

Materials and methods: In the study, the cohort of 332 women in the age between 20 to 25 was investigated. 60.5% of the individuals used OCP in the past or during the study course. We've constructed an authorial questionnaire with over 20 questions, shared on online groups. In our research we asked specific questions about risk factors, signs, symptoms of potential venous disease, the length of time taking hormonal medications and about other components necessary to characterise CVD presence.

Results: In the group of the patients on OCP, 64.18% participants reported suffering from any signs and/or symptoms of CVD. The prevalence of CVD, including symptomatic patients did not differ between the patients taking hormonal treatment and the patients without symptoms. Among the patients on oral contraception 48.26% reported the presence of the spider veins, 33.33% feet oedema and 30.35% the presence varicose veins—similar rate of C1-C3 CVD related pathology was observed in the patients not using hormonal contraception.

Conclusions: The use of the hormonal contraception in the young female population has a limited significance in the aggravation of the CVD related symptoms. The further studies are needed to confirm the role of the long-term hormonal treatment in the CVD symptom occurrence as well as CVD potential progression.

Keywords: oral contraception, chronic venous disease

Segmental arteries patency analysis in patients undergoing TEVAR

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Background: TEVAR is an endovascular repair of thoracic aorta. It is used to treat a variety of aortic pathologies including thoracic aortic aneurysms and dissections. It has been proved that patency of segmental arteries may change clinical outcome of the procedure by causing endoleaks.

The aim: The aim of the study was to analyze the patency of intercostal and lumbar arteries before and after TEVAR.

Material and methods: We analyzed 29 patients who underwent TEVAR in years 2015-2021. Only patients with complete angioCT data were included. A computed tomography with intravenous contrast agent infusion scans were used to determine patency of segmental (intercostal or lumbar) arteries which were covered by endograft - from Th3 to L2 vertebra. The measurements of aneurysm sacs were also taken. Medical documentation was reviewed to gather clinical and procedural data.

Results: There were 9 patients included with complete follow-up data. The study group consisted of 2 female and 7 males between 35 to 79 years old. TEVAR was performed to treat thoracic aneurysms, aortic dissection and pseudoaneurysm in 4, 4 and 1 patients accordingly. CT scans of the patients were made on average 4 days (median 2 days) before procedure and 51 days (median 44,50) after. There was a statistically significant difference between the number of patent segmental arteries before and after procedures - on average 18 and 11 accordingly. The Statistica 13 suite was used for all statistical analysis.

Conclusions: Based on our research, the number of patent segmental arteries decreased significantly after TEVAR.

Keywords: TEVAR, segmental artery, aortic dissection, aortic aneurysm