AMSC

ANTWERP MEDICAL STUDENTS' CONGRESS

AMSC 2021

ABSTRACT BOOK

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Preface

Dear participant,

It's an honor and a great pleasure for the Organising Committee to welcome you in Antwerp to our 15th edition of the Antwerp Medical Students' Congress!

Organising a physical congress in these times brings about a lot of new challanges, and we are still learning to this day. However, right now, we are here together, and we all have one common goal: gaining knowledge, passing on knowledge and becoming the best version of ourselves by educating ourselves. We want to contribute to this by giving you the opportunity to join our academic programme filled with interesting workshops, lectures and presentations!

Recreation is also an important part of our programme. Each day we have planned a social programme, where you can relax, chat and make new friends, maybe even friends for life!

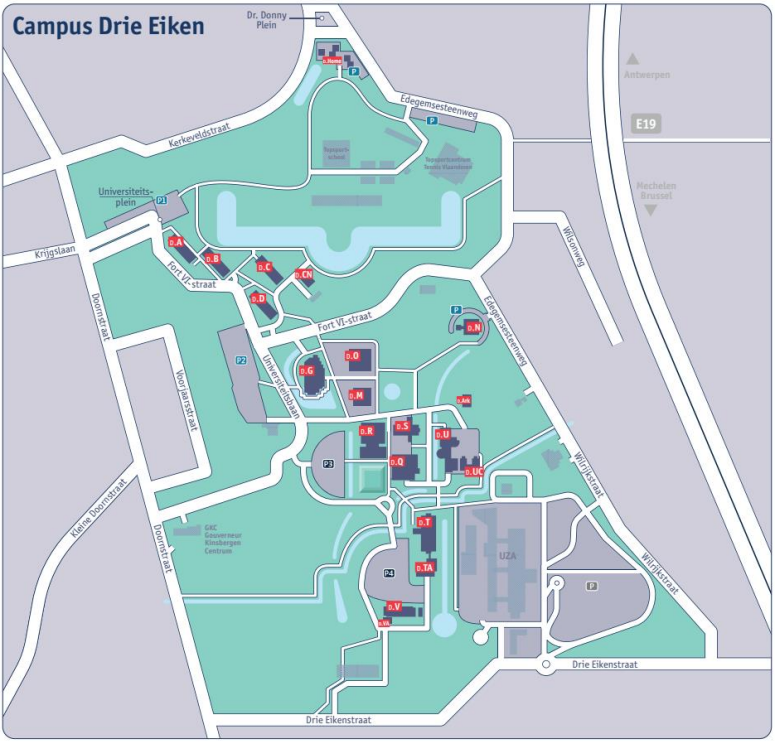
We sincerely hope you will enjoy your stay in this beautiful city of Antwerp, and may this congress enrich your knowledge and social contacts! If you have any questions don't hesitate to ask them to our team!

Let us make this edition an unforgettable experience for every participant, speaker, helper, and team member.

Together for better health.

The AMSC 2021 Organising Committee

Map of the campus



Faculty of Pharmaceutical, Biomedical and Veterinary Sciences
- Dean's office ... D.S
- Tutoring Sciences ... D.S
- Department of Biomedical Sciences ... D.S, D.T, D.UC
- Department of Veterinary Sciences ... D.T, D.U, D.UC, D.Ark
- Department of Pharmaceutical Sciences ... D.A, D.S, D.T
- Institute Born-Bunge ... D.T
- VIB - UAntwerp Center for Molecular Neurology ... D.V

Faculty of Medicine and Health Sciences
- Reception of Medicine and REVAKI ... D.M
- Dean's office ... D.S
- Antwerp Surgical Training, Anatomy and Research Centre (ASTARC) ... D.T
- Center for General Practice ... GKC
- Centre for the Prevention of Cancer ... D.R
- Collaborative Antwerp Psychiatric Research Institute (CAPRI) ... D.S
- Family Medicine and Population Health (FAMPOP) ... GKC
- Immunology ... D.T
- Laboratory Experimental Medecine & Pediatrics (LEMP) ... D.T
- Molecular - Morphology - Microscopy (MVISION) ... D.UC
- Molecular Imaging, Pathology, Radiotherapy & Oncology (MIPRO) ... D.T
- Center for Oncological Research (CORE) ... D.T
- Rehabilitation Sciences and Physiotherapy (REVAKI) ... D.R
- Translational Neurosciences (TNW) ... D.T
- VAXINFECTIO ... D.S
- Nursing and Midwifery Sciences ... D.R

Faculty of Science
- Department of Chemistry ... D.B
- Department of Biology ... D.C-D-O
- Department of Physics ... D.N
- Tutoring Sciences ... D.S

Faculty of Applied Engineering
- Applied Electrochemistry & Catalysis (ELCAT) ... D.B

Reception ... D.D
Classrooms ... D.A, B, D, M, N, O, Q, R, S
Laboratories ... D.A, Ark, B, C, M, O, S, T, TB, U
Aula Fernand Nédée/Promotiezaal ... D.Q
Campus Library ... D.R
Komida ... D.G
Cafetaria ... D.G
Student home ... D.Home

Department of Student services and advice ... D.G
- Social services ... D.G
- Stip (Student Information Point) ... D.G

Instituut Born Bunge ... D.T
Central store ... D.A
Technical services ... D.CN
CNO ... D.D
New Media Office ... D.D
Course services ... D.O

University of Antwerp

Meet the AMSC 2021 Organising Committee

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and Kristiaan Bogaerts
Presidents

Rida Boulakal, Judith Janssen
and Judith Klein
Secretaries

Roselien Breems
Treasurer

Ahlam Rozaine, Wajeya Majidi
and Wout Clarys
Logistics officers

Guillaume Carp, Ilayda Kalkan, Kosta Shkarpa and Nassma Elarbi
Workshops officers

Ophélie De Mol, Eva Wachtelaer, Sylvia De Vetter and Elise Goossens
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Graphic designer

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IT officer

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Head of clinical genetics at the Antwerp University Hospital (UZA)
Professor at University of Antwerp (UA)

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Department of Gastroenterology and Hepatology
Vice-Dean of the Faculty of Medicine and Health Sciences at University of Antwerp (UA)
Head of the skills lab and professor at University of Antwerp (UA)
President of Commission for Scientific research
Director of the Laboratory of Experimental Medicine and Pediatrics

Prof. dr. Guy Hubens
Head of Abdominal, Pediatric and Reconstructive Surgery Antwerp University Hospital (UZA)
Dean of the Faculty of Medicine and Health Sciences at University of Antwerp (UA)
Professor at University of Antwerp (UA)

Prof. dr. Patrick Cras
Head of Neurology Antwerp University Hospital (UZA)
Chairman of the Ethics committee, Antwerp University Hospital and University of Antwerp (UA)
Professor at University of Antwerp (UA)
Member of several committees of the High Council for Medicine (Hoge Gezondheidsraad) and the National Bioethics Committee (Raadgevend Comité voor Bioethiek)

Prof. dr. Philippe Jorens
Head of the intensive care unit at the Antwerp University Hospital (UZA)
Professor at University of Antwerp (UA)
Chairman of Medical Council

Dr. Annelies van Eyck
Post-doctoral researcher at University of Antwerp (UA)
Department Pediatrics

Dr. Hannah Ceuleers
Post-doctoral researcher at University of Antwerp (UA)
Department Gastroenterology and Hepatology

Dr. Kristien Ledeganck
Post-doctoral researcher at University of Antwerp (UA)
Translational Research in Immunology and Inflammation

Dr. Stijn Van Hees
Post-doctoral researcher at University of Antwerp (UA)
Department Gastroenterology and Hepatology
Department Translational Research in Immunology and Inflammation

Collaborators

We would like to thank the University Hospital of Antwerp (UZA), in particular for their support. In addition to financial support, there are so many doctors and professors who are committed to the AMSC by organising a lecture or workshop. We sincerely hope we can continue our cooperation in the future in order to provide the medical knowledge to international medical student. Without the UZA, we would not be able to organise this yearly event.

We are extremely grateful for the support that we have received from the University of Antwerp. Their staff members are always ready to help us with practical issues and we are excited to have some of our best professors speaking at the AMSC 2021.

EMSA Antwerp is the motherorganization of whom the AMSC is a project. Our team members are active members of EMSA and the first prizes in our research competition are sponsored by EMSA Antwerp. We are grateful for their support in the organization of this event.

We would like to express our thanks to CHIMES Antwerp. CHIMES aims to introduce medical students to surgery. This is achieved by teaching students surgical techniques during workshops and enriching their knowledge by offering them lectures. This wonderful organisation with enthusiastic medical students has helped us with achieving qualitative and educational workshops (suturing and anastomosis) during our congress.

Partners

18/03/2021 – 21/03/2021

Contact info:

Site www.aimsmeeting.org

Mail support@aimsmeeting.org

FB AIMS Meeting

9/12/2021 – 12/12/2021

Contact info:

Site http://cross.mef.hr/en

Mail anton.malbasic@mefhr.org

FB Cross-Croatian student Summit

12/05/2022 – 15/05/2022

Contact info:

Site https://icmsbg.org

Mail info@icmsbg.org

FB ICMS – International Congress of Medical Sciences

6/10/2021 - 10/10/2021

Contact info:

Site https://imedconference.org

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FB IMed Conference

Contact info:

Site
https://sntumsa.pl.ua/uk/imedscop2021

22/04/2021 – 24/04/2021

Contact info:

Site https://imsc.cm-uj.krakow.pl

Mail stn@cm-uj.krakow.pl

FB International Medical Students' Conference Cracow

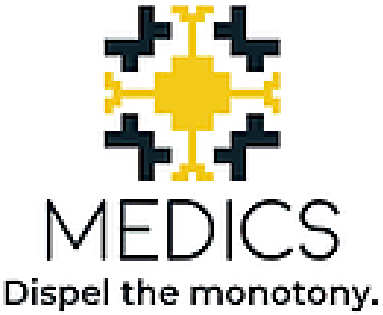
24/02/2022 – 27/02/2022

Contact info:

Site http://www.in4med.org

Mail http://in4med.nemaac.net/

FB In4Med



16/04/2021 – 18/04/2021

Contact info:

Site https://soms-medics.com

Mail contact@soms-medics.com

FB Medical International Conference for Students

28/03/2021 – 28/03/2021

Contact info:

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FB NEMUM

14/05/2021 – 16/05/2021

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FB Juvenes Pro Medicina

19/03/2021 – 20/03/2021

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8/06/2021 – 10/06/2021

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Site https://yesmeeting.org

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FB YESMeeting

Speakers

Prof. dr. Ann Van De Velde

Dendritic cell vaccination in the fight against cancer

Date: Tuesday, September 14th

Time: 09:15-10:30

Prof. Dr. Ann Van De Velde is Head of Clinic in Hematology at the University Hospital Antwerp (UZA). She focuses on Multiple Myeloma. She co-developed the Dendritic Cell Vaccination Program, a domain in which she obtained her PhD degree and where the UZA hematology department is one of the world leaders. She will provide a lecture about dendritic vaccination and how we can use it in our fight against cancer.

Prof. dr. Pierre Van Damme

Covid-19 Vaccines

Date: Wednesday, September 15th

Time: 10:45-12:15

Prof. dr. Pierre Van Damme is full professor at the University of Antwerp, Faculty of Medicine and Health Sciences. He chairs the Vaccine & Infectious Disease Institute (VAXINFECTIO). He will provide a lecture about covid-19 vaccines. In his lecture he will review the development of the Covid-19 vaccines, the safety and efficacy data, as well as real life effectiveness data, impact of transmission and the role of herd immunity.

Dr. Dina De Bock

Innovative Procedure in Cardiac Surgery: NeoChord Technology

Date: Wednesday, September 15th

Time: 13:45-14:45

Dr. De Bock is specialized in cardiac surgery and she is currently working in the hospital UZA – Universitair Ziekenhuis Antwerpen. She also contributes to numerous publications.

During her lecture she will explain everything about the NeoChord-Technology, this is a minimally invasive procedure that is performed in UZA to treat a leaking mitral valve. She pioneered with this kind of heart operation. This groundbreaking technique makes mitral valve repair less invasive.

Let your knowledge be enriched by this interesting lecture!

Prof. dr. Lode Godderis

Burn-out

Date: Thursday, September 16th

Time: 09:00-10:30

Prof. dr. Lode Godderis is a professor at the Centre for Environment and Health of the University of Leuven. He investigates the impact of work on health in workers by unraveling the underlying mechanism and also the reverse how health can affect work (dis)ability.

In his lecture he will be talking about the prevalence, causes and prevention of burn-outs among medical students and trainees.

Prof. dr. Pieter Van Dyck

From biology to MR imaging and Pathology

Date: Thursday, September 16th

Time: 10:45-12:15

Prof. dr. Pieter Van Dyck is a senior staff member at the department of radiology at the Antwerp University Hospital. He is specialized in Musculoskeletal imaging and clinical research in the field of advanced MRI techniques.

During his lecture he will explain which tissue components drive MRI contrasts and how to interpret them for diagnosing various pathologic processes.

Dr. Annemiek Snoeckx

How Radiology Helps to Find and Fight Lung Cancer

Date: Thursday, September 16th

Time: 10:45-12:15

Dr. Annemiek Snoeckx is a senior staff member at the department of radiology at the Antwerp University Hospital. Her main field of interest is chest imaging, with a focus on thoracic oncology imaging in general, pulmonary nodules, and lung cancer screening.

During her lecture she will tell us more about the importance of Imaging in the diagnosis, staging and management of lung cancer patients.

Prof. Richard Kock (Royal Veterinary College of University of London, UK)

The One Health Approach: what chances of One Health transforming broken health systems?

Date: Friday, September 17th

Time: 9:00-9:30

Prof. Benoit Nemery (KU Leuven)

Particulate matter: a borderless problem

Date: Friday, September 17th

Time: 9:30-10:00

Prof. Didier Cataldo (pneumology, University of Liège)

Environmental respiratory health and disease

Date: Friday, September 17th

Time: 10:00-10:30

Dr. Steven Jillings

Effects of Space Travel on the Human Brain and Vestibular System

Date: Friday, September 17th

Time: 10:45-12:15

Dr. Steven Jillings, a postdoctoral researcher at our University of Antwerp, studied biomedical sciences and received a master's degree in Neuroscience. Together with a team of UA professor Floris Wuyts, he started a PhD with the topic "the effect of space travel on brain structure and function". Currently, he continues research in this same field as a postdoc and together with prof. Wuyts he is involved in several international collaborations on brain research in astronauts. During this lecture, dr. Jillings will explain the effects that space has on an astronauts' brain and vestibular system!

Abstracts

Oral presentations

THE ROLE OF TELEMEDICINE IN TREATING COVID-19 INFECTION

Presenter: Ilia Mihaylov
Authors: Ilia Mihaylov, Nenad Conevski, Sabrina Amiry, Georgi Baitchev, Ivan Malkodanski

Due to the world-wide pandemic of Covid-19, a different approach for treatment has taken root – the telemedical approach. By definition telemedicine is the practice of consulting a patient via a video-conference or other way of long-distance communication with both parties not physically present with each other.

For this research we retrospectively collected the data of 197 patients consulted via online-consultations for Covid-19 symptoms between November 15th 2020 and January 12th 2021 by St Marine University Hospital, Pleven, Bulgaria. The patients were consulted for their Covid-19 symptoms and their respective correlation with other chronic diseases they were previously diagnosed with. For the purpose of this study the PCR (polymerase chain reaction) test, the SaO_2 (arterial oxygen saturation), the symptoms, the comorbidity, the prescribed therapy and the outcome of the treatment were taken into account. Any patient with SaO_2<90% was admitted for hospital treatment as according to the present day guidelines and therefore not included in the study.

After careful evaluation a total of 100 patients were included in the study. 100% of the patients displayed fever(37,1-38,5^{o}C) and 28 displayed cough. 45 of the patients had SaO_2 between 90% and 93% and 55 between 94% and 97%. 13 were previously diagnosed with arterial hypertension, 7 with diabetes mellitus, 4 with gastric ulcer, 3 with gastritis and only 2 with asthma. A combination of azithromycin, aspirin, vitamin D and pantoprazole was prescribed to 55 patients. In 20 cases the therapy included levofloxacin, azithromycin, fraxiparine, vitamine D, pantoprazole and Medrol. For 14 patients the fraxiparine was substituted with trombex and in 9 with a combination of aspirin and Nataspin H. 89 patients achieved recovery from the disease, 10 were admitted for hospital treatment and 1 passed away from complications.

The telemedical consultations present an option for self-aware and safe treatment of Covid-19.

Selective Salpingography With Tubal Catheterization as a method of Proximal Tubal Obstruction treatment.

Presenter: Marcin Czeczelewski
Authors: Marcin Czeczelewski, Krzysztof Pyra, Maciej Szmygin Abstract:

Purpose: Evaluation of the efficacy of selective salpingography (SSG) with additional tubal catheterization (TC) among infertile patients diagnosed with proximal tubal occlusion and analysis of reproductive outcome.

Materials and Methods: The prospective, single-center study between January 2012 and January 2019 included 248 women (age 34.4 ± 4.7 years) without any patent tube diagnosed. SSG was performed with the 5 F Kumpe catheter directed to the proximal tubal opening by tactile sensation. Its position was controlled under fluoroscopy and if correct, a contrast medium was injected to assess the patency and attempt to unblock the tube. In case of persistent obstruction, the radiologically guided tubal catheterization and guidewire recanalization was performed. Reproductive outcomes at minimum of 12 months following the treatment were collected by a telephone survey in patients with at least one patent tube.

Results: Of a total of 399 tubes with confirmed proximal tubal occlusion, 383 successfully restored their patency resulting in a 96% technical success rate. Thirty-five percent of occluded oviducts were treated with SSG and 65% required additional TC. Out of 200 patients included in follow-up, 80 patients conceived which resulted in a 40% overall pregnancy rate.

I n this group 68 women conceived spontaneously (85 %) and 12 after controlled ovarian hyperstimulation (15 %).

Conclusion: Selective salpingography and tubal canalization offer minimally invasive and cost-effective alternatives to tubal microsurgery and IVF-ET in women with tubal occlusion with a high technical success rate and promising clinical results. However, careful assessment of fallopian tubes and comprehensive evaluation of partners' reproductive situation prior to therapy are an absolute requirement.

Analysis of orbital tumors' symptoms in patients of the University Hospital Otolaryngology Clinic in Kraków in years 2019-2020

Presenter: Iga Grabarczyk
Authors: Iga Grabarczyk, Damian Sroka, Jakub Strojek, Kamil Wilk

Introduction
The frequency of orbital tumors is 1/100 000 per year, which is 1% of tumors in general. Orbital tumors are characterized by a wide range of histopathological types due to their complex development. The aim of the study was to denote the frequency of benign and malignant orbital tu¬mors occurrence in patients of the Otolaryngology Clinical Department of the University Hospital in Kraków as well as to analyze the clinical symptoms and location in the orbit.

Materials and methods
The study was a retrospective analysis of medical records of 90 patients (55 women, 35 men) aged from 20 to 86, who had orbital tumor surgery in years 2019-2020. A special concern was put on data regarding age, sex, location, histological type, performed diagnostic methods, symptoms and tumor recurrence.

Results
The median age of patients was 56,5 with interquartile range 23. More women than men were diagnosed with orbital tumor [n=55 (61,11%) vs n=35 (38,89%), p<0,05]. The lesion was more often set in right orbital cavity [n=52 (57,78%)]. The most frequent location of tumor was the upper outer quadrant of orbit [n=32]. In the study benign tumors outweighted malignant ones [n=19 (21,11%) vs n=71 (78,89%) p<0,05] and the most common type of lesions were haemangiomas. Another frequent ones were lymphomas and cysts. An infiltration of surrounding structures was found in 32 patients (35,6%), most frequently in muscles [n=19 (59,38%)]. The most mentioned symptoms were exophthalmus [n=45 (50%)], diplopia [n=37 (41,1%)] and blurred vision [n=29 (32,2%)]. There were statistically significant differences between symptoms reported by men and women.

Conclusions
Women suffered from orbital tumors more often than men. There was a significant histological variety of orbital tumors, but most of them were benign. Haemangiomas were the most common type of orbital tumor, while the most frequent symptoms were exophthalmos, diplopia and blurred vision.

Incidence and mortality trends of laryngeal cancer among Polish population - a registry based study in Poland (1980-2018)

Presenter: Iga Grabarczyk
Authors: Iga Grabarczyk, Damian Sroka, Jakub Strojek, Kamil Wilk

Introduction
Laryngeal cancer is second most common malignant neoplasm of respiratory tract and second most popular malignant neoplasm of head and neck. It is often caused by chronic exposure to cigarette smoke and alcohol. Aim of the study was to analyze the incidence, mortality rates and trends of laryngeal cancer among Polish population.

Material & methods
The data was collected from Polish National Cancer Registry. Age standardized rates of laryngeal cancer incidence and mortality were obtained by direct standardization. We applied joinpoint regression to present the trends using average annual percentage change (AAPC) and annual percentage change (APC) to estimate trends in different age from 0-4 up to 85. There is no data from 1981, 1984, 1986, 1987, 1997 and 1998.

Results
From 1980 to 2018 (with exceptions) there were 82182 laryngeal malignancies diagnosed in Poland. Among Polish women in years 1980-1994 trends of incidence and mortality significantly increased (APC: 4.14 / APC: 3.02 respectively). In this group in years 1994-1999 both trends spectacularly decreased (APC: -6.79 / APC: -7.8 respectively), and in years 1999-2018 those trends mitigated but were still decreasing (APC: -1.53 / APC: - 0.92 respectively). Among Polish men population there was a significant increase in laryngeal cancer incidence trends in years 1980-1995 (APC: 1.51), afterwards this trend significantly decreased since 1995 (1995-2000 APC: -6.64, 2000-2018 APC: -3.18). In male group there was a significant increase in mortality trends from 1980 to 1992 (APC: 2.43) and since 1992 a significant decrease (APC: -2.98).

Conclusions
Diminishing incidence and mortality rate observed since about 1994 may be related to the antinicotinic campaign in Poland which started in the 90's. Lesser number of incidences can be caused by reduced exposure to carcinogenic substances contained in cigarette smoke, which is associated with declining cigarette consumption in Poland.

The relationship between cigarette smoking and chronic spontaneous urticaria

Presenters: Weronika Chodak, Gleba Oktawia
Authors: Weronika Chodak, Czyczerska Magdalena, Garbino Karolina, Gleba Oktawia, Śnietka Bartosz

Introduction

Chronic spontaneous urticaria (CSU) is defined as the occurrence of itchy wheals and/or angioedema for at least 6 weeks. The prevalence of CSU is 0.5-5% and female-to-male ratio is 2:1. Etiopathogenesis is complex, with inflammation as one of the most important factors. Cigarette smoking is one of the world's major addictions. The average percentage of smokers in Poland is 26%. The literature indicates the possible protective effect of smoking on CSU development. We hypothesized that there should be a lower percentage of smokers in CSU patients.

Aim
To assess the prevalence of smoking in CSU-patients and to check for differences in laboratory tests.

Methods
Data from 68 adult patients (52 females, 16 males) admitted to the University Hospital in Opole (2018-2021) diagnosed with CSU was collected and group was divided concerning sex and smoking. We used U Manna-Whitney test (Statistica ver.13).

Results
Smokers accounted for 26.5%. No statistical difference was found between smokers and non-smokers regarding level of CRP, neutrophils (NE), lymphocytes (LYM) or neutrophil-lymphocyte ratio (NLR). In the female group (regardless of smoking) in relation to male there were significantly different ($p<0,05$) levels of NE (mean: 6,28 vs. 6,06), LYM (6 vs. 1,66) and NLR (4,13 vs. 4,11). In the group of non-smokers, females had significantly different levels of LYM (7,07 vs. 1,55) and NLR (4,81 vs. 4,22), while in group of smokers of NE (4,36 vs. 6,32) and NLR (1,92 vs. 3,92).

Conclusions
The prevalence of cigarette smoking in CSU patients is the same as in the general population.

Significant differences in NE, LYM and NLR between males and females need further investigation and might support the concept of inflammation as an important factor in CSU pathogenesis.

MORPHOMETRIC ANALYSIS OF THE LUMBAR VERTEBRAE AND INTERVERTEBRAL DISCS IN RELATION TO ABDOMINAL AORTA: CT-BASED STUDY

Presenter: Maciej Frączek
Authors: Maciej Frączek, Anna Kot, Jarosław Polak, Tomasz Klepinowski, Roger Krzyżewski, Anna Grochowska, Tadeusz Popiela, Borys Kwinta

Introduction: Although lumbar discectomy is the most common procedure in spine surgery, reports about anatomical relations between discs and prevertebral vessels are limited. The primary aim of this research was to investigate morphometric of the lumbar region and the relations between intervertebral discs (IVDs) and abdominal aorta, as this is the largest vessel in the nearest proximity during a posterior approach to the lumbar disc space.

Materials and Methods: We evaluated 585 consecutive abdominal computed tomography scans focusing on IVDs, vertebrae, and distances between aorta and spinal column from Th12/L1 down to L4/L5. Measurements were taken using RadiAnt DICOM Viewer 3.4.2 software.

Results: The study group showed a predominance of males (54.58% vs. 45.42%). There was a significant difference in arterial-disc distances (ADDs) between genders at the levels: L1/L2 (1.32±1.97mm vs. 0.96±1.78mm; p=0.0194), L2/L3 (1.97±2.16mm vs. 1.15±2.01mm; p<0.0001), L3/L4 (2.54±2.78 mm vs. 1.71±2.61mm; p=0.0012), also for both common iliac arteries (CIAs) (left CIA: 3.64±3.63 mm vs. 2.6±3.06 mm; p=0.0004 and right CIA: 7.96±5.06 mm vs. 5.8±4.57mm; p<0.001) - those ADDs were higher in men at all levels.

The length and width of IVD increased alongside with disc level with the maximum at L4/L5. The course of the aorta was identified at all levels (93,14% at Th12/L1 and lower margin of L1 to 55.45% at L4/L5).

Conclusion: Bifurcations of the aorta in the majority of cases occurred at the L4 level. Collected data suggest that at the highest lumbar levels there is a greater possibility to cause injury of the aorta due to its close anatomical relationship with discs. Females have limited, in comparison to males, ADD at L1/L2, L2/L3, and L3/L4 levels what should be taken into consideration during preoperative planning of surgical intervention. Further studies including the weight and height of the patients should be performed.

HOW TO SAVE RADIOLOGIST TIME? – AUTOMATE IT! NEURAL NETWORK MULTIPLE SCLEROSIS MAGNETIC RESONANCE IMAGING RECOGNIZING SOFTWARE – PILOT STUDY

Presenter: Małgorzata Czuba
Authors: Małgorzata Czuba, Maciej Frączek, Dominika Wilczyńska, Patrycja Harmacińska, Aleksey Bulenok, Adam Adamowski

Introduction:
Multiple sclerosis (MS) is a disease that diagnosis requires magnetic resonance imaging (MRI). Images are assessed by radiologists in accordance with McDonald's MS criteria, which require extensive, time-consuming assessment of MRI. In addition, in MS patients radiologists must distinguish between new and old lesions to check the effectiveness of treatment. Help of applications that shorten time needed on every patient imaging assessment might be useful. The aim of the project is to develop an application facilitating SM diagnosis and treatment control by radiologists.

Materials and Methods:
We obtained 300 MRI images of patients with diagnosis of MS in different stages, and 200 MRI images without any abnormalities. As it comes to MS-recognizing software: the first iteration is going to rely on a graphical analysis-based algorithm, designed to detect and mark MS caused changes on MRI brain images. Later, we want to investigate the potential of employing a neural network to perform the analysis and make the diagnosis. Our neural network will focus on recognizing relationships between vast amounts of data, in this case, its main purpose is to distinguish between brains with MS symptoms and those without.

Results:
Program was created and it managed to learn to distinguish MRIs with present MS changes and images without MS. Our neural network managed to reach accuracy of 95% in diagnosis of MS images. It can also recognize diffuse changes. We also managed to prepare it to calculate number of MS changes in each image. Larger analysis and software optimization is required to design next developments to our program and is our next step we are working on.

Conclusions:
Neural network applications might be useful in facilitating MS imaging assessment. Usage of such may reduce time spent on each patient while developing high accuracy of diagnosis.

Amantadine inhibits melanoma cell growth – in vitro study.

Presenter: Danuta Krasowska
Authors: Danuta Krasowska, Agnieszka Gerkowicz, Paula Wróblewska-Łuczka, Jarogniew J. Łuszczki

Melanoma (malignant melanoma, MM) is the most malignant skin cancer, characterized by a dynamic growth and high mortality. Recent studies indicate a higher incidence of MM in patients with Parkinson disease. It was noted that in this group, melanoma is less likely to metastasize and has a better prognosis compared to people without the disease. It cannot be ruled out that the milder course of melanoma results from the drugs used, of which amantadine deserves special attention.

The mechanism of action of amantadine includes non-competitive N-methyl-D-aspartate (NMDA) receptor antagonism, increased dopamine release, decreased dopamine reuptake, mild anticholinergic effects and a D2 agonist. NMDA receptor complexes composed of NR1-NR3B subunits are present in the nucleus of melanoma cells. This may indicate a novel malignancy-related histopathology in melanoma cells and suggest the possibility of a glycine-dependent NMDA-associated Ca2+ nuclear signaling pathway in these cells. It has been suggested that blocking ionotropic glutamate receptors could be a new therapeutic option in melanomaThe aim of the study was to evaluate the dose-dependent cytotoxicity of amantadine in the MTT test on primary and metastatic melanoma cell lines compared to the keratinocyte cells. The MTT test is currently the most widely used to evaluate cytotoxic performance of the cells and recommended as reference.

Primary (FM55P) and metastatic (FM55M2) malignant melanoma cell lines were purchased from European Collection of Cell Cultures (ECACC) and used in the experiment. Cell viability was assessed after 72 hours by means of MTT method in which the yellow tetrazolium salt (MTT) is metabolized by viable cells to purple formazan crystals. Formazan crystals were solubilized overnight in sodium dodecyl sulfate buffer (10% SDS in 0.01N HCl) and the product was determined spectrophotometrically by measuring absorbance at 570 nm wavelength using microplate spectrophotometer (Ledetect 96, Labexim, Germany). Each treatment was performed in triplicate and each experiment was repeated 3 times.

The measure of the cytotoxic activity of amantadine was expressed as its median inhibitory concentration (IC50 value). The value indicate 50% cell growth inhibitory concentration as compared to the control. The calculated IC50 for primary melanoma cell line (FM55P) was 40.18 ± 12.26 μg/ml and 69.46 ± 18.01 μg/ml for metastatic cell line (FM55M2), respectively.

The obtained results indicated the anti-cancer effect of amantadine. The MTT-assay showed that amantadine has low cytotoxicity and inhibits the proliferation of melanoma cells in both, primary and metastatic cell lines. This may explain the hypothesis why patients with Parkinson disease treated with amantadine have a lower risk of melanoma metastasis.

Superficial dermatomycoses- an analysis of diagnostic tests' results in Dermatology Outpatient Clinic in Cracow (2017-2019)

Presenter: Damian Sroka
Authors: Damian Sroka, Iga Grabarczyk

Introduction: Superficial dermatomycosis is a significant ailment worldwide. Its epidemiology is changing over the time and due to increasing frequency must be watchfully observed. We aimed to analyze the frequency, clinical and pathological features of superficial mycoses among patients in the outpatient clinic.

Material and methods: The study was a retrospective analysis of 3598 patients of Laboratory of Mycology and Cytology of Daniela Sitko in Cracow. The research includes incidence of fungal infections of the skin regarding to age, sex, location and etiological factors as well as frequency of readmission of patients to the clinic.

Results: The median age of patients was 42 with interquartile range 29. More women than men were diagnosed with dermatomycosis [n=2272 (63,15%) vs n= 1326 (36,85%)]. The most frequent etiological factor found in the study was Trichophyton Rubrum (n=714; 56,94%). The second most common pathogen was Candida albicans (n=283; 22,57%). Toe and hand nails were the most frequent site of mycotic infection (n=557; 45,73% and n=216; 17,65% respectively). The third most common localization was the skin of the feet (n=203; 16,67%). 768 patients (21,35%) were diagnosed with dermatomycosis in at least 2 parts of the body.

Conclusions: Trichophyton rubrum is the most common pathogen causing superficial mycotic infection, while toe and hand nails remain the most frequent localization of these lesions. Dermatomycoses are more prevalent among women than men. It should be highlighted that dermatomycosis is quite often diagnosed in at least 2 parts of the body.

Role of Rev-Erb-alpha and NPAS2 overexpression in DM2 development among obstructive sleep apnea patient.

Presenter: Szymon Turkiewicz
Authors: Szymon Turkiewicz, Filip Franciszek Karuga, Marta Ditmer

ROLE OF REV-ERB-ALPHA AND NPAS2 OVEREXPRESSION IN DM2 DEVELOPMENT AMONG OBSTRUCTIVE SLEEP APNEA PATIENTS.

Introduction: Obstructive sleep apnea syndrome (OSA) is a chronic condition characterized by recurrent pauses in breathing during sleep (e.g. apneas), which lead to intermittent hypoxia, hypercapnia, arousals and sleep fragmentation. The complications of OSA are including cardiovascular diseases, diabetes mellitus type 2 (DM2) and circadian rhythm disruption. Circadian clocks are endogenous coordinators of 24-hour rhythm of behavioral and molecular processes in mammals. Master clock modulating circadian rhythm is composed of set of genes, including Neuronal PAS Domain Protein 2 (NPAS2) and orphan nuclear receptor Rev-Erb-alpha. There are studies suggesting significant influence of circadian disruption mediated via NPAS2 and Rev-Erb α on DM2 development.

Material and methods: Based on polysomnography and clinical data the recruited patients (n=40) were assigned to one from 3 groups: group 1 (severe OSA, no DM2; n=17), group 2 (severe OSA + DM2; n=7) and control group (no OSA, no DM2; n=16). Serum protein levels of Rev-Erb-α and NPAS2 were assessed with ELISA.

Results: The mean serum protein level was: Rev-Erb-alpha 240.93 (±73.46), 271.31 (±89.66) and 272.04 (±92.81) pg/ml for group 1, group 2 and control group respectively; NPAS2: 117.07 (±55.29), 198.28 (±259.83) and 186.22 (±166.31) pg/ml for group 1, group 2 and control group respectively. Analysis between the groups revealed the statistically significant difference between groups only in case of NPAS2 ($p=0.037$, Kruskal Wallis Test), further post-hoc analysis revealed significant differences between group 1 and control group ($p=0.017$, U Mann-Whitney test). Moreover, the statistically significant correlation between apnea-hypopnea index during REM and NPAS2 serum protein level was observed ($r= -0.478$, $p=0.002$).

Conclusions: Serum NPAS2 levels are associated with number of apnea and hypopneas during REM phase of sleep and might have a significant role in the development of OSA and its complications.

Volumetric secrets of brain in pediatric patients with epilepsy.

Presenter: Katarzyna Drelich
Authors: Katarzyna Drelich, Monika Zbroja, Weronika Cyranka, Ewa Kopyto, Małgorzata Matuszek, Olga Pustelniak, Andrzej Materniak, Magdalena Woźniak,

Background and Aims:
Epilepsy is a disease of the central nervous system in which the brain ceases sending electrical signals. This causes temporary problems with communication between nerve cells, resulting in epileptic seizures occur. Published articles have focused so far on evaluating changes in adult patients. The aim of the study was to evaluate anatomic structures' volume of the brain in pediatric patients with epilepsy.

Methods:
A group of 42 pediatric patients with clinical symptoms of epilepsy (study group - S) and 16 healthy patients (controlled group - C) aged 3 months-17 years were enrolled in the study. Brain MR imaging was performed in all children according to a dedicated protocol (epilepsy specific protocol). Individual anatomical structures of the central nervous system were analyzed on the basis of T1-wieghted 3D isometric 1 mm sequence and volume changes of specific structures were compared between the epilepsy group and the control group. Moreover, statistical analysis was conducted with the usage of Mann-Whitney's test due to the absence of normal distribution ($p<0,05$).

Results:
The difference between group S and C was statistically significant for the volume of CSF, brain, lateral ventricle, putamen and thalamus. A Mann-Whitney test indicated that volume of CSF was significantly greater for S (Mdn=0,1) than for C (Mdn= 0,081), U= 201,00, p= 0,019. The same was with the volume of lateral ventricle, where S (Mdn=0,009), C (Mdn=0,004), U= 125,00, p= 0,000. A Mann-Whitney test indicated that volume of brain was significantly smaller for S (Mdn=0,006), than for C (Mdn=0,007), U= 201,00, p= 0,019. It was similar with volume of putamen - S (Mdn=0,9), C (Mdn=0,919), U= 212,00, p= 0,032 and thalamus - S (Mdn=0,008), C (Mdn=0,009), U= 174,50, p= 0,005. Other structures such as cerebrum, cerebellum, brainstem, caudate, globus pallidus, hippocampus and accumbens also decreased in volume, however the difference between groups was not statistically significant.

Conclusion:
During the course of epilepsy in pediatric patients, there is a decrease in the volume of brain tissue, with particular emphasis on putamen and thalamus. Moreover there is an increase in the volume of CSF and lateral ventricles. The study indicates cortical and subcortical atrophy in pediatric patients with epilepsy. The data obtained have important clinical and prognostic significance, however they need to be confirmed also with taking into account changes in the volume of anatomical structures of the brain in relation to age and disease duration.

How Polish students adapt to the changes associated with the COVID-19 pandemic? – a comparison of the well-being of students during the outbreak and after one year of the pandemic.

Presenter: Kaja Karakula
Authors: Kaja Karakula, Alicja Forma, Elżbieta Sitarz, Jacek Baj, Dariusz Juchnowicz, Andrzej Krajka, Hanna Karakuła-Juchnowicz

Introduction:

The COVID-19 pandemic has become a significant stressor that has affected all groups in society. It was observed that students constitute a group that is the most vulnerable to the impairments of mental health due to the pandemic-associated changes in the world. In this work, we aimed to compare the mental well-being of students just after the pandemic outbreak in Poland and after one year of its duration with an emphasis on depression, anxiety, and stress levels in particular.

Materials and methods: We conducted two anonymous online cross-sectional surveys that were distributed amongst Polish students from medical, technical, arts and humanities, science, and social science universities in Poland. The first survey was conducted on 20th-26th April 2020 (6 weeks after lockdown announcement) while the other on 12th April – 1st June 2021. In order to further evaluate the depression, anxiety, and stress levels, we have used the Depression, Anxiety, and Stress Scale-21 (DASS-21).

Results: We have collected 2172 (F=1585, M=587) and 1202 (F=941, M=261) responses in 2020 and 2021 respectively. The mean age of the sample was 22.13 (in 2020) and 22.46 (in 2021). Compared to 2020, in 2021 an increase in the severity of emotional distress was observed - DASS total score: 38.13 ± 26.51 vs 44.55 ± 30.56 ($p<0.0001$); depression subscale: 14.04 ± 10.44 vs 15.41 ± 12.2 ($p<0.0001$); anxiety subscale: 7.71 ± 8.29 vs 10.72 ± 9.83 ($p<0.0001$); stress subscale: 16.93 ± 10.98 vs 18.42 ± 11.75 ($p<0.0001$).

Conclusion: The prolonged duration of the pandemic has a very negative impact on the emotional functioning of Polish students observed as increased depression, anxiety, and stress levels. The monitoring of the mental health status amongst students as well as taking specific interventions to prevent its deterioration seems to be significantly relevant.

Catheter-directed interventions reduce hospitalization time in patients with intermediate-high risk pulmonary embolism

Presenter: Michal Surdachi
Authors: Michal Surdachi, Tutors: Jakub Stepniewski MD. PhD; Grzegorz Kopeć Professor, MD, PhD

Catheter-directed interventions reduce hospitalization time in patients with intermediate-high risk pulmonary embolism

Introduction:

Catheter-directed reperfusion interventions (CDT) has been shown to facilitate early recovery of the right ventricular function in patients with intermediate-high risk pulmonary embolism (IHR PE) as compared to anticoagulation (A/C) alone. However, their impact on clinical outcomes remains unclear. To investigate the effects of CDT on the length of hospital stay (LOS) in IHR PE patients compared to A/C alone.

Materials and methods:

We reviewed electronic medical records of all IHR PE patients treated in our centre between January 2018 and May 2021. We analyzed the treatment strategy and the number of hospitalization days in every patient. Patients treated with systemic thrombolysis (ST) as their primary initial therapy were excluded from the analysis.

Results:

Seventy-seven patients were included in the study. There were 6 patients treated primarily with ST, and thus not included. The CDT was used in 25 (32.5%) patients. 75 patients survived until hospital discharge. There were 2 in hospital deaths among patients treated by A/C. Among CDT group no in- hospital deaths occurred.

The mean number of hospitalization days was 7,9 [95% CI: 6,6- 9,3] in patients treated with the CDT and 11,8 [95% CI: 8,8- 14,8] (p=0,021) in those treated with the A/C alone.

Conclusions:

In comparison to standard anticoagulation, catheter-directed intervention reduces hospitalization time in patients with IHR PE.

Characteristics of symptomatic and asymptomatic patients with hypertrophic cardiomyopathy – similarities and differences.

Presenter: Aleksandra Budkiewiez
Authors: Aleksandra Budkiewiez, Aleksandra Karabinowska-Małocha MD, Paweł Rubiś, MD, PhD

Introduction:

Hypertrophic cardiomyopathy (HCM) is an inherited heart disease characterized by left ventricular (LV) hypertrophy. Although many patients are asymptomatic, some of them report limitation on everyday activity. Our aim was to compare characteristics of symptomatic and asymptomatic HCM patients.

Materials and methods:

We included 268 HCM patients, 151 (56%) of men, mean age 55,5 ± 14,7. Age, sex, dimensions of left atrium and LV, ejection fraction, LV maximal wall thickness (MWT), NT-proBNP plasma level, estimated 5-year risk of sudden cardiac death (SCD) and presence of hypertension, diabetes and atrial fibrillation were compared between the two groups: (1) with no symptoms and no limitation in ordinary physical activity- NYHA I (108; 40,3% patients) and (2) with some symptoms of heart failure (HF) - NYHA II-IV, (160; 59,7% patients). The data were collected retrospectively from medical records.

Results:

The dimensions of left atrium and LV, ejection fraction, MWT, hypertension, diabetes and estimated 5-year risk of SCD did not differ between groups. The symptomatic group was older (52,21 ± 15,57 years vs 57,78 ± 13,63 years, p=0,00495), more often female (75; 69,4% vs 76; 47,5%; p=0,0004), with higher NT-proBNP level (947,67pg/mL ± 1453,95 vs 2169,39pg/mL ± 3917,85, p=0,0016) and more often with atrial fibrillation (15; 13,9% vs 39; 24,4%; p=0,036) than the asymptomatic group.

Conclusion:

Almost 60% of HCM patients experience some level of HF symptoms. Patients with HCM who suffer from HF symptoms tend to be older and more often female, with higher NT-proBNP values. They also more often present atrial fibrillation. However, symptomatic and asymptomatic HCM patients do not differ significantly in basic echocardiographic parameters as well as in estimated 5-year risk of SCD. NT-proBNP level correlates better with HF symptoms than LV dimensions among HCM patients.

microRNA profile alterations after endurance training: An ultramarathon study

Presenter: Mikolaj Marszalek

Authors: Mikolaj Marszalek, Jenny E. Simon, Zofia Wicik, Alex Fitas, Marta Wolska, Anna Nowak, Pamela Czajka, Salvatore De Rosa, Marek Postula, Lukasz A. Malek, Ceren Eyileten

Characterised by prolonged, highly dynamic exercise that is low-to-high power in nature, endurance training has proven beneficial in CV disease prevention. Several miRNAs have been reported to be regulated in response to exercise in healthy humans. Our aim was to determine the miRNA expression changes before and after an ultramarathon run in elite runners.

We performed two bioinformatic analyses - tissue-specific and CV process-specific - to select the miRNAs of interest of this study. The multiMiR 1.4R package was used to identify miRNAs targets and a screening of the gene ontology (GO) terms with the biomaRt interface was used to identify genes associated with our processes of interest (angiogenesis, cardiac muscle function, muscle hypertrophy, coagulation, inflammation, and fibrosis). Cardiac tissue-specific targets were identified with the Tissue2.0 database using an expression confidence score>2. Gene-gene interaction data for Cytoscape and biological processes, reactome and KEGG pathways were retrieved from the STRING app. Based on our in silico prediction MiR-1-3p, -126, -223, -125a-5p, -106a, -15a/b were chosen for qRT-PCR validation.

Total RNA was extracted from plasma, quality was assessed by fluorometric assay. qRT-PCR was performed. The Wilcoxon test was used for paired comparison - before vs after ultramarathon running - and Spearman's Correlation was used for database analysis of miRNA expressions, $p<0.05$.

MiR-1-3p, -126, miR-223, -125a-5p, -106a, and -15a/b expressions were measured in 22 endurance athletes before and after an ultramarathon wherein athletes ran to completion (100km) or exhaustion (52 - 91km, median 74km). Expressions of miR-125a-5p, -126, -223 were significantly increased post-run ($p=0.018$; $p=0.001$; $p=0.014$, respectively), whereas miR-15b was significantly decreased ($p=0.028$). MiRNA-1-3p expression post-run showed negative correlation with hsCRP levels post-run ($r= -0.631$, $p=0.005$). No significant difference was observed for miR-1-3p and miR-15a, while miR-106a was not detectable in the circulating plasma. MiR-125a-5p expression post-run showed negative correlation with mac lactate levels during run ($r= -0.759$, $p=0.004$).

Extreme physical activity may have an impact on the expression alterations of miRNAs associated with inflammation, fibrosis, and cardiac muscle function. Further studies are essential to explain the long-term effect of these observations.

Urinary bladder distension presented at autopsy as an indicator of alcohol intoxication

Presenter: Mateusz Wylaź
Authors: Mateusz Wylaź, Gabriela Kanclerz to MD. PhD. Tomasz Konopka, Gabriela Kanclerz, Jakub Strojek, Edyta Kowina

Title: Urinary bladder distension presented at autopsy as an indicator of alcohol intoxication

Introduction: Generally, urinary bladder distension is often regarded as a sign of high blood alcohol concentration (BAC) and intoxication at autopsy. Interestingly there is very little literature available on this subject. Therefore, the author decided to elaborate on this issue based on data set of over several thousand cases from the autopsy books.

Materials and methods: 3735 cases from the autopsy books were analyzed and collected the data comprised of the volume of urine in the bladder and concentration of ethyl alcohol in blood if one or both of the following states were true: if the volume of urine was equal or bigger than 150 ml or concentration of ethanol was 0,2 or more per mille. Finally, 1256 cases met mentioned criteria. Statistical analysis of these cases was carried out in the Statistica 13.3.

Results: Concentration of alcohol and volume of urine in the bladder are directly proportional. On average, for each per mille of alcohol (level of alcohol concentration at levels of 0,2; 1; 2; 3 and 4 per mille) there is an increase in the volume of urine at about 35,5ml. If we consider cases with volume under 150ml, the percentage of cases with concentration of alcohol above 0,5 per mille, which is legally the definition of the state of intoxication, there is far lower than in other cases.

Conclusion: Urinary bladder distension correlates with blood alcohol concentration (BAC). Therefore, the large volume of urine in the bladder of the cadaver can raise suspicion about high blood alcohol concentration (BAC).

Impact of preoperative microbiota on outcomes of laparoscopic Roux-en-Y gastric bypass – a pilot study

Presenter: Maciej Zajac
Authors: Maciej Zajac, Tomasz Stefura, Piotr Major

Background information: In recent years the composition of gut microbiome has been linked to development of several diseases. The goal of the following study was to establish whether it is connected to the outcome of bariatric surgery.

Objectives: We aimed to analyse using oral swabs and stool samples the microbiota of patients with morbid obesity who were undergoing laparoscopic sleeve gastrectomy (SG).

Objectives: To analyse the oral and gut microbiota with the use of oral swabs and stool samples of patients suffering from morbid obesity who underwent laparoscopic Roux-en-Y gastric bypass (LRYGB).

Setting: A university hospital in Poland.

Methods: The following is a prospective cohort study that was conducted between November 2018 and June 2019. Participants underwent LRYGB surgery. Patients then were assigned to group 1- success (surgical participants who achieved a percentage of excess weight loss [%EWL] >50%), group 2 (surgical participants who achieved a %EWL <50%). The follow up to establish the %EWL was conducted 6 months after the surgery. Before surgery, oral swabs were obtained, and stool samples were provided. The endpoint was the composition of the gut microbiota.

Results: Group 1 consisted of 4 participants; group 2 consisted of 2 participants. No participants were lost to follow-up during the study. Participants in group 1 had an oral microbiota that was enriched in the family Tissirelia of the phylum firmicutes. Gut microbiome of patients in group 1 was enriched with with Tanerella of the Bacteroidetes phylum. Group 2 did not present enriched microbiota by any of the analyzed organisms. Gut microbiota was enriched by deltaprotebacteria class (phylum Proteobacteria), bernesiellaceae of the phylum Bacteroidetes.

Conclusions: The compositions of the microbiota of the oral cavity and large intestine are related to the weight loss achieved following LRYGB.

Keywords: Bariatric surgery; Microbiota; Obesity; laparoscopic Roux-en-Y gastric bypass

Poster presentations

Cytotoxic Effects of Local Antibiotics on Adipose Tissue in Fat Grafting – an in-vitro Study

Presenter: Yiping Wang
Authors: Yiping Wang, Dr. med. Yannick Dhiem, Dr. rer. nat. Matthias Schulte, PD. Dr. med. Sebastian Fischer

Introduction: Autologous fat grafting is a common technique for the treatment of volume and contour abnormalities in aesthetic and reconstructive surgery. Infection is one of the most feared postoperative complications. For prevention, some surgeons rinse the aspirated adipose tissue with a diluted antibiotic solution before injection into the desired body site. However, the reasonableness of this approach is controversial since antibiotics may harm adipose tissue. This study aimed to evaluate the effect of local antibiotics on fat grafts.

Materials & Methods: Aspirated adipose tissue from patients was digested by 1% collagenase to obtain adipocytes and adipose-derived mesenchymal stem cells (ADSCs). Subsequently, adipocytes were incubated with different concentrations of clindamycin or cefazolin for live/dead fluorescence staining, G3PDH, and ROS assays; next, ADSCs were subjected to the same concentrations of antibiotics to observe morphologic changes and adipogenesis. The time points analyzed in this study were 24 hours, 2, 6, and 14 days. Normally distributed data were analyzed by one-way ANOVA, while non-normally distributed data were analyzed by Kruskal-Wallis test. All the presented data are expressed as the mean ± standard deviation. $P<0.05$ was considered significant.

Results: After 24 hours, the adipocytes treated with clindamycin at ≥90 μg/ml or cefazolin at ≥540 μg/ml showed a significant decrease in viability. After 2 days, both clindamycin and cefazolin at ≥ 540 μg/ml significantly inhibited G3PDH activity in adipocytes; furthermore, ROS levels were significantly increased at ≥90 μg/ml. Finally, after 6 days, the morphology of ADSCs in both clindamycin and cefazolin-treated groups at ≥540 μg/ml was significantly different compared to the controls; moreover, ADSCs differentiated into adipocytes after 14 days of induction at concentrations of ≤90 μg/ml.

Conclusion: At high concentrations, rinsing fat grafts with clindamycin or cefazolin may have cytotoxic and metabolic effects on adipocytes; notably, it may impair the viability and adipogenesis of ADSCs.

Isomorphic astrocytomas can spontaneously regress following partial surgical resection, similarly to pilocytic astrocytomas; a clinical case in a pediatric patient

Presenter: Kacper Grudzień
Authors: Kacper Grudzień, Jerzy Skuciński

INTRODUCTION: Patient AS, 9-year-old, male, presented with cerebellar ataxia

CASE HISTORY: The patient was admitted with signs of cerebellar ataxia, which warranted further investigation using magnetic resonance imaging with spectroscopy.

INVESTIGATIONS: A hyperintense lesion in the left cerebellar hemisphere was evidenced in magnetic resonance imaging; the subsequent spectroscopy yielded a report of local increases in choline and myoinositol concentrations, and a decrease in N-acetylaspartate.

TREATMENT/RESULTS: The tumor was subjected to subtotal excision with an intraoperative histopathological examination, which showed the morphology of a low-grade astrocytoma, supposedly of pilocytic subtype. No other forms of treatment were carried out.

In detailed histopathological tests the tumor, though evincing benign morphology, bore no apparent features of a pilocytic astrocytoma. As a result, further investigation was instigated and following literature review, a diagnosis of the so-called isomorphic astrocytoma was adopted. That seemed to be the most appropriate option in the diagnostic differentiation, despite being absent in the official WHO classification of tumors of the central nervous system.

In a 1-year follow-up period, the remaining tumor mass was radiologically controlled in two separate magnetic resonance imagings, which evidenced shrinking and gradual atrophy of the leftover neoplasm.

DISCUSSIONS: The phenomenon of tumor regression following subtotal excision is well-documented in pilocytic astrocytomas, yet, to the authors' knowledge, it is the first such a report in an isomorphic astrocytoma. Consequently, this case highlights the possible similarities between these two tumor subtypes, despite their morphological differences, as seen in histopathological examination.

STARVING OUT THE PANDEMIC - IMPACT OF THE COVID-19 EPIDEMIC ON THE INCIDENCE OF NEW ANOREXIA NERVOSA CASES IN PAEDIATRIC POPULATION

Presenters: Jakub Gawlik, Zuzanna Nowak
Authors: Jakub Gawlik, Zuzanna Nowak, Michał Jurczyk, Katarzyna Dyląg

1.STARVING OUT THE PANDEMIC - IMPACT OF THE COVID-19 EPIDEMIC ON THE INCIDENCE OF NEW ANOREXIA NERVOSA CASES IN PAEDIATRIC POPULATION

2.The pandemic fostered an environment particularly dangerous for susceptible individuals, such as patients at risk of anorexia nervosa (AN). A growing body of research reports an unprecedented increase in eating disorders (ED) symptomology, with AN at the forefront. There are several causes of this tendency, including: anxiety and stress connected with the pandemic, limited access to help, social deprivation and increased social media activity. Our aim is to assess the influence of the COVID pandemic on the incidence of new AN cases in the adolescent population from a paediatric perspective.

3.We retrospectively examined records of 170 AN patients treated in a regional hospital in southern Poland, referential for AN treatment, between 2013 and the second quarter of 2021. The disease course and the severity of malnutrition was illustrated by anthropometric measurements, illness and amenorrhea duration, laboratory tests, Echo and CT results. We divided the population into 2 groups: pre-pandemic (2013-2019, 119 patients) and pandemic (2020 onwards, 51 patients), as well as analysed a general trend in the AN incidence throughout the years.

4.A significant increase in AN patients admissions was observed, as in the first quarter of 2021 we noted a 133% increase in new cases compared to the first quarter of 2020 (14 vs. 6). The pandemic group displayed significantly longer hospitalization times (8.7 vs. 6.1 days, $p=0.017$), a higher percentage of hypophosphatemia (28.6% vs. 5.9%, $p<0.001$) and younger age (13.6 vs. 14.1 years, $p=0.045$).

5.Our results confirm a higher incidence of AN in adolescents during the pandemic and point to a more severe course of the disease. These findings suggest that further action is needed to support young patients at risk of ED in these challenging times.

Perforated Meckel's Diverticulum in a newborn - a rare case

Presenters: Małgorzata Bielińska, Timm Neumann
Authors: Małgorzata Bielińska, Timm Neumann, Zohar Alony

Neonatal gastrointestinal perforation is a rare condition, usually associated with low birth weight and gestational age. Most commonly this is associated with necrotizing enterocolitis (NEC) followed by localized/spontaneous intestinal perforation (SIP).

Meckel's diverticulum (MD) is remarkably uncommon to be the site of perforation. MD is the most common congenital anomaly of the gastrointestinal tract, found in about 2% of the population, but 85-95% of patients are asymptomatic. Symptomatic cases, present as intestinal obstruction, gastrointestinal hemorrhage, diverticulitis, and perforation amongst others. In newborns, perforation is rare.

A 2080g boy, was delivered at 32+5/7 weeks of gestation by cesarean section for breech presentation and spinal hemangioma. Apgar scores were 8/8/9/9. Breathing support by CPAP was necessary.

The patient was sent to the neonatal intensive care unit (NICU) in stable condition with continued ventilatory support. After initial feeding intolerance total parenteral nutrition (TPN) was initiated, and a central venous catheter was placed. For placement control an X-ray was performed and pneumoperitoneum was found. Physical examination showed no evidence of peritonitis.

An ultrasound was performed with similar findings indicative of urgent surgical exploration.

The patient was referred to the surgical department for excision and repair of the perforation. After an epigastric incision, an inflamed perforation of the MD was found under a mass of centered loops of the small intestine with adhesions. Resection within healthy margins and anastomosis was performed. Recovery was good and total enteral feeding was reached on the 15th-day post-op.

Differential diagnoses of gastrointestinal tract perforation in the neonate include NEC, Atresias, intestinal malrotation, or SIP amongst others. Although the finding of pneumoperitoneum is a strong indication for NEC, the benign clinical presentation and the surgical findings lead to a diagnosis of Meckel's diverticulitis with perforation.

The extensive inflammation might indicate diverticulitis that might have started already in utero.

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Pacemaker guided screening for severe sleep apnea, a possible option for patients with atrial fibrillation

Presenters: Martin Wyckmans, Eldar Tukanov, Robin Stinissen

Authors: Martin Wyckmans BSc, Eldar Tukanov BSc, Robbe Winters BSc, Robin Stinissen BSc, Helene Vermeulen MSc, Paul Dendale MD PhD, Lien Desteghe MSc, PhD

Introduction:
Obstructive sleep apnea is underdiagnosed in atrial fibrillation (AF) patients although it is an important risk factor. A systematic review and meta-analysis was performed to assess which techniques cardiac implantable electronic devices (CIED) and Holter monitors use to screen for sleep apnea (SA), and to evaluate if these are suitable for AF patients from a diagnostic accuracy perspective.

Methods:
The search was conducted in accordance with the PRISMA-guidelines. PICO was defined as (P) patients with AF, (I) Holter monitors or CIED suitable for screening for SA, (C) overnight polysomnography (PSG), (O) positive screening with subsequent positive polysomnographic diagnosis of SA. Optimal index test cut-off points corresponding to reference test cut-off for severe SA (PSG-AHI ≥ 30) were compared. Meta-analysis was conducted for the diagnostic odds ratio (DOR), with forest plot and ROC-curve for summary DOR.

Results:
A total of five prospective cohort studies (n = 192) were included in the systematic review of which four studies (n = 132) were included in the meta-analysis. All included studies use transthoracic impedance measurement as a screening parameter. No studies evaluating Holter monitors were included. The population consisted of patients indicated for pacemaker implantation. The summary DOR was 27.14 (8.83; 83.37), AUC was 0.8689 (0.6872; 0.9456) and Q* was 0.8390 (0.7482; 0.9013).

Conclusion:
At optimal pacemaker-cut-off, pacemaker-guided screening for severe SA in patients with AF can be an effective triage tool for clinical practice. Further studies with larger sample sizes are needed to strengthen the evidence for this conclusion.

GAUCHER DISEASE IN SUBCARPATHIAN REGION - CLINICAL CHARACTERISTICS AND GENOTYPE-PHENOTYPE CORRELATIONS

Presenters: Weronika Wilczyńska, Maciej Błądziński
Authors: Weronika Wilczyńska, Maciej Błądziński, Łukasz Gaj

INTRODUCTION:
Gaucher disease (GD) is an ultra-rare lysosomal storage disorder, with autosomal recessive inheritance. This entity is characterized by a wide range of mutations in the GBA gene, resulting in deficiency of the α-glucocerebrosidase (α–GCRa) enzyme, which leads to various clinical manifestations.

The aim of the study was to conduct a detailed analysis of Polish patients from the Subcarpathian region diagnosed with Gaucher disease with an attempt to discover genotype-phenotype correlations.

MATERIALS AND METHODS:
We have assessed 8 patients with GD aged 7-60 years (mean 35 years), including 5 women and 3 men. Five patients were diagnosed with GD type 1 and three patients with GD type 3. The analysis included: complete evaluation of medical data throughout 13 years as well as Gaucher Early Diagnosis Consensus (GED-C) scale results, detailed anamnesis, places of patients' origin and family history. In addition, all patients were examined in terms of GBA gene mutations, using Dried Blood Spot method.

RESULTS:
We found that majority of the GD patients inhabit the north-western part of our region. The most frequent mutations among our GD patients were L444P and N370S. Rare c.2550257delGCG, and 155C>A (p.Ser52X) mutations were also recognized. The highest results of GED-C scale were scored by GD3 and L444P homozygotic mutation patients. Marked correlations between genotype and phenotype demonstrated that type of the mutation is often connected with a level of α–GCRa. The patient with 155C>A (p.Ser52X) mutation has shown the highest level of α–GCRa.

CONCLUSIONS:
Understanding the clinical outcomes of GD patients having different GBA genotypes is significant to establish monitoring procedures and treatment, especially taking into consideration non-specific disease manifestations in early age. Implementation of clinical tools such as GED-C could be particularly helpful.

COMPLICATIONS ASSOCIATED WITH BRIDGING TO LUNG TRANSPLANTATION – SYSTEMATIC REVIEW AND META-ANALYSIS

Authors: Kajetan Kiełbowski, Estera Bakinowska

Introduction: Lung Transplantation is an accepted treatment of end-stage pulmonary diseases when conventional therapy does not provide further improvement. It is often considered as a “treatment of the last chance”. Use of extracorporeal life support, such as extracorporeal membrane oxygenation (ECMO) allows to perform transplantation in patients with worse cardiopulmonary reserve or with unexpected intraoperative events. However, use of ECMO does not restrict to intraoperative use only. It can also be implemented preoperatively in critically ill patients (bridge to transplantation). This strategy makes them still eligible for the procedure, preventing from deconditioning. The aim of this meta-analysis is to determine the frequency of complications that might develop during bridging to lung transplantation.

Materials and methods: Thorough search through PubMed and Google Scholar databases was conducted. Studies reporting complications associated with preoperative use of extracorporeal life support as bridge to lung transplantations were included. The statistical analysis was performed with Open Meta Analyst. Forest plots and meta-regression figures were generated.

Results: Out of 1141, 13 studies with 578 patients were included in this study. The overall pooled prevalence of bleeding and thrombotic complications was 24,6% (95% CI 18,2% to 31%) while pooled prevalence of cerebrovascular complications was 4,5% (95% CI 1,6% to 7,3%). Acute kidney injury occurred in 13,2% of included patients (95% CI 6,6% to 19,8%). 19,4% (95%CI 10,6% to 28,2%) of patients died before transplantation. Association between bleeding and thrombotic complications and duration of bridging was observed using meta-regression model (p=0,011).

Conclusions: Performed meta-analysis presents frequency of significant complications that might appear during bridging to lung transplantation and may lead to death. Those complications cannot be overlooked, and further studies are still required to improve the safety of this procedure.

SURGICAL MANAGEMENT OF LUNG CANCER INVADING CHEST WALL

Presenters: Kajetan Kiełbowski, Estera Bakinowska
Authors: Kajetan Kiełbowski, Estera Bakinowska

Introduction: 59-year-old ex-smoker female was admitted to the hospital due to pain in the left posterolateral part of the chest. Physicalexamination was within normal ranges.

Case history: The patient had been suffering from generalized neoplastic disease and hypothyroidism. She has undergone two mastectomies (left-sided in 1999, right-sided in 2017) with bilateral breast reconstruction. She had been treated with chemo-, radio- and hormonotherapy.

Investigations: Computer tomography revealed tumorous mass located in the apical part of left lung (5.0 x 3.5 x 4.8 cm) infiltrating surrounding tissues. 18F-Fluorodeoxyglucose positron emission tomography showed lesion of metabolic malignancy. According to bronchoscopy, S2 bronchi was obstructed in 99%, while openings of S4 and S5 bronchis were obstructed in 90%. Forced Expiratory Volume in 1 second was 89%.

Treatment/ Results: The decision was to excise the tumorous tissues using sleeve lobectomy. Posterolateral thoracotomy under 5th rib was performed. Left upper lobe with VI segment were removed. As a result of carcinoma infiltrating surrounding structures, posterolateral fragments of 2nd- 5th ribs were resected. Lymph nodes 5,7,9,11 were collected for histopathological examination which did not reveal any metastases. The patient was discharged from hospital after 14 days in good physical condition. During the next month she has experienced impaired consciousness and anxiety. Such episodes were repeated later as well accompanied by headaches and dizziness. Subsequent CT of the head with contrast revealed cerebral malformation (12x7mm). Three and a half months after surgery the patient has died.

Discussions/ Differential diagnosis: Lung cancer is responsible for the highest cancer-related mortality. [1] Surgical treatment involves pneumonectomy or, alternatively, sleeve lobectomy (SL). SL allows to preserve pulmonary parenchyma, as opposed to pneumonectomy. [2] In addition, SL is associated with improved quality of life and decreased perioperative mortality. [3]

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MULTI-ORGAN INVOLVMENT IN PATIENT WITH MITOCHONDRIAL MYOPATHY

Presenter: Sebastian Goncerz
Author: Sebastian Goncerz

Introduction
The patient P.F. male age 51 suffering from gradual paralysis of eye movements, ptosis, muscle weakness and diabetes.

Case history
The patient was diagnosed with mitochondrial myopathy in 2013 in a genetic test indicated by his worsening symptoms. Since then he suffered from numerous health issues stemming from his genetic disorder, mainly cardiological ones. Because of that he has been admitted to the John Paul's hospital in Cracow in 07.2019, 12.2019, 01.2020, 03.2021.

Investigations
Among the numerous symptoms that the patient presented the most important was the exercise intolerance and premature fatigue, congestive heart failure, dilated cardiomyopathy, persistent atrial fibrillation (since 2019), type 2 diabetes and degenerative changes in the spine.

Treatment/Results
General rehabilitation and pharmacotherapy: apixaban, digoxin, metoprolol, eplerenone, sacubitril, valsartan, furosemide, allopurinol, insulin therapy. Also choline, ornithine and vitamin B6 supplementation

Discussions/Differential Diagnosis
Mitochondrial myopathies are have a vast range of clinical presentations, from mild to severe. It may affect both motor and neurological function, as the cells of those systems are the most effected by ATP depravation. The main issues regarding our patient are cardiological. The treatment is only symptomatic and also rehabilitation can slow down the muscle strength loss.

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Significance of medical imaging in the diagnosis of pediatric acute ischemic stroke

Presenter: Natalia Kluz
Author: Natalia Kluz

Case history: 11-year-old boy was admitted to the hospital with a suspected stroke. The symptoms were observed the day prior to admission, when he fainted and fell off the bicycle.

Investigations: Neurological examination showed that the patient had a left-sided paresis, anisocoria with dilated left pupil and paralysis of VII nerve on the left side. Babinski's sign was positive on the left side. Patient was referred to magnetic resonance imaging (MRI) and computed tomography (CT).

Results: In a day of admission the CT of the brain showed no significant abnormalities. Second day after the onset of clinical symptoms MRI revealed lesions in the right hemisphere of the brain in the blood supply area of the posterior cerebral artery in the form of an extensive region of diffusion restriction in DWI, ADC images, hyperintense in T2-weighted images and DARK FLUID with concomitant increase in the intensity of the cortical signal and the right thalamus in T1-weighted images, which is characteristic for acute ischemic stroke.

Discussion: The MR imaging is the method of choice in case of suspected pediatric stroke due to its greater sensitivity compared to CT in the assessment of acute ischemic stroke lesions.

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The role of neuroimaging techniques in the diagnosis of defects of the central nervous system

Presenter: Natalia Kluz
Author: Natalia Kluz

Case history: A 12-month-old girl with premature puberty was admitted to the hospital. She was previously diagnosed with schizencephaly, polymicrogyria and underdevelopment of the frontal and temporal lobes.

Investigations: In the laboratory tests slightly elevated levels of prolactin, FSH were observed. Blood count showed leukocytosis with a normal smear. Bone age was estimated at 12 months. Magnetic resonance imaging was ordered.

Results: On magnetic resonance imaging (MR) multiple central nervous system defects were observed. Among them, schizencephaly of the ""closed mouth"" type on the right side with a fissure lined with dysplastic grey matter running through the frontal and temporal lobes. Numerous small curves characteristic to polymicrogyria were seen in the occipital region. There were no features of a normal white matter around the occipital horn of the asymmetrically dilated and distorted right lateral ventricle, indicating delayed myelination or absence of normal white matter. Asymmetry of the skull and cerebral hemisphere, underdevelopment of the posterior thalamus on the right side, asymmetry and thinning of the corpus callosum were observed.

Discussion: The method of choice in the imaging diagnosis of neuronal migration disorders is magnetic resonance imaging with contrast, which shows the type and exact location of cerebral defects, the degree of myelination of the white matter and coexisting pathologies. The increased availability of MRI makes the detection of this type of disorder increasingly frequent and possible at an early age.

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