iMEDIC

iMEDIC 2018 | Bydgoszcz

3rd International Medical Interdisciplinary Congress

Medical, Pharmaceutical and Health Sciences

9th June | Bydgoszcz, Poland

Abstract Book

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Dear Friends and Collegues

Thanks to you, dear participants and our effort, third edition of **International MEDical Interdisciplinary Congress – iMEDIC 2018** *took a place! We have met not for the first but the third time – we sincerely hope it is not the last one!*

This year more than 150 people participated in the congress, sharing knowledge through almost 200 presentations and posters! This is a huge success in making effort to progress even further in research and development in medicine.

Like every year, young scientists and PhD students met in this one day – 9th June – to show, what is in their range of interest and what they discovered, while researching this field of medicine sciences, pharmaceutical sciences, health sciences. *They all shape the sciences and push it forward to make the future brighter*

So as always we – the organizing committee - would like to thank you all because without you the congress wouldn't be the same.

Below, we would like to present every single presentation and poster, which was presented during the conference.

It is a time for us to slowly start the preparations for the fourth edition of **iMEDIC** *Congress, work in the name of science never ends, does it? As for you, dear participants, rest, gain strength and get back to research! We hope to see next time at the* **4th International MEDical Interdisciplinary Congress – iMEDIC 2019**.

We can not wait to see what you will prepare!

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of **iMEDIC 2018**

Anna Ziółkowska

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- *Joanna Bogusiewicz*
- *mgr Kamil Łuczykowski*

AGENDA – 9th June

- 9 Curie Skłodowska Street, Patomorphic didactic building, Bydgoszcz, 85-094

Registration			**08:00**
Lecture hall A **Opening ceremony**			**09:00**
Coffee Break			
Lecture hall A	**Lecture hall B**	**Lecture hall C**	**10:00**
Medicine Sciences I Young scientists, PhD students and Professional workers Session	**Health Sciences** I Young Scientists Session	**Pharmaceutical Sciences** Young scientists, PhD students and Professional workers Session	
			12:00
	12:20	***Lunch***	**Poster Session** Young scientists, PhD students and Professional workers Session
12:40	***Lunch***	**12:45**	
Lunch	**13:05**		**13:25**
13:25			
Medicine Sciences II Young scientists, PhD students and Professional workers Session	**Health Sciences II** PhD students and Professional workers Session	**Medicine Sciences III**- Case Report Session	
	15:15		
15:25		**15:45**	

Medicine Sciences I

Young scientists,
PhD students
and
Professional workers Session

Jury:

Professor Marek Koziński, PhD

Katarzyna Ciechanowska, PhD

Michał Wiciński, PhD

Agata Żaroń, PhD

Moderator:

Alina Jaroch

Jan Kłopocki

Title: Why do they come back? A retrospective analysis of 2013-2016 syphilis patient's medical history at Department of Dermatology, Venerology and Allergology of Medical University of Gdańsk

Authors: Adrian Wiśniewski, Anna Barczykowska, Mateusz Grzybicki

Inroduction: Syphilis is not infrequently considered a disease from the past but its prevalence is still very high in certain populations. The aim of this study was a retrospective analysis of the diagnostic process of patients with syphilis treated in our clinic.

Materials and Methods: Our analysis focused on cases of syphilis that have been hospitalized in Department of Dermatology, Venerology and Allergology at Medical University of Gdańsk in 2013-2016. Gathered material concerned 76 patients hospitalized in a given timeframe.

Results: 78% of hospitalized syphilis patients were men and 22% were women. Average age of the patient was 29 years. In 26% of the cases the referral to dermatology ward was written by doctors of specialties other than dermatology. The cause of referral were: in 47% early syphilis in 32% late syphilis and in 18% other and unspecified syphilis. 32% of the patients have been hospitalized due to syphilis more than once.

Conclusion: Education of doctors of specialties other than dermatology plays an important role in the diagnostic process and should be reinforced, knowledge of early symptoms of syphilis included. Provision of education for patients hospitalized due to syphilis is crucial as well.

Title: Variations of the blood pressure and heart rate after daylight saving time transition in high school pupils

Authors: Agnieszka Stępień, Sebastian Janiec, Anna Płotek, Karolina Eliasz

Introduction: Transition into the daylight saving time (DST) is often criticized. Dysregulation of the circadian rhythm triggered by sudden sleep deprivation may increase cardiovascular risk. There are some data on the higher frequency of the cardiovascular events shortly after the time transition reported in the literature.

Aim: We aimed to analyse the variability of blood pressure (BP) and sleep quality induced by changing the clocks in the group of high school pupils.

Material and Methods: 63 high school pupils (men- 27) participated in our study. Mean age was 17,43 ± 0,6 years. Twice, on Friday before and on Monday after the time transition, the peripheral BP and HR was measured on both upper limbs, along with the collection of data on daytime functioning as well as sleep duration and quality (self-prepared questionnaire) together with the assessment of sleepiness with the Stanford Scale.

Results: The differences between two days of measurements in systolic BP (Δ= -2,5 mmHg, p=0,16) and diastolic BP values (Δ= -1,5 mmHg, p=0,16) did not reach statistical significance. However, we observed that males were characterized by higher decrease of systolic BP between measurements than females (Δ= -5,3 vs -0,4 mmHg, p=0,07). Moreover, heart rate (HR) increased in male group in contrary to female group (Δ= 3,4 vs -3,8 BPM, p=0,05). In the group of students in whom time transition was related with shortening of the sleep duration - HR decreased, while in those who spelt longer after time transition tendency to increase in HR was observed (Δ=-2,8 vs 3,5 BPM, p=0,09). We considered >10 min as the criterion of prolonged time of falling asleep. A group that was falling asleep longer than 10 min. after DST transition was characterized by higher values of diastolic BP (74,1 vs 70,1 mmHg, p=0,04) as well as higher HR (79,8 vs 73,7 BPM, p=0,04) compared to the rest of the group on Monday measurements.

Conclusions: We did not prove the negative impact of the DST transition on BP values in the group of high school pupils. Male gender, extension of the sleep duration and prolonged time of falling asleep were connected with increase in HR after DST transition.

Title: The association of platelet counts with development and treatment of retinopathy of prematurity – is thrombocytopenia a new risk factor?

Authors: Aneta Choręziak[1], Irmina Pawłowska[2], Anna Chmielarz-Czarnocińska[3], Dawid Szpecht[4], Janusz Gadzinowski[4], Anna Gotz-Więckowska[3]

Affiliation: 1. Studenckie Koło Naukowe Okulistyczne, Katedra i Klinika Okulistyki UM w Poznaniu 2. Studenckie Koło Naukowe Medycyny Perinatalnej, Katedra i Klinika Neonatologii UM w Poznaniu 3. Katedra i Klinika Okulistyki UM w Poznaniu 4. Katedra i Klinika Neonatologii UM w Poznaniu

Introduction: Retinopathy of prematurity (ROP) is one of the most important complications associated with preterm birth. It is a disorder of immature retinal vasculature. Thrombocytes deliver and regulate the activity of several key angiogenesis factors, including vascular endothelial growth factor (VEGF). By that means, platelets may restrict neovascularization in ROP, acting as VEGF scavengers. Aim: To examine the role of platelet counts and thrombocytopenia (platelet count below 100G/L) in the pathogenesis of ROP; to determine the critical time of their occurrence and to assess their influence on ROP that requires multistage treatment.

Material and methods: The retrospective study of 163 preterm infants diagnosed with ROP was performed, comparing 76 patients who required treatment (cases; mean gestational age: 25±1,72 weeks, weight: 830±206g) with 87 patients with ROP that resolved spontaneously (controls; 28±2,07 weeks, 1125±352g). Laser retinal photocoagulation (n = 47), injection of VEGF inhibitor (n=5) or both (n=24) were used as treatment methods. Further analysis concerned the patients treated: 52 patients in whom a first line treatment was sufficient to stop ROP progression and 24 patients who required re-treatment. Peripheral blood platelet count measurements from several time intervals and platelets transfusions were abstracted.

Results: A statistically significant difference was found in the occurrence of thrombocytopenia (p=0,015) and median platelet counts (p=0,008; cases median 325G/L, controls median 401G/L) before the diagnose of ROP (mean 32,9 week postmenstrual age, PMA). There was no significant association with platelets transfusions (p=0,402), the occurrence of thrombocytopenia before 31PMA (p=0,332) or on the day of birth (p=0,844). The ROC curve analysis showed that the value of platelets above 232G/L may stimulate spontaneous resolution of ROP. Multivariate logistic regression analysis suggested that the risk of ROP development increased with the number of days with thrombocytopenia (OR: 1,097; 95% CI: 0,99-1,21, p=0,052). Among the cases, significant difference between patients once treated and patients that required re-treatment was found in platelet counts before the diagnose of ROP (p=0,017; median 371G/L, 242G/L); platelet count before the first intervention (p=0,013; median 345G/L, 262G/L) and the number of transfusions (p=0,042; mean number of transfusions: 0,48 vs. 1,17). There was no significant difference between these groups in occurrence of thrombocytopenia on the day of birth (p=0,767) or before 31PMA (p=0,077).

Conclusions: The results of the study confirm the association between ROP development and its severity with thrombocytopenia. While there were no differences in the occurrence of thrombocytopenia right after the birth, its episode before the diagnosis ROP seems to be significant for ROP development. Moreover, higher platelet counts before the diagnose may promote spontaneous resolution of ROP.

Title: The truth and myths about sources of sensitization to nickel

Authors: Anna Łańczak, Aneta Choręziak, Dominik Kobylarek, Julia Pietz- Muszkieta, PhD Dorota Jenerowicz MD, Prof. PhD Zygmunt Adamski MD

Introduction: The frequent occurrence of elevated nickel levels in everyday items explains why allergic contact dermatitis to nickel is the most common in general population. Between 8 and 11% of patients suffering from contact dermatitis are allergic to nickel. Allergy is manifested by an itchy rash appearing a few hours after skin contact with the allergen, so it's essential to avoid skin contact with nickel-containing metals.

Aim: The aim of the study was to assess whether patients sensitized to nickel were able to eliminate metal objects containing nickel from their environment. Furthermore, to determine objects of everyday use with a high concentration of nickel in order to help patients in removing sources of sensitization. We also wanted to learn patients methods of avoiding skin exposure and allergic reactions to nickel-containing items. Material and Methods: A group of 19 patients (18 female and 1 male) sensitized to nickel on the basis of patch testing was analyzed during a 1,5-year-long period in Poznań. An examination of each patient consisted of general interview and questionnaire. A total of 223 metal items including jewelry, clothing accessories and other objects of everyday use were tested with the Chemo Nickel Test to assess nickel release.

Results: An excessive nickel release was detected in 32,7% of the tested items, relatively in 9,52% of jewelry, 44,4% of computer accessories, 54,5% of clothing accessories, 64,7% of wallets and bags, 70,2% of keys and none of kitchen tools and accessories. Only 57% of sensitized patients reported trying to eliminate some metal items from everyday use. The rest of the group found it either impossible or plan to remove metal items in future. 84.2% of female patients had their ear lobes pierced, 78.9% of patients were also affected by other allergies. None of the patients claimed to have family history of nickel allergic contact dermatitis

Conclusion: The results of our preliminary study confirm that patients allergic to nickel are exposed to high concentration of this hapten in various items, common in their work environment and everyday life. A significant part of metal items is impossible to be eliminated or replaced. Despite the implementation of the EU Nickel Directive in 2004 in Poland, nickel release from metal accessories remains high.

Title: Correlation between otoneurological examination in Ménière's disease

Authors: Bartosz Marcinkiewicz, Anna Orłowska, Agnieszka Jasińska, Izabela Pobożny

Affiliation: Department of Otolaryngology Medical University of Warsaw

Introduction: Ménière's disease is a rare disorder that affects the inner ear. It is caused by abnormal fluctuations in the inner ear fluid leading to buildup of endolymph in the labyrinth, which can result in an endolymphatic hydrops. The exact cause of Ménière's disease is not known yet. Many theories have been proposed over the years, i.a.: endolymphatic sac dysfunction, overproduction of endolymph, infections, immune disorders, circulation abnormalities and genetic factors. Ménière's disease is slightly more common among women than men, especially middle-aged. A diagnosis of this disease is usually delayed which indicates a necessity to develop a set of tests in order to provide effective examination.

Aim: The aim of the study was to compare clinical symptoms characteristic for Ménière's disease with otoneurological examination.

Materials and Methods: The study included 41 patients (14 men and 27 women) who were hospitalized in the Department of Otolaryngology at Medical University of Warsaw. All of them underwent physical examination and had their medical history taken. A set of audiological and otoneurological tests was performed: pure tone audiometry (PTA), speech audiometry (SA), otoacoustic emission (OAE), auditory brainstem response (ABR), vestibular evoked myogenic potentials (VEMP), electrocochleography (ECochG), sensory organization test (SOT) and videonystagmography (VNG). Results were correlated with the patient's anamnesis using Spearman's and Pearson's tests. Additionally, correlation between the results of particular audiological tests was performed. Also correspondence between vestibular and audiological tests was analyzed.

Results: Age of the patients varied between 22 to 74 years (average: 53.9 years). Results of ABR tests indicated typical features of sensorineural hearing loss. Age of the patient seems to be an important factor leading to worsening of the results, especially of the audiological tests. The strongest correlations on the level of statistical significance ($p< 0,05$) occur between duration of the disease, number of attacks during the year, level of hearing fluctuations and results of ECochG, OAE and PTA tests.

Conclusion: Performed analyses indicate that age, duration of the disease, frequency of the attacks strongly correlate with conducted tests, especially audiological. On the other hand, some of the examinations can be influenced by other factors, which are not connected with endolymphatic hydrops.

Title: Evaluation of the impact of short-term usage of creatine supplements on the cardiovascular system - a randomized double-blind placebo controlled study

Authors: Dawid Bugara, Sebastian Janiec, Jeremiasz Kubisiowski, Andrzej Nowak

Affiliation: Student's Scientific Group at Ist Department of Cardiology and Interventional Electrocardiology and Hypertension JUMC

Introduction: Creatine is one of the most popular supplements used by athletes in order to increase muscle strength and gain lean body mass. It is well-known and considered to be harmless even in high doses taken in a long period of time. However, there has been some indications that creatine may affect several functions of cardiovascular system.

Aim: The study aimed to analyze the effects of high-dose creatine supplementation on cardiovascular parameters in young healthy adults.

Material and Methods: A randomized double-blind, placebo controlled study was carried out on 50 healthy male volunteers (mean age- 24,0±1,6 years). In all subjects: anthropometric measurements, bioelectrical impedance analysis (Bodystat analyzer), peripheral (Omron) and central blood pressure (BP) measurements were taken, with short-term heart rate variability (HRV) (Sphygmocor), ECG analysis and echocardiography performed during first visit. Afterwards, individuals were randomized (1:1) into 2 groups: receiving capsules with creatine monohydrate - 1g per capsule (Gr.1), and placebo in the form of capsules with microcrystalline cellulose (custom-made at the pharmacy) in an analogous dose (Gr.2). The capsules did not differ in color, shape or size. Participants were instructed to use the obtained supplement for a full 5 days (16g per day, total dose-80g). After 5 days, the follow-up was arranged with all the previous examinations repeated, and a morning urine sample was collected, to analyze urine creatinine concentration and exclude non-compliance. The study protocol was approved by the local ethics committee.

Results: There were no significant differences between creatine and placebo group in systolic BP values (Δ= -1.98 ± 8.7 mmHg for Gr.1 vs -2.22 ± 8.4 mmHg for Gr.2) and heart rate (HR) values (Δ HR -4.08 ± 10 BPM for Gr.1 vs -2.12 ± 10.1 BPM for Gr.2 respectively). However, Gr.1 was characterized with a slight decrease in central diastolic BP values (Δ= 0.84 ± 6.4 mmHg) in contrast to Gr.2 (-3.0 ± 8.5 mmHg, p=0,07). This was accompanied by an increase in the HRV Triangular Index (375.8 vs 432.5, p=0.01) in Gr.1, not observed in the control group. A higher increase in aortic augmentation index in Gr.1 comparing to Gr.2 (Δ= 10.63 ± 11.6 vs 1.06 ± 14.2, p<0.05) was observed. High-dose creatine supplementation in Gr 1 was also associated with a decrease in total body water (51.51 vs 50.26 dm3, p=0.02) and lean body mass (73.22 vs 72.07 kg, p=0.03). There were no significant differences between creatine and placebo groups in detailed ECG parameters and echocardiography.

Conclusions: Even high-dose creatine supplementation has a neutral effect on the cardiovascular system in young people. The importance of long-term supplementation of this substance requires additional research.

Title: Recognition of refractive errors among pre-school children

Authors: Jakub Maciejewski, Michalina Oszywa, (MD) Anna Chmielarz-Czarnocińska, (PhD) Anna Gotz-Więckowska

Background: The most common refractive error (RE) in pre-school children is hyperopia, which is often asymptomatic, thus its diagnosis might be late. There are no effective screening tests to improve this situation. Since uncorrected REs deteriorate children's general development, are the risk factors for amblyopia and strabismus and in the long run may cause decreased vision their early detection is crucial.

Aim: Aim of study was to analyze the reason of the first visit to pediatric ophthalmologist, define frequency of symptoms, test parents' knowledge of REs in their children, evaluate the prevalence of amblyopia and check the popularity of vision training.

Materials and Methods: Data of 43 patients admitted to pediatric ophthalmology outpatient clinic in Clinical Hospital No. 1 in Poznań were collected. Inclusion criteria were: the diagnosis of RE before 7 years of age and indications for correction stated by German Association for Pediatric Ophthalmology and Strabismus which are: hyperopia ≥ 3 Dsph, myopia ≤1 Dsph or astigmatism ≥1 Dcyl. Questionnaire with 18 questions was used to interview parents. They were asked about their recognition of children's REs, the cause of the first visit to ophthalmologist, family burden of REs, symptoms, occurrence of strabismus and amblyopia, satisfaction from correction and vision training.

Results: There were 31 patients (72,1%) with hyperopia, 24 (55,8%) with coexisting astigmatism, 10 patients (23,3%) with myopia, 7 with coexisting astigmatism, and 2 (4,7%) with astigmatism alone. Mean age of patients with the diagnosis of RE was 3,0 years old (range: 7 months–7 years). The reasons of the first visit were: the onset of strabismus - 26 (60,5%), symptoms of impaired vision - 6 (14,0%), family history of REs - 3 (7,0%), parents' will to check children's sight - 3 (7,0%), incidental identification by a pediatrician - 3 (7,0%), screening tests - 2 (4,6%). Symptoms listed from the most frequent: watching TV from close distance (n=23), squinting (n=15), anomalous head posture (n=15), coordination problem (n=13), holding objects close to the face (n=11), low physical activity (n=9). 10 children (23,3%) presented no symptoms 23 (53,5%) parents did not know the type of RE of their children. Amblyopia treatment was necessary in 27 (62,8%) patients. 34 (79,1%) parents admitted RE occurred in their family. Family burden had no impact on the moment of detection (p=0,32). 42 (97,7%) children wore glasses willingly. Vision improvement was noticed by 39 (90,7%) of parents after correction. Vision training was performed by 3 (7,0%) patients.

Conclusions: Our findings confirm that the major cause of admission to the specialist is strabismus. Parents often do not notice any symptoms of decreased vision of their children and their knowledge of children's RE is insufficient. Vast majority of parents notice improvement in visual functioning after children's RE's correction. Vision training was unpopular in the study group.

Title: Human Papillomavirus (HPV) infection and vaccination – assessing the level of knowledge, sexual behaviors, awareness, attitude and vaccination status among medical students

Authors: Maciej Michalak, Jakub Milecki, Tomasz Milecki, Andrzej Antczak

Affiliation: Department and Clinic of Urology and Urologic Oncology, Poznan University of Medical Science, Poznan, Poland.

Introduction: Persistent infection with oncogenic types of Human Papillomavirus (HPV) can cause cervical cancer in women, penile cancer in men, as well as anogenital and oropharyngeal cancers in both genders. It has been proven that the HPV vaccination, preferably between 11 and 12 years old, is highly effective in preventing these cancers.

Aim: The aim of the study was to assess the knowledge, sexual behaviors, awareness, attitudes about HPV infection and HPV vaccination among medical students and to determine their vaccination status.

Material and methods: The self-designed survey containing 35 questions was conducted among medical students in Poznan University of Medical Sciences. The analyzed group consisted of 1061 students - 678 females and 383 males. Statistical analyses were performed using Statistica 12.0.

Results: Among the respondents, 683 (64.4%) were younger medical students (1st-3rd years of study) and 378 (35.6%) were older medical students (4th-6th years of study). The results revealed that the level of HPV knowledge was significantly higher among older students ($p<0.0001$). The most of students (69.8%) had a sexual initiation, in the mean age of 18.4±2.0 years. Their level of knowledge was significantly higher ($p<0.0001$) in comparison to students before the first sexual intercourse. About half (45.7%) of students had the constant sexual partner and their outcomes in the survey were significantly higher than students without the steady sexual partner ($p<0.0001$). Homosexual students had the level of knowledge significantly higher than heterosexual ($p=0.0029$). Overall, 98.6% of the students (99.3% females and 97.4% males) knew that there is an association between HPV infection and cervical cancer ($p=0.0366$). The relationship between HPV infection and penile cancer was known by 61.4% of students (63.4% females and 57.7% males; $p=0.1299$). Regarding oropharyngeal cancer, 74.4% of students (74.8% females and 73.6% males; $p=0.4805$) knew about an association with HPV. Also, 60.2% of students (58.9% females and 62.7% males; $p=0.4753$) knew about an association between HPV infection and anal cancer. Only 24.4% of students had been vaccinated against HPV (35.3% females and 5.2% males; $p<0.0001$) and 81.0% of students (82.6% females and 78.1% males; $p=0.094$) knew the recommended age of vaccination against HPV. Moreover, 13.2% of students (11.7% females and 16.0% males) agreed that HPV vaccination may promote sexual contact with many partners.

Conclusions: The results of the study demonstrate that the knowledge about HPV, HPV vaccine and cancers associated with HPV depends on the year of study, sexual activity and sexual orientation. Public health education about HPV is an essential issue, not only among the students but also their family and friends.

Title: The correlation between the occurance of arterial hypertension and grading in the Haas classification in patients with biopsy-proven IgA nephropathy

Authors: Magda Szymańska, Adam Roguszewski, Adrian Prowancki

Affiliation: Collegium Medicum of University of Warmia and Masuria in Olsztyn.

Introduction: IgA nephropathy is the most common form of glomerulonephritis worldwide and the leading cause of end-stage renal disease (ESRD). Based on data from many countries, it is assumed that the incidence of IgA nephropathy is at least. 2.5 / 100,000 people. There is a big amount of factors, that have influence on the course of the illness, and one of the major is arterial hypertension, that speeds up its progression. Few scales are used to assess morphological level of advancement of the disease and one of the most frequently used is the Haas classification.

Aim: Analysis of the correlation between the occurance of arterial hypertension and morphologic advancement of the IgAN. Assasement of the progression of the disease over the time of 12 months.

Materials and Methods: Analysis of a group of 37 patients (25 males, 12 females, mean age 39,35±11,84) with biopsy-confirmed IgA Nephropathy, treated in the Department of Nephrology, Hypertensiology and Internal Medicine in Olsztyn, based on data from medical records. All patients had a biopsy graded in Haas classification. In this terms, there were 2 (5,41%), 2 (5,41%), 12 (32,43%), 13 (35,14%), 8 (21,62%) patients with classes I, II, III, IV and V, respectively. Group N1 consisted of patients with no hypertension (n=20);Group N2 consisted of patients with hypertension (n=17). The basis for the division into groups were values of SBP and DBP, measured by admission to the Department, as an expression of the long-acting effect of the elevated BP on the kidneys.

Results: Occurance of particular grades in Haas classification in both groups were compared. In the N1 group: 2 (10%), 2 (10%), 6 (30%), 6 (30%), 4 (20%) patients were graded with class I, II, III, IV and V, respectively. In the N2 group: 0 (0%), 0 (0%), 6 (35,29%), 7 (41,18%), 4 (23,53%) patients were graded with class I, II, III, IV and V, respectively. As the study was conducted for 12 months, patients eGFR by admission to the Department, after 6 and 12 months were compared. In the N1 group the average GFR by admission amounted 72,69, after 6 months 69,29 and after 12 months 66,67 ml/min/1,73m2 (after 12 months Δ=6,02 ml/min/1,73m2). In the N2 group the average GFR by admission amounted 61,83, after 6 months 60,07 and after 12 months 43,50 ml/min/1,73m2 (after 12 months Δ=18,33 ml/min/1,73m2).

Conclusions: Our collected data strongly suggests, that patients with elevated blood pressuse are predisposed to achieve higher grading in Haas classification. That may be connected with worse outcome of the illness, which was demonstrated in the second part of our study. The values of GFR were lower in the group N2 compared to the group N1 at the moment of diagnosis, as well as after 6 and 12 months of observation. Progression of the disease, measured by the difference of values of GFR, was significantly faster in the group N2. That confirms relationship between morphological lesions visible in biopsy and the course of illness.

Title: Factors associated with increased prevalence of hypertensive disorders of pregnancy, particularly preeclampsia, can be assessed within standard antenatal care

Authors: Piotr Prymas, Piotr Filberek, Greta Sibrecht

Affiliation: Poznań University of Medical Sciences

Introduction: Hypertensive disorders of pregnancy (HDP), e.g. chronic hypertension (HT), gestational hypertension (PIH) and preeclampsia (PET) complicate 5-10% of pregnancies. Though these are among the leading causes of obstetric complications, diagnostic procedures in early pregnancy are costly and inaccessible for patients outside big academic centres.

Aim: To find useful predictors of preeclampsia from data routinely collected during standard antenatal care or identified from common questionnaires, without increasing costs.

Materials and Methods: Retrospective, cross-sectional, observational study in a cohort of 74 pregnant women with different form of HDP: PIH – 27.0% (N=20), PET – 43.4% (N=32); HT – 29.7% (N=22) Among 32 patients who developed PET, 25.0% (N=8) developed PET superimposed on HT. Healthy women in singleton pregnancy served as controls (N=44). We collected data from patients' history, medical records and a psychological questionnaire measuring stress and depression level.

Results: comparing to healthy controls, women who developed PET without chronic hypertension, had larger BMI measured at the first antenatal visit and higher prepregnancy stress level score, measured using PRAMS (Pregnancy Risk Assessment Monitoring System) questionnaire. These patients were significantly less likely to use Ca supplementation in the first trimester (4.2 vs. 34.1% p=0.015) and significantly more likely to have positive history of cardiovascular disorders or type 2 diabetes from paternal side (for hypertension: 37.5 vs. 13.6%, p=0.007, for ischaemic heart disease: 29.2 vs. 2.3% p=0.004, for T2DM: 25.0 vs. 2.3%, p=0.011). They were also more likely to menstruate irregularly (16,7 vs. 2.3%, p=NS), to be RhD negative (29.2 vs. 13.6% p=NS), smoke (12.5 vs. 4.5%, p=NS), and less likely to use standard micronutrient supplementation in the first trimester (for folic acid: 75,0 vs. 90.9%, p=NS, for Vit. D3: 33.3 vs. 45.5%, p=NS). Comparing controls to hypertensive patients (either with PET or without PET), healthy women had significantly higher income (p=0.008), smaller prepregnancy body weight (p=0.000) and BMI at the first antenatal visit (p=0.001). They were significantly more likely to menstruate regularly (95% vs. 78.1 vs. 64.3%, respectively, p=0.011), less likely to have positive family history of hypertension (for mother: 9.1% vs. 28.1% vs. 50.0%, respectively, p=0.000, for sibling: 0% vs. 3.1% vs. 14.3%, p=0.022). Healthy women were also more likely to use Calcium preparations in early pregnancy (34.1% vs 15.6% vs 14.3%, respectively p=NS).

Conclusions: Within standard antenatal care, this is possible to obtain data enabling risk assessment towards PET. Women with chronic hypertension are more likely to have higher prepregnancy BMI, menstruate irregularly, have positive maternal and sibling's history of hypertension and lower income. This data could be utilised for allocating patients to an intensified protocol of antenatal care.

Title: Data mining approach to the analysis of HLA compatibility between kidney donor and recipient in association with post-transplant CMV infection

Authors: Jakub Rosik, Michał Krzysztofik, Kamil Brodowski, Agata Salabura

Affiliation: Department of Microbiology Immunology and Laboratory Medicine

Introduction: Human cytomegalovirus (CMV) infection is one of the most common infectious complications following kidney transplantation. Major histocompatibility complex (MHC) named also human leukocyte antigens (HLA) plays a major role in the elimination of infections in general and HLA compatibility is an important factor in donor-recipient matching for kidney transplantation as well.

Aim: To assess the role of HLA complex in the occurrence of CMV infection after kidney transplantation using new methods of data analysis.

Materials and Methods: The group of 288 kidney recipients who received the transplant between 2005-2016 was analyzed. Design science approach was implemented, supported by dedicated software tool- Rapid Miner. Decision trees and association rules algorithms were applied.

Results: Three classifying decision tree models of high accuracy were created simultaneously with strong association rules. The relation between either 50% or 100% HLA incompatibility between donor and recipient and lacking CMV infection post-transplant was shown with locus A incompatibility as the overriding classifier. No association between particular HLA antigenes and the occurrence CMV infection post- transplant period was indicated. However the association between lacking CMV infection and the presence of Bw6 epitopes in donor and recipient was discovered.

Conclusions: Lower HLA compatibility between kidney donor and recipient combined with Bw6 antigens in both were associated with lower frequency of CMV infection post-transplant.

Title: Risk factors for thrombus formation during coil embolization of intracranial aneurysms

Authors: Mikołaj Kielan, Anna Józefkiewicz

Affiliation: Students' Scientific Organization of Neurosurgery, University Clinical Centre of The Medical University of Silesia, Katowice

Introduction: The thrombus formation is one of the most feared adverse effect associated with coil embolization therapy. It is very important to identify clinical factors predisposing this complication, especially in terms of preventive perioperative application of antiplatelet and anticoagulant drugs.

Aim: The aim of the study was to identify independent predictors for thrombus formation during endovascular coiling of cerebral aneurysms.

Materials and Methods: A total group of 273 patients diagnosed with intracranial aneurysms and treated via endovascular coil embolization in University Clinical Centre in Katowice between February 2008 and March 2015 was included in the study. We reviewed patient medical records with emphasis on procedure description and potential risk factors related to thrombus formation during coiling. The thromboembolic events were identified in 19 (6.9%) patients. To determine potential variables associated with thromboembolism univariate regression analyses were performed with the use of thrombus formation events as the dependent variable in this model. The multivariate logistic regression model included covariates found to have a marginal association with thromboembolism in the univariate analysis (defined as $p < 0.1$).

Results: Multivariate analysis showed that subarachnoid hemorrhage (p=0.005; OR=3.9; 95%CI=1.51-10.16) is an independent predictor for thromboembolic event during coil embolization therapy.

Conclusions: Subarachnoid hemorrhage is an independent risk factor for thrombus formation during coiling of intracranial aneurysms.

Title: Clinical characteristics of Burkitt lymphoma patients with the analysis of prognostic and predictive factors – single center experience

Authors: Mikołaj Szoszkiewicz, Barbara Brzezińska, Monika Joks MD PhD

Affiliation: Poznań University of Medical Sciences, SKN Hematology and Bone Marrow Transplantation

Introduction: Burkitt lymphoma (BL) is infrequent, highly aggressive, lymphoma that is almost uniformly associated with translocations involving the gene for MYC on chromosome 8. An estimated incidence in Poland is 50-120 of new cases per year. Tumor doubling time in BL is about 24 hours similarly to acute leukemias. BL often infiltrates extranodal sites such as central nervous system (CNS), bone marrow (BM), gastrointestinal tract (GI), gonads. The treatment of BL is based on the mutiagent (immuno)chemotherapy with CNS penetrance. So far, any effective treatment strategies have not been recognized as the second line treatment. A very limited literature data is available on prognostic factors in BL.

Aim: Clinical characteriscs and analysis of selected demographic, laboratory and biological findings as potential predictive and prognostic factors in BL patients (pts) We included into analysis some factors significant in other types of non-Hodgkin's lymphoma,

Materials and Methods: Retrospective analysis of pts with BL, who were treated in the years 2007-2017 in our institution. The collected data has been used to statistical analysis using descriptive methods, and following tests: T student test for independent probes Pearson-chi-square test, U-Mann_Whitney test, Fisher -Freeman-Halton test. Results were considered statistically significant for p-values < 0.05.

Results: The analysis included 30 pts (F/M 7/23). The median age was 36.5 (range 19-78) years. In 21/30 (70%) of pts B symptoms (fever, night sweats, weight loss) were found. 28 (93%) of pts were diagnosed in stage IV according to Ann Arbor classification. The most often involved extranodal sites were GI -in 15/30 (50%) of pts, CNS – in 8/30 (27%) of pts and BM in in7/30 (23%) of pts. The patients in 27/30 (90%) of cases were treated with CODOX/IVAC (+/-) R therapy. Complete remission (CR) was achieved in 22 (76%) of pts. After the median of 14.1 (3.13-107.47) months follow-up, 20 (66.6%) of them remain alive. The factors associated with both achievement of CR and superior survival were: low monocyte count p=0.003 and p=0.038 respectively, high lymphocyte/monocyte ratio p=0.026 and p=0.05 respectively, the lack of BM involvement p=0.038 and 0.021 respectively, the lack of CNS involvement p=0.042 and 0.019 respectively. Low LDH concentation was associated only with superior survival p=0.001 In our analysis the age, sex, IPI, stage, B symptoms, lymphocyte count, GI involvement didn't impact neither the response rate nor survival.

Conclusions: Due to the rare incidence of BL, this study based on a small group of patients, therefore we can not draw strong, final conclusions. However, given the fact, that only effective first line treatment gives the chance for durable response and long term survival in patients with BL, we believe it should be identified valuable predictive and prognostic factors with consecutive more intensive treatment strategies in high risk patients.

Title: Polymorphism of TET2 gene mutations in polish patients with myelodysplastic syndromes

Authors: Monika Adamska[1], Ewelina Kowal[2], Katarzyna Kiwerska[2], Adam Ustaszewski[2], Julia Paczkowska[2], Joanna Czerwińska-Rybak[3], Małgorzata Jarmuż-Szymczak[3], L.Gil[4]

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4. Institute of Human Genetics, Polish Academy of Sciences, Department of Hematology and Bone Marrow Transplantation, Poznan University of Medical Sciences

Introduction: Myelodysplastic syndromes (MDS) characterized by ineffective hematopoiesis and high-risk of transformation to acute myeloid leukemia (AML) are a group of clinically heterogeneous disorders. TET2 gene is involved in epigenetic modification and its mutations are observed in 18% of MDS patients. Understanding of prognostic molecular factors and its influence on treatment strategy is still demanded.

Aim: Use of pyrosequencing to confirm the presence of mutations as well as quantitative analysis of TET2 polymorphisms.

Materials and Methods: Bone marrow, peripheral blood and saliva samples collected from 46 patients from 4 polish hematological units between 09.2014-10.2017 underwent analysis. Presence of TET2 mutations: c.4076G>T and c.4638G>C- previously detected by NGS, was confirmed in DNA isolated from bone marrow samples using pyrosequencing and Sanger sequencing. Presence of mutations was furthermore verified in DNA isolated from peripheral blood and saliva samples.

Results: In analyzed group median age at MDS diagnosis was 62 years old. Transformation to AML occurred in 41,3% (19/46) of patients. TET2 mutations were found in patients diagnosed with MDS-EB2 who progressed to AML. Incidence of each mutation was 2,17%. In patient with c.4638G>C mutation the ratio of wild type allele to mutated allele was 47% to 53% in bone marrow and 60% to 40% in peripheral blood. C.4076G>T mutation occurred in patient after alloHSCT and the ratio of wild type allele to mutated allele was 71% to 29% in bone marrow and 76% to 24% in saliva sample. After relapse the ratio of wild type allele to mutated allele was 10 to 90% in bone marrow sample.

Conclusions: TET2 mutations occur frequently in MDS patients who progressed to AML. Pyrosequencing resemble reasonable diagnostic method to confirm presence of clinically important mutations. Detecting mutations in saliva and peripheral blood samples may constitute adequate method for patients with AML transformation with high level of blasts in blood.

Title: Does the etiology of bronchial asthma (atopic, non-atopic, mixed) affect the number of exacerbations and length of hospitalization of patients with bronchial asthma? - Retrospective study

Authors: Joanna Zielińska[1], Mateusz Leśny[1], Natalia Ukleja-Sokołowska[2], Robert Zacniewski[2], Zbigniew Bartuzi[2]

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Introduction: Bronchial asthma is a chronic inflammatory disease of the airways with complex pathogenesis. There are many factors, which may potentially increase its course.

Aim: Analysis of the influence of etiology of bronchial asthma (atopic, non-atopic, mixed) on the number of exacerbations and length of hospitalization of patients treated for exacerbation of bronchial asthma in 2016.

Materials and Methods: The study was based on the retrospective analysis of the randomly selected group of 80 patients, in which there were 44 women and 36 men, age 21-72 years (average 56.5). Patients were hospitalized for exacerbation of bronchial asthma at the University Hospital No. 2 in Bydgoszcz in the Clinic of Allergology, Clinical Immunology and Internal Diseases, Ludwik Rydygier Collegium Medicum in Bydgoszcz NCU in 2016. A retrospective study, the consent of the local Bioethical Commission No. 668/2017 was obtained

Results: In the study group, patients with atopic asthma represented 55% (44 patients), non-atopic asthma was noted in 30% (24 patients), mixed-type asthma was reported in 15% of patients (12 patients). The average length of hospitalization of patients with atopic asthma was 5.5 days, whereas patients with other types of bronchial asthma were hospitalized significantly longer: non-atopic asthma on average 9.5 days, with mixed asthma approximately 11 days. In the analyzed group, 12 patients were hospitalized for exacerbation of bronchial asthma more than once in 2016. Patients with atopic asthma most often underwent exacerbation, which required hospitalization in the summer. Female patients with atopic asthma underwent exacerbation, which required hospitalization 2.5 times more often then male patients. However, in the group of patients with asthma with non-atopic and mixed etiology, men were more likely experience exacerbation.

Conclusions: Among patients hospitalized due to exacerbation, more than a half were people with atopic bronchial asthma. Sensitization to seasonal and all-season allergens is an independent factor which may worsen the course of the disease causing its aggravation. The research conducted in previous years shows that the number of patients with atopic asthma is still growing.

Title: Bronchofiberoscopy among patients below 65 years of age - a retrospective analysis of complications

Authors: Łukasz Cała, Ludmiła Kaczanowska, Martyna Wielgoszyńska.

Introduction: One of the most commonly applied invasive examinations in pulmonary medicine is bronchofiberoscopy. This technique is used not only for macroscopic evaluation of lower respiratory tract but also for taking material for morphological and microbiological examination. This minimally-invasive procedure might cause wide spectrum of complications, starting with cough and ending with even death.

Aim: The aim of the study was retrospective analysis of the frequency and nature of complications in patients undergoing bronchofiberoscopy in the group below 65 years of age.

Materials and Methods: The study analyzed 261 bronchofiberoscopic procedures performed on 214 patients hospitalized in the period between 1 January'17 and 31 December'17 in the Regional Centre of Pulmonology in Bydgoszcz. There were 126 (58.9%) men and 88 (41.1%) women in the analyzed group. The patients were aged 19-64 (age average: 50.1 years), among them 37 patients (17.3%) were below 35 years old, 46 (21.5%) were 35-49 years old and 131 (61.2%) were 50-64 years old. All data required for this study was obtained using Hipokrates system and analyzed retrospectively.

Results: Complications developed in 45 (17.2%) of the 261 performed procedures. They were reported more often in women's cases than in men's (18.7% versus 16.2%). According to the age group the complications occurred: 23.1% procedures in cases of patients aged under 35 years old, 16.7% in cases of patients between 35 and 49 years old and 16.1% in cases of patients between 50 and 64 years old. In 10 procedures (3.8% of all cases) more than one complication was reported. Increase in body temperature (8.0% of all procedures) and haemoptysis (4.6%) were the most frequent side effects. Others were: headache, sleeping disorders at night after the examination, cough, malaise, chest pain, hypotension, dyspnea, dizziness, rash, tachycardia.

Conclusions: Despite of relatively often occurring complications (17.2%), no life-threatening problems such as death or pneumothorax were reported. Temporarily increased body temperature and haemoptysis were most frequently sequelae. Among people under 35 years of age complications occurred more often than in other age groups. Due to risk of complications induced by bronchofiberoscopy and the fact that problems occurred in every age group, patients should be prudentially qualified for examination even at young age. The role of bronchofiberoscopy is to increase diagnostic and therapeutic possibilities and equally minimizing complications.

Medicine Sciences II

Young scientists,
PhD students
and
Professional workers Session

Jury:

Professor Marek Koziński, PhD

Katarzyna Ciechanowska, PhD

Michał Wiciński, PhD

Agata Żaroń, PhD

Maria Kłopocka, PhD

Moderator:

Alina Jaroch

Jan Kłopocki

Title: Impact of oral glucose load on blood pressure values and indices of the autonomic nervous system in young people

Authors: Sebastian Janiec, Dawid Bugara, Agnieszka Stępień, Anna Płotek, Jeremiasz Kubisiowski, Andrzej Nowak

Affiliation: Students' Scientific Group at Ist Department of Cardiology and Interventional Cardiology and Hypertension JUMC

Introduction: Decrease in blood pressure (BP) after a meal is a physiological, well-known hemodynamic phenomenon. Postprandial hypotension, most prevalent in the elderly and resulting i.a. from gradual dysregulation of the autonomic nervous system, may increase the risk of syncope and general mortality.

Aim: The aim of the study was to assess the physiological changes in the circulatory system after ingesting a 75g glucose solution occurring in the group of young healthy adults and to compare the changes in peripheral and central blood pressure induced by temporary hyperglycaemia as well as to identify factors determining them.

Materials and Methods: 52 subjects (men n=26) aged 20-25 participated in the study. In all of them: measurements of peripheral blood pressure (Omron), assessment of central blood pressure with the analysis of short-term heart rate variability (HRV) using the Sphygmocor device and determination of the blood glucose level in the capillary blood (Contour Plus) were performed. The subjects were then given 300ml of an aqueous solution of 75g of glucose. All of the above mentioned tests were repeated after 60 and 120 min. from the glucose load.

Results: After administration of 75g of glucose in the 60th minute of the test, we observed a decrease in systolic BP (Δ= -6.16 mmHg, p<0.001), diastolic BP (Δ= -2.29 mmHg, p=0.06), central systolic BP (Δ= -5.37 mmHg, p<0.001), as well as pulse pressure (Δ= -3.48 mmHg, p<0.001). In multivariate analysis, reduction of systolic BP in 60th minute was determined by gender (b= -0.53, p<0.001) and baseline systolic BP values (b= -0.65, p<0.001). The factors determining the decrease in BP in the 60th minute of glucose tolerance test in men were: baseline BP (b= -0.44, p=0.01), baseline glucose level (b= 0.39, p=0.027) and baseline LF/HF ratio (b= 0.47, p=0.01); while in females - only the baseline systolic BP value (b= -0.64, p=0.004). The only factor determining the decrease in systolic BP between 0 and 120 minutes after glucose digestion in the male group was baseline BP (b= -0.62, p=0.001), and in the female group both the baseline BP (b= -0.83, p<0.001) and baseline heart rate (b= 0.47, p=0.022).

Conclusions: The oral glucose load resulted with a significant decrease in the systolic and diastolic blood pressure values, with a greater reduction in the peripheral BP than the central BP. Groups of women and men were characterized with different factors determining the decline in systolic BP during glucose tolerance test.

Title: Evaluation of the influence of the distance of Base Transceiver Station(BTS) on the frequency prevalence and features of thyroid focal lesions, revealed in the studies ultrasound

Authors: Aleksandra Marko, Ewelina Malesza, lek. Szymon Suwała, prof. Roman Junik

Introduction: Nowadays mobile phones are an inseparable part of everyday life, of the majority of the Society. Because of that, these devices are becoming more and more often as an object of the scientists interest - for example, in 2009, Mortavazi et al. proved, on a small group of healthy volunteers that there is a statistically significant correlation between intensity of use of a mobile phone and the concentration of TSH, fT3 and fT4. However the mobile phones, are only the mobile terminal of the system while radiation influencing the human body come also from fixed part of the digital telecommunications network.

Aim: The aim of the study was to evaluate the impact of the location of BTS in relation to the patients' addresses including the incidence and characteristics of the focal changes in the thyroid glands, and thus an indirect assessment of the impact of the electromagnetic field produced by the BTS.

Materials and Methods: The patients' data were obtained (thyroid ultrasound examination results, age, addresses) from the Department of Endocrinology and Diabetology. These patients were hospitalized for non-thyroid reasons. Group contained 126 patients. Using the BTS web map (http://btsearch.pl) patients addresses were verified for distance from BTS (GSM and LTE) and BTS number located within 1km from the patient's place of residence. Data were analyzed by using the STATISTICA 13 program.

Results: In a group of 126 patients, the median distance from the nearest BTS GSM was 360m, and from BTS LTE - 390m. In 49 patients (38.88%) there were focal lesions in thyroid structure, of which 21 of them were suspicious. Median thyroid volume in the whole group was 10.46ml (IQR: 13.53), and the changes mainly included 5.01% of total thyroid volume (IQR: 22.68). Patients with focal lesions in general (compared to the other respondents) were characterized by a shorter distance from the place of residence to the nearest GSM BTS (320m vs 390m) and LTE (345m vs 395m), but only for BTS GSM this difference can be considered as a statistically significant ($p = 0.149$). In comparison to the other patients with focal lesions, the group of patients with lesions known as suspicious were characterized by a smaller distance from residence to the nearest BTS GSM (230m vs 370m) and LTE (260m vs 495m) and in both cases were statistically significant differences ($p < 0.001$). Percentage of volume occupied by focal lesions, significantly correlated with the distance from BTS LTE ($R = -0.307$, $p = 0.077$), but not with distance from GSM BTS ($p = 0.366$). The remaining results will be presented during the conference.

Conclusions: Basing on the results of the pilot study, it can be assumed that there is a potential correlation between the distance of the patient's place of residence, and the BTS and onset of thyroid focal lesions and their characteristics. The current study is planned as a pilot study to the more advanced research.

Title: Neutropenia- a single center experience

Authors: Anna Charemska[1], Joanna Konieczek[1], Edyta Węgrzyn[1], Monika Richert-Przygońska MD PhD[2]

Affiliation: 1.Faculty of Medicine, Nicolaus Copernicus University in Toruń Ludwik Rydygier Collegium Medicum in Bydgoszcz, 2.Department of Pediatrics, Hematology and Oncology, Antoni Jurasz University Hospital No. 1 in Bydgoszcz

Introduction: Neutropenia defined as the absolute neutrophil count (ANC) less than 1,5x10^9/l is relatively common but underdiagnosed clinical condition in children.

Aim: The aim of the study was to establish the etiology, laboratory features, clinical manifestation and treatment algorithms in pediatric patients with neutropenia.

Materials and Methods: The retrospective one-center study was performed. We analyzed clinical and laboratory data of 92 children hospitalized in the Department of Pediatrics, Hematology and Oncology between January 2006 and April 2018.

Results: Post-infectious neutropenia was diagnosed in 20% (n=19) patients, primary neutropenia in 16% (n=15) and idiopathic neutropenia in 47% (n=43). The age at onset of neutropenia was less than 5 years in 70% of patients, including 30 infants, and 25 children in the age less than 3 years. The majority of population were boys. Recurrent infections occurred in almost half of the patients (n=42) and severe infections, including sepsis, were observed only in 3 children with the absolute neutrophil count lower than 0,1x10^9/l. Agranulocytosis was found in total of 18 patients. Severe neutropenia was defined in 35 children, moderate in 22 children and mild neutropenia in 15 patients. Only 35 patients (n=35) received treatment with granulocyte colony stimulating factor (G-CSF) or antibiotic prophylaxis.

Conclusions: Neutropenia is a diagnostic challenge even in specialistic departments. It is often diagnosed accidentally and the clinical manifestation of neutropenia does not always correlate with the absolute neutrophils count. We believe that the treatment of neutropenia in childhood should be based on clinical status and infectious trait of the patient.

Title: Symptoms of neuropsychiatric systemic lupus erythematosus in Polish cohort - a retrospective study

Authors: Małgorzata Tąpolska, Wiktor Schmidt, Maciej Spałek

Affiliation: Student Department of Rheumatology, Metabolic Bone and Connective Tissue Disorders, Department of Rheumatology and Rehabilitation, Poznan University of Medical Sciences, Jozef Strus Municipal Hospital in Poznan

Introduction: Neuropsychiatric symptoms can affect up to 80% of patients with SLE, but the exact prevalence is hard to be estimated due to the profusion of clinical symptomatology. There is a wide range of neurological and psychiatric symptoms that emerge from inflammation and ischemic processes in the nervous system. NPSLE should be taken into consideration in differential diagnosis of many neurological and psychiatric disorders, thus knowledge about the neuropsychiatric manifestations of SLE is crucial for practicing neurologists.

Aim: The aim of the study was to identify and classify the group of NPSLE patients with evaluation of disease activity and instituted treatment.

Material and Methods: We analyzed retrospectively a cohort of 128 Polish patients with SLE. All patients with suspicion of NP symptoms had neuropsychological and imaging examinations. Central and peripheral NPSLE symptoms were recognized and categorized in accordance with The American College of Rheumatology nomenclature. All patients were assessed according to Systemic Lupus Erythematosus Disease Activity Index by SLEDAI (version 2000).

Results: Symptoms of NPSLE were observed in 38 (30%) patients (34 female and 4 male) with average age 38 ± 6 years (range 18-61 years), average disease duration 6,6 ± 5,6 years (range 1,0 - 18,0 years). All (38) NPSLE patients presented symptoms from central nervous system, but only 16% (n=6) of them had peripheral lupus manifestations. The most common manifestations were cognitive dysfunction (n=22, 58%), mood disorders (n=14, 37%), cerebrovascular disease (n=12, 32%), headaches (n=8, 21%), anxiety disorder (n=8, 21%) and seizure disorders (n=7, 18%). All patients were treated with oral and pulse glucocorticoids (GC) and 89% of them had standard immunosuppressive drugs instituted (CYC, MMF, AZA,MTX, CsA). As a background therapy 82% of these patients were on chloroquine or hydroksychloroquine (CQ/HCQ). Mean SLEDAI score at NP event was very high 29±9,6, but mean SLEDAI score without NP symptoms was 15 ± 8,3 and was connected with musculoskeletal, mucocutaneous, renal and hematological domains respectively n=29,76%; n=23,60%; n=11,29%; n=8,21%. Low disease activity was estimated at 3% of patients examined. Most of lupus patients (n=37, 97%) had moderate or high disease activity regardless of NP symptoms. In our cohort NPSLE symptoms were associated with immunological activity with increased anti-dsDNA antibodies (n=30, 78%) and/or lowered complements C3 and/or C4 levels (n=21, 55%).

Conclusions: In Polish lupus cohort we observed more frequent lupus-related primary neuropsychiatric symptoms from central nervous system than from peripheral, especially cognitive dysfunctions, mood disorders, cerebrovascular events, anxiety, headaches and seizures. Clinical activity of NPSLE patients was rather high and definitely most of patients were immunologically active despite aggressive immunosuppressive treatment with standard background therapy.

Title: Etiology of bacterial pneumonia based on age - Retrospective analysis of patients hospitalized in departament of Lung Diseases, Tumors and Tuberculosis in Bydgoszcz

Authors: Karol Pilichowski, Wojciech Świerczyński, Ludmiła Kaczanowska, Łukasz Cała, Martyna Wielgoszyńska

Introduction: Pneumonia is a common disease entity affecting lower respiratory tract. It is a relevant epidemiological issue, which is also a serious threat to elder people's health. It may be connected with multiple morbidities, weakened immunity or superinfections during the duration of the disease. The primary pathogenes occuring in pneumonia are bacterias and this etiology is a common concern among physicians in various specialties.

Aim: In this study we tried to represent a percentage dispersion of bacterias being a potential cause of lower respiratory tract inflammations in sputum among patients with pneumonia of different age groups, hospitalized in Departament of Lung Diseases, Tumor and Tuberculosis in Bydgoszcz in 2017. We have focused on etiology and the differences in ammount of detected bacterias in age groups ≥65 and <65 and in genders.

Materials and Methods: We have analised patients base of Departament of Lung Diseases, Tumor and Tuberculosis in Bydgoszcz hospitalized with pneumonia through retrospective analysis of these patients in the Hipokrates database.

Results: The subject of this study was a group of 424 patients, of whom 242 were men and 182 were women. 273 patients were ≥65 years old and 151 <65 years old. 141 patients had in their microbiological testing of the sputum at least 1 bacteria and 40 of these patients had more than 1 bacteria. The most common bacteria in the whole group was Haemophilus influenzae which also occured in male group, although female patients had Escherichia coli as the most common cause of pneumonia.

Conclusions: Contrary to our expectations Streptococcus Pneumoniae was not the most common bacteria in our group but in most cases it was not possible to obtain any pathogen in microbiological tests of the sputum. This can not exclude viral or fungal etiology of the disease nor mistakes during sampling. Although in the elder group of patients there is a tendency to infections with more than one pathogen in comparassion to younger patients. What is more, the microbiological tests for bacterias were positive almost twice as often in the elder group than the younger group of patients. Although this way of confirming pneumonia might not be a sensitive method, there is not much of a choice among current noninvasive methods of diagnosis.

Title: Results of further diagnostic procedures among patients with low-grade and high-grade squamous intraepithelial lesions

Authors: Natalia Jaczyńska, Joanna Kacperczyk-Bartnik, Agnieszka Dobrowolska-Redo, Ewa Romejko-Wolniewicz

Introduction: Low-grade squamous intraepithelial lesions (LSIL) and high-grade squamous intraepithelial lesions (HSIL) are positive results of Pap smear.

Aim: The aim of this study was to investigate differences in colposcopy and histology results among patients with LSIL and HSIL.

Materials and Methods: It was an observational study with a historical cohort. Patients were assigned to groups depending on first positive Pap smear result: LSIL or HSIL. Out of 14537 analyzed Pap smear results, 649 were positive and included 172 LSIL results and 90 HSIL results. All the procedures were performed in the outpatient clinic next to the tertiary referral center. Age, Pap smears, colposcopic and histology findings were compared on the basis of medical records. Data was analyzed with SAS software with significant p value <0.05.

Results: There was a trend towards increased risk of obtaining positive colposcopic results in HSIL group than in LSIL group (p=0.09). There were more visualizations of mosaicism in HSIL than LSIL [p=0.004, RR=2.89 (1.36-6.18)]. Distribution of unsatisfactory results, acetowhite changes and punctuations was similar among groups. Histology results showed higher occurrence of CIN1 in LSIL group than in HSIL [p=0.004, RR=4.2 (1.48-12.20)]. There was a tendency of more frequent CIN3 or invasive squamous cancer among patients with HSIL than LSIL (p=0.07). No significant differences in CIN2 occurrence between groups were observed.

Conclusions: HSIL result is associated with more advanced alterations in colposcopy and histology. Therefore, patients with HSIL require different management than patients with LSIL.

Title: How does physical activity affect depression?

Authors: Marta Kułaga, Michalina Borzych, Michał Danek

Affiliation: Department of Psychiatry, Collegium Medicum in Bydgoszcz, Nicolaus Copernicus University in Toruń

Introduction: Physical exercise is an important part of a healthy lifestyle. It is rellevant how it affects the mood, feeling of self-satisfaction and accepting your own body.

Aim: The purpose of the study is to estimate how does physical exercise impacts on occurance of depressive disorders. It estimates the correlation between mental state of the subjects and amount, frequency or type of physical exercise. It also focuses on motivation to exercise and how does activity change during periods of worsen mood.

Materials and Methods: The study was conducted with an anonymous questionnaire. It contained questions about physical activity and Beck depression inventory. We divided the subjects into groups based on frequency and amount of their physical activity: not active, slightly active, moderately active, highly active. We also divided them for groups of healthy people, and people with mild, moderate or severe depression.

Results: We noticed statistically important differences between results in Beck Depression Inventory and physical activity. Chi-square test 50.56 important for p=0.05. Severe depression was more than five times more common among people who don't perform physical activity at all, than among the most active people. What is more, there were statistically important differences (chi-square 12.15 important for p=0.05) for effect of physical exercise on mood between groups of activity. Exercising elevates the mood for 82.01% of slightly active people, for 86.90% of moderately active people and for 85,23% of highly active people. It surprised us, that 10.23% of highly active people says activity worsens their mental state. The most common answer to question 'how does physical activity changes your mood' was 'it makes me happier' - chosen by 31% of active people. When it comes to motivation: the most common factor was 'improving physical appearance', however the differences between groups of people with severe, moderate, mild depression and healthy people were not statistically important. Motivation to improve mood was the second most common factor, chosen by 53% of active people. The differences between healthy and depressed groups were statistically important- chi-square 19.60 important for p=0.05.

Conclusions: Our study clearly shows positive effect of physical activity on mental state. It could be considered as a therapeutic tool when it comes to treating depression. It is also important to treat it as a profilactic mean to reduce depression rates.

Title: Differences in the female and male approach to the infertility problem.

Authors: Wiktor Modelski, Dominika Tomczak, Bartosz Pokrzywa, Joanna Łukasik, Aleksandra Katafias, tutor: dr. n. med. Maciej Socha.

Introduction: According to WHO infertility is a disease of the reproductive system defined by the failure to achieve a clinical pregnancy after 12 months or more of regular unprotected sexual intercourse. There are many causes of infertility, including some that medical intervention can treat. Infertility problem should be always concerned as a pair problem, because it can cause problems in relationship.

Aim: Purpose of the study was to evaluate the approach to infertility considering differences between women and men.

Materials & Methods: We conducted the retrospective study using anonymous, online questionnaire. Survey consists of 39 questions. For the evaluation we used questions such as: "Would you be able to go through in vitro fertilization?", „If you would not want in vitro fertilization, what is a cause?", „Would you be able to adopt a child?", „Have you ever wondered if infertility problem could affect you?", „In what percentage do you think infertility problem is caused by women and men?". Data has been analyzed with Microsoft Excel

Results: The survey showed that bigger percent of women than men know after what time of regular intercoure we can diagnose infertility. Also more women have chosen right answer to question „In what percentage do you think infertility problem is caused by women and men?". 43% of women and 27% of men claimed that they know what assisted reproductive techniques are. As many as 73,33% of the surveyed men before the start of efforts for the child did not wonder whether the problem of the infertility may affect them, while more than half of the women surveyed answered in the affirmative. According to the results of the survey, more women than men would consider undergoing an in vitro treatment or adoption of a child if it turns out that they are infertile. Unlike women, more men would choose to adopt than in vitro fertilization.

Conclusions: 1. Women have bigger knowledge about infertility than men. 2. Almost 75% of men do not wonder if they may be infertile, which in some cases may lead to a deterioration of semen quality, that is why there is a need for education in this topic. 3.Women more often than men would decide on in vitro fertilization or adoption of a child.

Title: Trends in Bentall procedure patients 2005-2018: characteristics and treatment results.

Authors: Joanna Bisaga, Bartosz Kończyk, Monika Kasperczak

Affiliation: Medical University of Silesia in Katowice for all the authors.

Introduction: The Bentall procedure is the gold standard in the treatment of patients requiring aortic root replacement. This method consists of graft replacement of the aortic valve, aortic root and ascending aorta, with reimplantation of the coronary arteries into the graft.

Aim: The aim of this study is to assess the characteristics of patients who were eligible for Bentall procedure. The purpose of the study was to analyze such aspects as: sex, age, type of hospital admission, comorbidities, Stanford classification of aortic dissection, average length of stay and corresponding treatment results (conservative treatment, perioperative complications and mortality).

Materials and Methods: We gathered data from medical records of 416 patients diagnosed with ICD-10: I71.0 between January 2005 and March 2018, created database and analyzed statistically. We compared our results with 2 other studies from other clinics.

Results: We found out that there were 282 men and 134 women diagnosed with I71.0. Their mean age was 53 for women and 57 for men. 289 of the patients were admitted through emergency hospital admission and 83 through elective hospital admission. 101 patients died during perioperative period and 24 patients were administered conservative treatment. 268 patients had a dissection, according to Stanford classification 249 of them were identified as type A and 20 as type B. 104 patients suffered from chronic cardiac disease, 36 from diabetes, 240 from hypertension, 45 from hyperlipidemia. 57 patients were classified as obese and 71 were active smokers.

Conclusions: The conclusion of our study is that the patient eligible for the Bentall procedure is most likely a man aged 56, after emergent admition to the Cardiac Surgery Unit. We also found out that every second patient has hypertension and one in four has CHD.

Key words: Cardiac surgery, Bentall, Quality of life, Thoracic aortic aneurysm, Dissection of aorta.

Title: The details make the difference – analysis of factors influencing the outcome of insect sting anaphylaxis

Authors: Justyna Maciejiczek[1], Magdalena Marcak[2], Anna Dzienniak[2], Beata Kandefer[2], Izabela Kołodziej[2]

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Introduction: Hymenoptera stings can cause systemic allergic reactions (SR) and occasionally fatal anaphylaxis, which contribute significantly to morbidity and deterioration in health-related quality of life. The prevalence of SRs after a sting is estimated to be between 0.15% to 0.8% in children and 0.3% to 8.9% in adults. Those patients should be referred to an emergency department for the epinephrine treatment in order to prevent progression to anaphylaxis, to an allergist for diagnosis and for preventive treatment such as specific immunotherapy.

Aim of the study: The aim of the study was to analyze and characterize the symptoms presented by patients and medical care they received after a Hymenoptera sting. The frequency and severity of allergic reactions according to area of a sting and its culprit were analyzed.

Materials and Methods: The subject of the retrospective analysis was a total of 299 medical records of patients treated in the allergy outpatients clinics in the area of southern Poland, each of them a subject to a single or multiple Hymenoptera stings in the various parts of the body.

Results: The majority of our patients presented symptoms of anaphylactic shock (40%) or severe anaphylactic reaction (66%). Stings in areas of head and neck, and upper limb either by bee of wasp suffered lead to more severe symptoms that those in the other parts of the body. (statistical significance, $p<0,05$). Interestingly, cutaneous symptoms were rarely observed in patients with severe reactions. Adrenaline was used only in 17.1% of cases of Hymenoptera sting anaphylaxis.

Conclusion: The final outcome of Hymenoptera sting is influenced by the site of the sting. Accidents involving stings in the areas of head, neck and upper limb are more severe than in the other parts of the body. Epinephrine should be a drug of choice in systemic allergic reactions.

Title: Potential role of cyclin F mRNA expression in the survival of skin melanoma patients: Comprehensive analysis of the pathways altered due to cyclin F upregulation

Authors: Adrian Krajewski[1], Maciej Gagat[1], Dariusz Grzanka[2], Alina Grzanka[1]

Affiliation: 1.Department of Histology and Embryology, Faculty of Medicine, Nicolaus Copernicus University in Toruń, Collegium Medicum in Bydgoszcz, 2.Department of Clinical Pathomorphology Faculty of Medicine, Nicolaus Copernicus University in Toruń, Collegium Medicum in Bydgoszcz

Introduction: Although melanoma comprises 5% of all skin-related tumors, it is responsible for 75% of the deaths caused by this type of cancer. Although significant progress has been made in the last decade and the number of cases has decreased, the overall mortality rate has remained steady. This moderate success provides the rationale to continue research on expanding therapies focusing on cancer biology and targeting molecular pathways crucial for proliferation, metastasis and respond to treatment.

Aim: The aim of our in silico analysis was to take the first step in the elucidation of the precise mechanism of the cyclin F (CCNF)-RRM2 axis in skin melanoma. The study aims to accelerate the development and to inspire other scientific teams to conduct similar research in the field.

Materials and Methods: To assess the expression profile of cyclin F and RMM2 mRNA, we obtained data from The Cancer Genome Atlas via www.cBioPortal.org. Patients were divided into groups: with CCNF or RRM2 mRNA upregulated expression (z-score >0) and with downregulated mRNA expression (z-score ≤0) and then, for each mRNA, we conducted overall survival and disease-free survival analysis. The same source was used for protein level comparison in patients with upregulated and downregulated cyclin F and RRM2 mRNA. In turn, we analyzed obtained information and used Reactome (http://reactome.org) and ToppGene Suite (http://toppgene.cchmc.org) to organize data into biological processes and functional molecular pathways.

Results: Our original analysis revealed that high expression of cyclin F in melanoma patients is associated with worse overall survival. Cyclin F and ribonucleotide reductase family member 2 (RRM2) compose a functional axis responsible for nucleotide metabolism. Impairment in this pathway may contribute to increased DNA damage repair and drug resistance. We analyzed the expression of RRM2 mRNA and discovered that high expression of RRM2 also is associated with worse overall survival. To shed more light on cyclin F overexpression in melanoma, we analyzed all protein data available in the TCGA melanoma dataset. It was found that in patients with upregulated cyclin F mRNA, we noted increased activity of pathways related to cell cycle and DNA damage repair. These data will support further in vitro and in vivo studies on the involvement of cyclin F in skin cutaneous melanoma.

Conclusions: High expression of cyclin F mRNA is associated with worse overall survival. Moreover, upregulated cyclin F mRNA expression is associated with activation of molecular pathways responsible for melanoma proliferation, metastatic potential and survival. These findings are a good starting point to address new cyclin F targets and interactions which drive the increased aggressiveness of the tumor.

This study was supported by a grant from the National Science Centre, Poland (grant no. 2016/21/B/NZ7/01121 to A.G.).

Title: Activation of hemostatic and angiogenesis processes in patients with luminal A breast cancer

Authors: Elżbieta Zarychta, Kornel Bielawski, Katarzyna Szot, Barbara Ruszkowska-Ciastek

Affiliation: Department of Pathophysiology, Faculty of Pharmacy, Nicolaus Copernicus University w Toruń, Collegium Medicum in Bydgoszcz, Poland.

Introduction: Breast cancer (BrC) is a heterogeneous disease. Using particular immunohistochemical markers, different molecular subtypes of the breast cancer can be distinguished. Cancer progression from a benign tumor to metastatic disease is a multiple step process that to a large degree depends on contributions from the hemostatic system. Also, angiogenesis is essential for tumor growth when its diameter exceeds 2-3mm. As a result of so-called angiogenic switch it comes to genetic modification of cancer cells, resulting in uncontrolled production of proangiogenic factors.

Aim: The aim of the study was to evaluate the concentrations of selected hemostatic and angiogenic parameters such as: vascular endothelial growth factor A (VEGF-A), soluble form of vascular endothelial growth factor receptor 1 and 2 (sVEGFR1 and sVEGFR2), tissue factor (TF) and tissue factor pathway inhibitor (TFPI) in patients diagnosed with luminal A BrC and in healthy controls and to make an attempt at finding associations with these levels and selected clinicopathological factors: age, BMI, menopausal status, localization of the tumor, nodal status and histological type of cancer.

Materials and Methods: Study group consisted of 60 women aged 40-69, diagnosed with luminal A type breast cancer, without distant metastases. Control group comprised 40 healthy women aged 45-63, who were volunteers with normal results of all examinations (confirmed by mammography). The exclusion criteria for all the participants were as follows: surgery <1 month, hyperlipidaemia, hyperglycaemia, acute or chronic infections, use of any drugs that could essentially affect the value of the results, recent bleeding or thrombotic events. The luminal-A BrC was defined as estrogen receptor-positive and/or progesterone receptor-positive tumors with negative HER2 and low Ki67 index (<14%). Haemostatic and angiogenic parameters were performed applying enzyme-linked immunosorbent assay (ELISA) with a commercial kit.

Results: Significantly higher concentrations of VEGF-A i TF were noted in the luminal-A- BrC group than in the control group. On the contrast the levels of sVEGFR1, sVEGFR2 and TFPI were significantly lower in the study group as compared to controls. Subsequently, statistical calculation considering demographic, clinical and pathological parameters of the investigation group was made. The patients aged 55 or more and those after menopause had higher plasma levels of TFPI. Women with tumor in the left breast were characterized by higher concentrations of VEGF-A, as well as patients with negative nodal status. Patients with metastases in lymph nodes revealed higher levels of TF.

Conclusions: Altered levels of examined factors in patients diagnosed with luminal A breast cancer indicate increased activation of angiogenesis and hemostasis. The obtained results may also be indicative of involvement of the above-mentioned processes in tumor growth and progression.

Title: Heparanase possible link between angiogenesis and vasculogenesis in breast cancer

Authors: Kornel Bielawski, Barbara Ruszkowska-Ciastek, Elżbieta Zarychta, Sylwia Jurczyk

Affiliation: Department of Pathophysiology, Faculty of Pharmacy, Nicolaus Copernicus University Toruń, Collegium Medicum in Bydgoszcz, Poland

Introduction: Heparanase is an endoglycosidase that specifically cleaves heparan sulfate side chains, a class of glycosaminoglycans abundantly present in the extracellular matrix and on the cell surface. Heparanase activity is a strongly implicated in tumor angiogenesis and metastasis attributed to remodeling of the subepithelial and subendothelial basement membranes. Elevated level of heparanase is detected in many types of tumors such as breast, prostate, ovarian cancers. Patients presenting high levels of heparanase have a significantly shorter postoperative survival time as well as a poorer future prognosis.

Aim: The aim of the study was to evaluate the concentrations of heparanase, vascular endothelial growth factor A (VEGF-A), soluble form of vascular endothelial growth factor receptor 1 (sVEGFR1), soluble form of vascular endothelial growth factor receptor 2 (sVEGFR2) and the number of circulating endothelial progenitor cells (circulating EPCs) in the blood of patients diagnosed with primary breast cancer without distinct metastasis (M0) and to make an attempt at finding associations with heparanase and analyzed parameters involved in angiogenesis and vasculogenesis and selected clinicopathological features.

Materials and Methods: The study involved 67 Caucasian women aged 42 - 68 (mean age 54) with primary breast cancer. Inclusion criteria were as follows: histo-pathological examination confirming the diagnosis of primary breast cancer, without previous radiotherapy and chemotherapy. In the fresh blood samples the number of circulating endothelial progenitors was determined using flow cytometry. Plasma levels of heparanase, VEGF-A, sVEGFR1 and sVEGFR2 were measured using the enzyme-linked immunosorbent assay (ELISA) methods. Immunohistochemistry evaluation of estrogen and progesterone receptors, human epidermal growth factor receptor 2, Ki67 was made in all cases.

Results: According to the level of heparanase (low, moderate, high) we observed significant gradual increasing of soluble form of VEGF receptor type 2 ($p=0.0407$) and simultaneous decreasing of soluble form of VEGFR1 based on concentration of heparanase ($p=0.0421$). Additionally, we observed as the heparanase concentration increases, the number of endothelial progenitors elevates in luminal-A-breast cancer patients ($p=0.0425$). Positive correlations between heparanase and circulating EPCs as well as between heparanase and sVEGFR-2 was reported ($p=0.0305$, $p=0.0311$- respectively), and a negative correlation between heparanase and sVEGFR-1 ($p=0.0257$). A positive association between heparanase and proliferative marker: Ki67 was noted ($p=0.0119$).

Conclusions: Our study confirmed that heparanase essentially influence on vasculogenesis and angiogenesis potential. This might lead us to think that heparanase may be used as an early diagnostic tool to recognized a potential of metastasis.

Medicine Sciences III

Case Report Session

Jury:

Iga Hołyńska-Iwan, PhD

Agnieszka Strączyńska, PhD

Moderator:

Joanna Bogusiewicz
Kamil Łuczykowski
Karol Jaroch

Title: A case report of a giant fibroadenoma in breast of 17-year-old pregnant woman - difficult diagnosis.

Authors: 1. Amanda Piątek, 2. Dominika Tomczak, 3. Paulina Szymańska, 4. Maciej Socha

Affiliation: Collegium Medicum im. Ludwika Rydygiera w Bydgoszczy, Uniwersytet Mikołaja Kopernika w Bydgoszczy

Introduction: Fibroadenomas are frequent, benign breast cancers found mainly in young women. In most cases, tumor growth occurs slowly, however, 2-4% of them reaches gigantic sizes, which gives rise to suspicion of the malicious origin of the lesion.

Case report: The paper presents a case of a 17-year-old woman in 29 week of pregnancy was diagnosed with fibroadenoma based on a clinical examination which shows the massive swelling, redness and painless lump and a fine needle aspiration biopsy in the Department of Gynecology at the Medical University of WSZ in Toruń. After three months, the patient returned to the hospital to the Department of Clinical General and Oncological Surgery of Children and Youth in Bydgoszcz due to the twofold increase in tumor mass. The ultrasound examination of the breast glands revealed a difference in the size of 71x63x87mm, on the basis of which a phyllodes tumor was suspected. The patient was qualified for quadrantectomy in the maternity ward and prenatal steroids were administered. In the histopathological examination of the intraoperative material, the phyllodes tumor was excluded and fibroadenoma was confirmed.

Conclusions: In the described case, the diagnostic difficulty was the pregnancy of the patient, which made it impossible to perform the imaging procedures and the usefulness of percutaneous biopsies was limited, because of the place of material collection, radically different results are obtained.

Keywords: giant fibroadenoma, breast tumor, teenager, pregnant woman

Title: Cutaneous myeloid sarcoma as the presenting sign of acute myeloid leukemia - a case report.

Authors: 1. Anna Zaryczańska, 2. Martyna Sławińska, 3. Ewa Zarzycka,4. Wojciech Biernat, 4. Joanna Lakomy, 2. Roman J. Nowicki, 2. Michał Sobjanek

Affiliation: 1.Students Scientific Circle in the Department of Dermatology, Venereology and Allergology, Medical University of Gdańsk, 2.Department of Dermatology, Venereology and Allergology, Medical University of Gdańsk, 3.Department of Haematology & Transplantology, Medical University of Gdańsk, 4.Department of Pathomorphology, Medical University of Gdańsk

Introduction: Leukemia cutis refers to the infiltration of the skin with neoplastic leukocytes. According to recent research, such phenomenon is observed in 3-30% of patients diagnosed with haematological malignancy. Myeloid sarcoma (chloroma) is an extramedullary tumor composed of myeloid precursor cells which may affect virtually any organ, including the skin. Myeloid sarcoma may occur in the course of acute myeloid leukaemia, chronic myeloid leukaemia, multiple myeloma or bone marrow fibrosis.

Case report: We present a case of 70-year old male without the previous medical history of haematological disorders, who was misdiagnosed with an ulceration of the lower limb and treated accordingly for the following 8 months. Due to the progression of disease the patient was referred to Department of Dermatology. Histopathological and immunopathological assessment of the skin biopsy specimen led to the diagnosis of myeloid sarcoma. The further haematological assessment revealed the presence of acute myeloid leukaemia with myelodysplasia-related changes. Despite the aggressive treatment the disease progressed rapidly, resulting in patient death 18 months after the diagnosis.

Conclusions: The diagnosis of chloroma may be challenging, especially if it is the first manifestation of haematological malignancy. Histopathological verification of any skin lesion with atypical clinical presentation should be performed to avoid the diagnostic pitfalls.

Keywords: acute myeloid leukemia, AML, myeloid sarcoma, skin.

Title: Posterior reversible encephalopathy syndrome as a complication of a simple operation in the young female patient.

Authors: Paula Ziajka, Maciej Spałek, lek.Natalia Stranz-Walczak, dr hab. n. med. Katarzyna Karmelita-Katulska

Affiliation: Student Research Group of General Radiology and Neuroradiology, Department of General Radiology and Neuroradiology, Poznan University of Medical Sciences

Introduction: Posterior reversible encephalopathy syndrome (PRES) is a subacute disease with symptoms of damage or dysfunction of the brain, mostly with the etiology of a sudden rise in blood pressure. In the literature, however, many other etiological factors are mentioned including bacterial infection, chemotherapeutic agents, porphyria, nephrotic syndrome, autoimmune disease, hemolytic-uremic syndrome (HUS), thrombotic thrombocytopenic purpura (TTP). The most common symptoms are headaches, consciousness impairment, visual abnormalities, seizures. Diagnosis is made on the basis of characteristic imaging patterns in MRI or CT, which include symmetrical oedema within the parieto-occipital regions (95%) corresponding to the posterior cerebral arterial supply. In most cases, the symptoms pass without any long-term repercussions.

Case report: 33-years-old patient KK admitted to the hospital in a severe condition with symptoms of TTP/HUS as complication of the urgent cholecystectomy. She presented features of immune hemolytic anemia, thrombocytopenia, also blood pressure spikes. Started to be treated with plasmapheresis and renal replacement therapy. The condition worsened: respiratory failure, seizures and delirium appeared. The patient was neurologically consulted because of the symptoms of PRES in the CT of the head. Control MRI confirmed the diagnosis and made it possible to observe the reversion of pathological changes.

Conclusions: PRES is a rare disease, but - due to development of neuroradiology - the number of diagnoses is increasing. Especially SWI sequence can reveal larger and more numerous areas of hemorrhage. Furthermore, the effectiveness of hypertension treatment decreases the influence of this factor as the etiology of PRES. But for that, the number of secondary causes to the inability of autoregulation in response to acute changes in blood pressure within the posterior circulation is increasing. Patients with PRES should remain under neurological and radiological control including MR/CT of the head.

Keywords: PRES, encephalopathy, CT, MRI SWI

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Title: CHARGE syndrome caused by a de novo balanced translocation(8;10) in the region of the CHD7 gene.

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Affiliation: 1. Jagiellonian University Medical College 2. Zakład Genetyki Medycznej -Uniwersytecki Szpital Dziecięcy w Krakowie

Introduction: After years of treating CHARGE as an association, mutations of CHD7 gene located on chromosome 8, were found to be the most common cause of CHARGE syndrome. CHARGE is an abbreviation for the symptoms in these patients; "Colobomas, Heart defects, Atresia chonae, Retardation, Genital abnormalities and Ear abnormalities". In the following report we describe a case where a balanced translocation between chromosome 8 and 10 has caused CHARGE syndrome.

Case report: After birth, multiple congenital defects were noted in the patient (female): agenesis of the right kidney and uterus, hypoplasia of the vagina, bilateral coloboma, choanal atresia of the left nasal passage, arachnoid cyst and asymmetry of the lateral ventricles. The patient was referred to the genetics clinic, due to multiple congenital defects. At the age of 2 months, the patient presented with micro-retrognathia, coloboma of the iris of the left eye, a wide and protruding forehead. Later, she was diagnosed with bilateral senso-neural hearing loss. A clinical diagnosis of CHARGE syndrome was made using the major criteria of CHARGE syndrome: coloboma, choanal atresia, cranial nerve abnormalities and typical CHARGE ears. The patient fulfilled 3 out of 4 major criteria, all except the typical CHARGE ears. Of the minor criteria the patient had kidney abnormalities (renal agenesis), a typical CHARGE face and dysplastic ears. Family history reveals neonatal death of the patient's father's niece, caused by congenital defects in internal organs. The karyotype of the patient was performed and presented a result of 46,XX,t(8;10)(q13;p11). The microarray did not identify microabberations on chromosome 8 and 10, confirming the balanced nature of the translocation. Fish analysis revealed one normal signal from CHD7 gene probe at chromosome 8 and two weaker signals from CHD7 gene probe, one on chromosome 8 and the other on chromosome 10. The method confirmed that the translocational breakpoint is on chromosome 8 in the region of the CHD7 gene. The karyotype analysis of the parents resulted in a normal karyotype and we can infer that the patient's change is a novel translocation.

Conclusions: The described case confirms that a balanced translocation with a breakpoint in the CHD7 gene can present with the same phenotype as small mutations in the CHD7 gene. Although only 2 cases of balanced translocations and a case of an unbalanced translocation in the CHD7 gene have been reported, our case suggests translocations as possible causes of CHARGE syndrome. We suspect that patients with translocations with breakpoints in the CHD7 gene will satisfy the clinical criteria of CHARGE syndrome. In patients who fulfill the criteria for CHARGE syndrome and when the results of standard analysis (CHD7 sequencing and array CGH) are normal, further cytogenetic tests are indicated.

Keywords: CHARGE syndrome, chromosomal breakpoint, balanced translocation, CHD7 gene, fluorescence in situ hybridization (FISH)

Title: Congenitally corrected transposition of the great arteries – defect which surprises.

Authors: Anna Pioch

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Introduction: Congenitally corrected transposition of the great arteries is a rare and hard to discover congenital heart defect in which, despite anatomical disturbances, deoxygenated venous blood gets into pulmonary circulation and oxygenated arterial blood flows from the left atrium to the systemic circulation. It is only a functional correction, not an anatomical one. In this defect, the heart twists abnormally during fetal development and the ventricles and their attached valves are reversed. Heart ventricles are abnormally connected with great arteries – the aorta originates from the right ventricle and the pulmonary trunk originates from the left ventricle. While the corrected transposition can occur by itself, most babies have other heart defects, too. Other defects include ventricular septal defects, pulmonary stenosis, abnormal tricuspid valve and complete heart block. The reversed position of the ventricles and valves alone, does not usually result in any health effects during childhood and, if there are no other heart problems, a person may never even know that they have a corrected transposition.

Case report: A 27-year-old woman, gravid 2, para 1, live 1 was admitted to the hospital at 25 weeks' gestation. During the ultrasound examination a corrected transposition of the great arteries and ventricular septal defect were uncovered. The patient was under treatment of obstetricians with an ultrasound done regularly. At 39 weeks' gestation, after a labor pre-induction, alive boy with a weight of 3580 grams was born. Stable baby was referred to the paediatric cardiology department in order to complete and confirm the diagnose. Up till now he hasn't required a surgical intervention.

Conclusions: In CCTGA both ventricles of the heart are reversed. Fortunately, the arteries are reversed too, so the heart actually "corrects" the abnormal development. However, CCTGA is a complex malformation in which the heart is far from being normal. Treatment for CCTGA varies according to the type and severity of the symptoms and associated defects. In some patients, especially those with no additional heart defects, there may not be a need to do anything.

Keywords: cTGA, fetal diagnosis, corrected transposition of the great arteries, congenital heart disease

Title: The use of hyperbaric oxygen therapy in traumatology.

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Introduction: The use of hyperbaric oxygen therapy in traumatology is numerous; special attention should be paid to acute traumatic states. In Wrocław, a set of hyperbaric chambers has been in operation since 2000, healing hard-healing wounds from the entire Lower Silesia region. Treatment in HBOT is an important part of the therapy of multi- tissue injuries and takes an important place in addition to surgery and wound dressing.

Case report: The 65-year-old man after the injury, which has scalped the medial part of the left ankle joint and the left calcaneal tuberosity with accompanying fracture of the medial ankle, was admitted to the Department of Traumatology and Orthopedics in the T. Marciniak Lower Silesian Specialist Hospital in Wrocław. The patient was pre-stocked under Emergency Ward conditions, then operated in an urgent mode. The extensive wound of the left foot was cleaned, the ruptured skin patch was resurfaced, covering the scalped calcaneal tubercle, the broken medial malleolus was reducted and fixated with use of metal implants, the whole wound was surgically developed. The patient was post-operatively treated in the conditions of the ward, due to poor local condition, qualified for treatment at Department of Hyperbaric Oxygen Therapy at the J. Mikulicz-Radecki University Clinical Hospital. Due to area of necrotic tissue of the calcaneal region, the patient was qualified several times for necrectomies. Currently wounds are partially healed, patient is qualified for skin grafts to the area of cavities.

Conclusions: The potential benefits of using hyperbaric oxygen therapy in traumatology are most effective when using this treatment early. Early qualification of patients for this therapy, e.g. under Emergency Ward conditions, could reduce the time of hospitalization and reduce the cost of treatment.

Keywords: oxygen therapy, HBOT, open fracture, multi- tissue injury

Title: An uncommon clinical case report of colostomy site recurrence after sigmoid cancer resection.

Authors: 1. Michał Saganek, 2. Joanna Dominiak

Affiliation: 1.Student Research Circle at the Department of General Surgery and Transplantology, 2.Student Research Circle at the Department of General Surgery and Transplantology

Introduction: We present a case report of a patient with recurrent cancer in stoma after sigmoidectomy (Hartmann's operation) because of adenocarcinoma. This is a very rare situation and the treatment of such patients is not clearly defined.

Case report: A 74 -year old patient with sigmoidostomy site recurrence was admitted to the Department of Liver and General Surgery due to purulent discharge from the postoperative wound. In 2015 he underwent Hartamnn's procedure because of malignant intestinal obstruction due to the sigmoid cancer. In June 2016 laparotomy was performed with intention to restore the continuity of the gastrointestinal tract. However intraoperative finding revealed neoplastic infiltration in the pelvis near the urinary bladder which was resected but the procedure of reconnection of alimentary tract had to be postponed. Couple of days after he was discharged home, the patient needed to be readmitted because of SSI and eventration. In October 2017, during examination in the Outpatient Clinic stoma site neoplastic infiltration was visualized which was confirmed by CT-PET study.The patient was readmitted because of the recurrence and the purulent discharge with from the postoperative wound with the suspicion of intestinal fistula. During laparotomy the dissemination of neoplastic process was seen – the infiltration was present in the mesentery and small intestine with the fistula. The only possible treatment was to create jejunostomy above the fistula location. After psychiatric, microbiological and palliative consultations, the patient was discharged home.

Conclusions: We would like to point out that this is a very rare case and it is not an easy decision to choose the best treatment strategy. Radical resection after the exclusion of intraperitoneal dissemination is the best option. The presence of enterobacteria and bile acids in the stools has been reported to be responsible for stomy site recurrences. It has to be emphasized that the examination of stomy site should be performed during the follow up and the biopsy taken from any suspected location.

Keywords: colorectal cancer, stoma site recurrence, colostomy, surgery

Title: Implantation of diaphragm pacing system as a treatment of congenital central hypoventilation syndrome.

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Introduction: Congenital central hypoventilation syndrome (CCHS) also known as Ondine's Curse is a rare genetic respiratory disorder, causing patients to hipoventilate, especially at night, and their autonomic nervous system not responding to hypoxia and hypercapnia. Presentation varies from necessity for mechanical ventilation (MV) 24 hours a day to asymptomatic individuals. Diaphragm pacing is an alternative to mechanical ventilation.

Case report: Our patient is a 13 year old girl with severe presentation of CCHS. For the first 2 months after birth she had no autonomous breathing activity. After about one year she was able to sustain breathing while awake and needed MV only during sleep since then. Recurring respiratory tract infections and onerousness of the respirator caused her parents to look for an alternative. She was referred as a candidate for diaphragm pacer implantation, in good clinical condition. Surgery was performed in general anesthesia. Cervical approach was chosen – a small incision on neck was made bilaterally and phrenic nerve was isolated next to anterior scalene muscle, then electrodes were placed behind the nerve and sutured in place. The receivers were placed under skin on the costal margin and connected subcutaneously to electrodes. The system was tested intraoperatively and showed good function. After an uneventful recovery period, the diaphragm pacing was initiated the first night after operation. Therapy proved to be successful, tracheostomy was later removed and patient was discharged in good clinical condition.

Conclusions: Presented here is the first case of implanting diaphragm pacemaker in Poland, but this treatment has been used for over 40 years in USA and introduced in many countries. It was proven by research to cause lower risk of respiratory tract infections compared to MV, improve speech, eating, drinking and sense of smell. It enhances patients quality of life thanks to more physiological breathing pattern, easier nursing, facilitating social interactions and physical activity. It is a superior option for compatible patients, not only in CCHS and should be more widespread as it is cost efficient and technically not difficult.

Keywords: diaphragm pacing, CCHS

Title: A massive gross haematuria in an 85-year-old patient with acquired haemophilia A.

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Introduction: Acquired haemophilia in the geriatric population is a rare but severe bleeding disorder. It is caused by suddenly appearing autoantibodies that interfere with coagulation factor VIII activity. The diagnosis of acquired haemophilia should be considered in any patient who presents with bleeding and a prolonged activated partial thromboplastin time (APTT).

Case report: An eighty-five-year-old female patient was admitted to the Geriatric Clinic due to massive gross haematuria observed by the patient and the patient's relatives five days before she appeared in the Hospital Emergency Department. The symptoms were accompanied by diffuse lower abdominal pain and increased body temperature (the highest observed fever was 39°C). During the hospitalisation, the patient was observed with a persistent gross haematuria, without significant improvement after the implemented conservative treatment, and gradual anaemia of the patient (decrease in Hgb value to 8.8 g/dl), as well as massive ecchymosis at the injection sites. A decision was made to extend the diagnosis of coagulation disorders - a correction test and determination of coagulation factors were made and the final diagnosis was acquired haemophilia.

Conclusions: The patient's case indicates the need to search for the causes of isolated haematuria in the elderly population, also among rare in clinical practice conditions, including acquired coagulation disorders. Proper diagnosis and start of causative therapy is associated with a better prognosis and helps avoid factors increasing the risk of massive multi-organ bleeding.

Keywords: geriatric patient, hematuria, acquired heamophilia

Title: Fetal abdominal tumor – multidisciplinary challenge from the perinatal period.

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Introduction: With the development of ultrasound imaging techniques and introduction of routine examinations during pregnancy, detectability of fetal abdominal masses increased significantly. It usually occurs during routine anatomical examination at 18-20 weeks. These masses are most commonly situated in the urinary system.

Case report: A 29-year-old patient at 37 gestational weeks was admitted to the tertiary referral hospital due to weaker fetal movements. The patient had an eventful perinatal history – her first pregnancy was lost during 35 gestational weeks because of true umbilical cord knot. During current pregnancy in the ultrasound scan at 22 and 26 gestational weeks, a fetal abdominal tumor was detected. An additional MRI confirmed the cystic nature of the mass. A control procedure before the admission showed the presence of a weakly vascularized, hyperechogenic mass between the stomach and descending aorta, its dimensions were: 21x15x16 mm. At the Clinic, the condition of the fetus was monitored and assessed with the help of CTG. Fetal movements were normal, with no contractile activity. Because of positive oxytocin test result and the significant perinatal history, the patient was qualified to Caesarean section. At 38 gestational weeks, a boy – 3200 g in weight and 56 cm in length – was born, with 8-9-10-10 pts in the Apgar scale. The neonatal ultrasound examination visualized a 21,5x23x29 mm tumor between the left adrenal gland, spleen and pancreatic tail. On the 4th day of life, a newborn was transferred to the Pediatric Surgery Clinic in the main pediatric hospital. There, after the CT scan, a planned operation was scheduled for December. Unfortunately, the mother and the baby did not show up and the child's further history is unknown.

Conclusions: Regular ultrasound diagnostic procedures are essential when fetal tumors are suspected, since their size and character, and thereby diagnosis and prognosis can undergo changes. In order to work on an appropriate treatment plan, a cooperation between various centers and doctors of various specialties – e.g. neonatologists, clinical geneticists and pediatric surgeons – is often vital.

Keywords: fetal abdominal mass, eventful perinatal history, gestational week, fetal movements, diagnostic procedure, operation

Title: Syphilis in Pregnancy.

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Introduction: Syphilis is a sexually transmitted disease caused by the spirochete Treponema pallidum. It is of special concern during pregnancy because of its adverse pregnancy outcomes and prenatal transmission.

Case report: A 26-year-old patient in the second pregnancy, positive for CMV IgM, HCV, rubella and VDRL, for which she was neither diagnosed nor treated, reported to the hospital at thirty weeks of gestation with subabdominal pain. USG revealed ascites of the fetus and centralization of its circulation. The patient left the hospital on her own request coming back after a few hours with PPROM and labor in progress. The cesarean section was performed due to the incorrect CTG record and breech presentation of the fetus. Alive son was born (1600/46, 4-6-7 points Apgar score) with respiratory failure, ascites, anemia and anorectal obstruction. The newborn was transferred to The Pediatric Hospital for the surgery of the malformation. He was found to be negative for CMV and HCV, whereas positive for rubella and syphilis yet without any clinical symptoms of congenital syphilis. Nevertheless, the treatment of crystalline penicillin was administered.

A 20-year-old, primiparous patient was referred to the hospital at thirty-nine weeks of gestation due to the suspicion of fetal hypotrophy. The patient suffered from gestational diabetes, pathological obesity and early latent syphilis diagnosed and treated at 1st trimester yet without any documentation of treatment and control after that. Due to the genital warts of vulva and anus of the patient, cesarean section was performed. A healthy daughter was born (3080/52, 10 points Apgar score). USG examination of the newborn revealed bilateral thalamic vasculopathy, and physical examination – clubfeet, especially on the left side. Yet the clinical, ophthalmological and X-ray examinations did not reveal any symptoms of congenital syphilis. The serological diagnosis excluded the disease. Due to the lack of documentation regarding treatment of maternal syphilis, crystalline penicillin was administered to the newborn.

Conclusions: Screening and early penicillin treatment can reduce the risk of complications related to prenatal transmission of Treponema pallidum. However, despite the lack of treatment or its inappropriate administration, the pregnancy with maternal syphilis may end in a completely different way.

Keywords: syphilis, pregnancy, Treponema pallidum, screening

Title: The course of bacterial meningitis in an infant.

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Introduction: The early clinical symptomatology of bacterial meningitis in newborns and infants might be not very characteristic. The disease develops dynamically and can lead to many complications, including irreversible neurological consequences and even death of the child. A seemingly minor infection may later become a serious infection, that is why a thorough diagnostics is so important and allows instant implementation of the treatment.

Case report: A 33-day-old infant, born prematurely (35 Hbd), was admitted to the Unit of Intensive Care and Pathology of the Newborn in Specialistic Hospital for Children and Adults in Toruń due to feverish conditions. The child had been restless for three days, in an anamnesis also inconsolable crying, a decreased appetite and fever that subsides after Paracetamol administration. The girl was examined several times by the Primary Health Care doctor. In the examination after admission to the hospital, anxiety and hyperesthesia, increased muscle tone as well as dehydration features were found. The results of laboratory tests showed leukopenia, thrombocytopenia and high exponents of inflammation. The combined antibiotic therapy - ampicillin and amikacin was included empirically. A lumbar puncture was performed - purulent fluid with an increased level of protein and a reduced level of glucose and increased cytosis. A latex test was performed, which showed the presence of Streptococcus agalactiae antigen. The result was confirmed by microbiological examination. An immunoglobulin preparation was administered. The condition of the child improved, however, on the 7th day fever appeared again. Antibiotic therapy was modified, ceftriaxone and meropen were included. Head ultrasound was performed - intraventricular hemorrhage second degree features were diagnosed. After three weeks of treatment, due to persistent changes in cerebrospinal fluid, chloramphenicol was used. Treatment was continued until the 10th day and then ampicillin was used up to the full 6 weeks of treatment. After completing the treatment, the girl was discharged home in good general condition.

Conclusions: Meningitis in newborns and infants may be characterized by non-specific symptoms and very high mortality, but the implementation of rapid diagnostics and appropriate therapy gives a chance to cure. The course of any infection with fever should be closely monitored, and emerging new symptoms carefully analyzed. This will minimize irreversible complications and improve prognosis in the youngest patients.

Keywords: Infantile bacterial meningitis, Clinical manifestation, Antibiotic therapy

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Title: Schizophrenia with a very early onset- difficulties with diagnosis and treatment.

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Affiliation: Department of Psychiatry, Nicolaus Copernicus University, Collegium Medicum in Bydgoszcz, Poland

Introduction: Schizophrenia affects about 1% of all people. In only in 1% the sympthoms occur before the age of 10. It is very bad for the patient because it affects young people's emotional, social and intellectual development. This disease requires intensive treatment and cooperation with the doctor throughout the life.

Case report: Patient aged 22, hospitalized many times on psychiatric wards and diagnosed with schizophrenia at the age of 6. In the school he had learning problems but never repeated the class. From the 6th grade of primary school taught individually. He tried to study in extramural high school without success. Relationships with peers were incorrect, he was harassed by other students. His mother and grandfather are now on a pension because of schizophrenia. The patient's parents are divorced.The patienst's contacts with his stepfather were difficult -the patient was stewed and beaten by him.

The patient reports the entire spectrum of psychotic symptoms - hallucinations and delusions. He complained about numerous visual hallucinations: before he was admitted to the ward he saw the shop turning into a desert. He reports that in the hospital a shooting took place. He saw colorful parrots, black dragons. He observed often also a white reflector on the wall with face of Jesus inside it. He saw the scorpion on a teaspoon, which bit him and then " he died 34 times". He heard unfavorable comments about him. They repeatedly ordered him to commit suicide. The patient also had olfactory hallucinations - he felt the unpleasant smell of his "decomposing" body. The patient had also numerous delusions: delusional parish – he often heard on television people talking about him; delusional persecution – the "IT sect" is invigilating him on the Internet; delusion of condemnation – in the church he heard the voice of God saying that he would go to hell; dysmorphophobic disorder - he had the impression that the whole body is in the decomposition; the delusion of the mission - he received charisms from the Holy Spirit; size-delusional- he thinks he is stronger than others.

The patient talks about his dead ancestors as if he knew them personally. In the past periods of anxiety and lowered mood. He also reports periods of forgetfulness / dissociation fugue in which he took loans

Conclusions: The patient we described comes from a dysfunctional family. His psychotic symptoms appeared very early. Despite the long-lasting illness he is logical, aware of the disease, has emotional needs, emphasizes the love for his loved ones. It's an interesting case which should be considered for signs of conversion symptoms caused by negative experiences in childhood. It is possible for this boy to consider the inclusion of elements of psychotherapy to try to change the structure of the patient's psyche and ensure his sense of security so that psychotic decompensation does not recur in the future.

Keywords: early - onset schizophrenia, dysfunctional family, conversion, diagnosing difficulties

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Title: Symptoms of Othello and Korsakowa syndrome in the course of alcohol dependence syndrome.

Authors: Anna Łukaszewska, Lilianna Szylar, Karolina Krasowska, Anna Jankowska, Kacper Miętkiewicz, Tutor:Michał Danek, M.D

Affiliation: Department of Psychiatry, Nicolaus Copernicus University, Collegium Medicum in Bydgoszcz, Poland

Introduction: Alcoholism is a condition that is characterized by the constant need to drink alcohol, which becomes a priority in life. Together with its consequences, it is becoming a bigger problem in society, affecting around 900,000 people in Poland. It occurs more often in men. Long-term addiction may lead to the development of other psychopathological syndromes, including Otella syndrome (alcohol paranoia) or Korsakowa syndrome.

Case report: A patient, 65 years old, addicted to alcohol for 40 years. Currently during the fifth attempt to treat addiction. Directed to the hospital by a court at the request of his wife. The patient denied the disease, he does not see the validity of the addiction treatment, he does not feel the need to stay in a psychiatric hospital. When he is intoxicated, he uses psychological violence, he starts fussing, uses vulgar words, he stays in the woods - these repeated situations ended with police intervention. For many years, long-term alcohol strings, memory gaps, wedging. Symptoms of abstinence syndrome.

The patient has three sons. He claims he is not the biological father of two of them, which indicates that his wife was cheating on him. Relationships with children are disturbed, the patient does not know their names, professions or places of residence. The above features indicate the higher emotional disturbances. The patient thinks that when he get married, his wife was pregnant with another man. His wife made him leave the house in the night and spend time in the woods, she bribed him with an alcohol to be able to have sex with her lover - which indicates the characteristics of the Othello syndrome.

The patient conducts the conversation in an illogical, chaotic way, noticeable derailment and tangentiality, logorrhea. It has the features of dementia syndrome and Korsakoff syndrome - memory gaps, confabulations.

Conclusions: Long-term alcohol consumption (abuse) significantly affected the patient's health, led to family relationships disruption and the development of psychopathological syndromes.

The characteristics of the Othello syndrome are noticeable - paranoid jealousy and delusions, and Korsakov syndrome - no changes in imaging studies and memory gaps filled with confabulations. These syndromes are difficult to diagnose.

In this patient, treatment should be applied to the following syndromes: Korsakowa syndrome - vitamin B1 and magnesium, propranolol or clonidine. Othello syndrome - antipsychotic drugs – neuroleptic and to intensify the treatment of alcohol addiction syndrome through the use of disulfirane.

Keywords: Alcoholism, Otello syndrome, Korsakow syndrome, Diagnostic problems

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Title: The impact of mixed anxiety disorder and obsessive compulsive disorder on social life and further implementation of life plans.

Authors: Kacper Miętkiewicz, Katarzyna Litwin, Marta Kułaga, Anna Łukaszewska, Lilianna Szylar, Michał Danek

Affiliation: Department of Psychiatry, Collegium Medicum in Bydgoszcz, Nicolaus Copernicus University in Toruń

Introduction: According to the ICD 10 criteria, the patient was diagnosed with 4 diseases. Social phobia, Anxiety attacks (attack of acute anxiety with corresponding somatic symptoms, without triggering factor). Generalized anxiety disorder (permanent anxiety, free-floating, fear of death towards herself and loved ones). Obsessive-compulsive disorder (OCD) (recurring obtrusive activities and/ or thoughts and in this case also magical thinking).

Case report: 20 years old woman. First hospitalization on the psychiatric anxiety ward in March 2018. Previously, several visits to a psychologist, without positive results. From childhood, the patient was ambitious (good results at school, extra dance lessons). She used to be an open person who liked other people's company and was not shy about public speeches.

She comes from a family with proper relations between its members. In the middle school occurred the first episodes of anxiety related to stress at school and excessive demands of parents about the patient. In high school, these problems intensified and manifested in truancy, and later not getting promoted to the next grade.

The anxiety disorders have been exacerbated a year ago, without a specific trigger factor. When she was at home, she began to feel numbness, a life threat, states of derealization and depersonalization. As a result, she felt compelled to leave the house and seek help so strong that she did not even wear shoes. Similar attacks occurred four times. Since then, she reports persistent anxiety, sleep paralysis, fear of leaving the house due to the fact that something may happen to her. In addition, she has obsessive thoughts of death and suicide. There is also magical thinking, for example, the patient has to read one more page in the book, because she is afraid that her mother will die. Currently, as a result of the disease, she does not continue her education. She does not develop her theatrical interests because of the fear that she will not be able to meet them (fear of going on stage).

She abuses alcohol, heavy smoker, occasionally try drugs to "feel free from fear and obsessions". The patient thinks she has lost her identity. From March she is in the psychiatric ward.

Conclusions: We can see how seemingly irrelevant problems have evolved to large disease entities that seriously disrupt everyday life.

She was an ambitious person, carrying out her next life plans, as a result of anxiety disorders and obsessions she became alienated. Simple activities turn into the fear of losing her own life or life of her relatives. The patient compensates stress by intrusive thoughts or actions. The abolition or reduction of anxiety and obsessions is essential to improve and return to self-fulfillment.

Keywords: Social phobia, Anxiety attacks, Generalized anxiety disorder, Obsessive-compulsive disorder

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Title: Impact of relations with the closest people on the occurance of eating disorders in the form of anorexia nervosa.

Authors: Katarzyna Litwin, Kacper Miętkiewicz, Marta Kułaga, Karolina Krasowska, Anna Jankowska, Michał Danek

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Introduction: Eating disorders are a wide group of deviations from the normal dietary patterns. There are disturbances in the perception of one's body (assuming excessive weight despite normal or too low body weight). One of the form is anorexia nervosa. According to the ICD-10 criteria, to recognize anorexia, body weight must be lower by at least 15% compared to the normal weight. Anorexia can be identified by the willingness of the patient to avoid fattening food, self-assessment as an obese, and fear of weight gain.

Case report: 25 year old woman. The patient comes from a family where her father was abusing alcohol and her mother suffered from bulimia. At the age of 14, anorexia was diagnosed. She has been hospitalized for this reason 4 times. She underwent behavioral and cognitive psychotherapy. After each hospitalization, the improvement lasted for 1-2 years. After the last stay, her boyfriend ended their relationship, which lasted 2 years, what was accompanied by another weight loss. The patient was diagnosed with sleep disturbances, depressed mood and panic disorder that intensified when she was forced to eat by her close ones. Currently she remains in the psychiatric ward since January 2018. Systematically participates in individual therapy and therapeutic classes. Drugs: fluoxetine, aripiprazole, mirtazapine.

Body weight 35 kg, height 157 cm, BMI 14.2. Symptoms of the disease easily aggravated, often as a result of seemingly insignificant comment from a stranger. During the last sessions, the patient proudly admitted that she gained weight. It is important for her that eating is not accompanied by remorse. Despite anxiety the patient is waiting for a reunion with relatives. She misses the warmth of the family home.

Conclusions: The onset of the disease occurred in childhood, when strict orders and prohibitions turned into a very critical evaluation of herself. At the beginning it was manifested by a great ambition in achieving results at school, later it changed the form into excessive standards in relation to her body, which turned into anorectic behavior. Patterns of how a woman should look like she drew from her mother, who had history of bulimic problems. She also did not receive proper patterns of behavior and support from her father, who is struggling with alcohol addiction. The family additionally intensified the fear of eating by forcing the patient to eat nourishment. Difficult situation worsened the breakup with her boyfriend which led to a stronger imposition of pathological appearance patterns and worsening mood. Eating disorders often co-exist with other disorders, e.g. anxiety and depression. The patient notices that in food she hides emotions and difficult topics related to the family home, but also with herself. Currently, the patient is showing improvement.

Keywords: eating disorders, anorexia nervosa, family influence, psychotherapy

Title: Perinatal disturbances as a potential source of schizophrenia?

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Introduction: Schizophrenia, one of the most common and most serious mental disorder. It includes even 1 % o population. Its symptoms in great manner disrupts patient life and his domesticity. They are hard to deal with not only for patient but also for his family. So far, the pathogenesis of schizophreny is not fully understood but one of possible cause we may look for in disturbances related to labour.

Case report: A 39 years old female was admitted to the psychiatric admission department due to excitation and psychotic symptoms. She claimed, that is a victim of a conspiracy in which her parents were involved.

She considers, that her parents are not her true, biological parents. She was convinced, that since childhood they were giving her some drugs, mainly neuroleptics what she considered as an attempt to poison. Patient predicate renouncement of polish citizenship and plans excursion to France to get position in counterespionage.

She reports abnormous shooting skills, she wanted to be a hunter but also says that doesn't want to own any weapon and hurt anybody. Her life shows advanced desorganisation. The symptoms of this state are avoidance of eating, drugs intake and home disappearing, sleeping in job.

Primary she has agreed for psychiatric treatment, but later she has changed her decision. Because of it we cannot exclude necessity to get the court permission for treatment against the will of patient, due to article 23.

In Anamnesis vitae there are informations that she was born after the delivery date with perinatal hypoxia what could have been a cause of her mental disease. The cause of this is that the lack of oxygen destroys neurons and many different brain areas.

She is treated for psychiatric disorders since 2000r. In admission department treatment with 25 mg of Clozapie was not efficient in psychotic symptoms. Possible cause of this condition could have been wrong analysis and inappropriate drugs compliance.

Dose of Clozapine was increased to 175 mg. Unfortunately simultaneously with dose increasing, the risk of side effects increases as well. She has shown side effects - dizziness and muscle weakness of lower limb. Due to this, dose was reduced to 75 mg.

Conclusions: In relation to not fully known etiology of schizophrenia it is necessary to pay special care for pregnant woman and perinatal period.

Keywords: Schizophrenia, perinatal disturbances, perinatal care of patient, perinatal hypoxia

Title: Juvenile xanthogranuloma a rare histiocytic disorder.

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Introduction: Juvenile xanthogranuloma (JXG) is a rare histiocytic disorder that typically affects children. The clinical presentation of this disease is characterized by single or, rarely, multiple yellow and brown skin nodules, most often found on the face and neck. Internal organ involvement has been sporadically observed in JXG and is associated with an increased risk of serious complications.

Case report: An 10-month old girl was admitted to Pediatric and Infectious Disease Department due to the solitary, nodular skin lesion on the right arm. Nodules of a 3 centimeter size had quite hard consistency, yellowish colour and were painless. For the first time skin lesions appeared on the child's skin at the age of 2 months and were diagnosed by a paediatrician as adverse post-vaccination reaction. The child was delivered naturally at 38 weeks with 10 points in Apgar score and birth weight of 3300 g (first pregnancy and first childbirth). Changes in the internal organs were excluded based on additional examinations such as: chest RTG, abdominal USG and ophthalmologistexamination.

Conclusions: The diagnosis of JXG is usually not difficult. Nevertheless due to its rarity, the knowledge of this disease among physicians is unsatisfactory. The JXG lesions usually are solitary, but multiple lesions and extracutaneous and systemic involvement may occur. Important is the awareness and the willingness of doctors to recognize that mild disease, which can have serious consequences.

Health Sciences I

Young Scientists Session

Jury:

Błażej Łyszczarz, PhD

Marek Szczutkowski, PhD

Małgorzata Andrzejewska, PhD

Moderator:

Karolina Suwała

Kosma Kołodziej

Title: Assessment of the correlation between falls and mild neurocognitive disorders in elderly patients

Authors: Eliza Oleksy, Remigiusz Sokołowski, Wojciech Stemplowski, Karolina Klimkiewicz-Wszelaki, Paulina Kasperska, Anna Ziółkowsk

Affiliation: Nicolaus Copernicus University in Toruń, Ludwik Rydygier Collegium Medicum in Bydgoszcz, Department and Clinic of Geriatrics

Introduction: Elderly falls are a very important and complex problem associated not only with physical injury, but also with psychological consequences. With age, the likelihood of falling grows rapidly. Over 30% of people over 65 and 50% after the age of 85 experience fall. In 10-25% of cases, the effects of a fall are wounds, fractures or other injuries that require long-term hospitalization. As a consequence, the quality of life of older people is significantly reduced there also may appear substantial psychosocial problems, disability and dependency on other people and even death.

Aim of the study: Risk assessment of falls in elderly patients with mild neurocognitive disorders.

Materials and Methods: The study was conducted at The Clinic and Department of Geriatrics, Ludwik Rydygier Collegium Medicum In Bydgoszcz, Nicolaus Copernicus University. The duration of the study: September 2015 – March 2017. The study involved 321 participants, including 98 people assigned to the group without NCD and 223 to the group with mild NCD. Recruitment for both groups took place on the basis of specific inclusion and exclusion criteria. All participants underwent a comprehensive Geriatric Assessment including neuropsychological (MMSE, MoCA, CDT), quality of life (ADL, IDAL) and functional (Tinetti scale) tests. The level of significance was $p<0.05$.

Results: The average Tinetti score in subscale: balance was 14.33 pts. In the control group without NCD, while in the study group in patients with mild NCD was 12.35 points. The difference was statistically significant ($p <0.001$). The mean Tinetti score in subscale: gait was 10.81 pts. In the non-NCD group, while in mild NCD group was 9.71pts. The difference was statistically significant ($p <0.001$). The total mean Tinetti score in the non-NCD group was 25.10 pts., while in the mild NCD group was 22.05 points. The difference was statistically significant ($p <0.001$).The average Dynamic Gait Index (DGI) score in the non-NCD group was 19.53, while in the mild NCD group was 16.95 points. The difference was statistically significant ($p = 0.013$).

Conclusion: Patients with mild NCD have an increased risk of falls. Future studies are warranted to clarify the underlying mechanism linking NCD and falls and to establish interventions targeting NCD to reduce the risk of falls.

Key words: elderly, neurocognitive disorders, falls, Tinetti scale, Dynamic Gait Index

Title: Cancer awareness among high school students

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Introduction: Prevalence and mortality of neoplastic diseases make them an important social problem. For their prevention and early diagnostics, oncological knowledge and vigilance of the public is crucial.

Aim of the study: The aim of the study was to assess the oncological awareness and attitude of high school students in Olsztyn.

Material and methods: The study was conducted among high school students in Olsztyn in April-May 2017. The respondents filled in a questionnaire prepared especially for the purposes of this study. The questionnaire was composed of 10 closed questions, concerning knowledge and behavior referring to oncological diseases. The test was carried out at the beginning of special oncology lectures conducted by medical students of our science club. Participation in the study was voluntary and anonymous. Statistical analysis was performed using STATISTICA. The chi2 test was used to compare the percentage of answers to all questions depending on sex, place of residence and class profile. A p-value <0.05 was considered significant.

Results: The study was involved 189 students from 5 high schools in Olsztyn (2nd- and 3rd graders). There were 98 female and 90 male (one unknown). Place of residence was the city for 152 students (80%) and the countryside for 37 students (20%). Among tested students, 145 responders (76,72%) knew that neoplasms can be benign or malignant. 123 students (65,08%) believed genetic predispositions to be the greatest factor affecting cancer morbidity. At the same time, 154 responders (81,48%) answered that people have an impact on whether or not they get cancer. Almost all students (183 responders, 96,92%) believed that early detected cancer disease can be successfully treated. A lot of students (114 responders, 60,32%) evaluated their knowledge on oncological diseases as average. There was no difference depending on sex and class profile. The only difference was noted in the case of students living in the countryside: they did significantly worse on questions about nature of neoplasms (p=0.0005) and its curability (p=0.02). Over half of students (113 responders, 59,79%) thought they lead a healthy lifestyle, there was no difference between men and women. Most of students (119 responders, 62,96%) doesn't smoke cigarettes or e-cigarettes, parents of 111 students (58,73%) also don't smoke. Half of students who smoke still thought they lead a healthy lifestyle.

Conclusion: In general, knowledge about oncological diseases among high school students in Olsztyn is good. The impact of genetic predispositions in neoplastic diseases seems to be overestimated. Students living in the countryside had less knowledge about cancer despite being in the same class with those from the city. Students knew that lifestyle has an impact on cancer disease, but they did not associate smoking with a healthy lifestyle. The study showed deficiency of knowledge about cancer and possibly there was a need for more information during high school education.

Key words: cancer; awereness; high school students

Title: Resveratrol relaxes gastric smooth muscles in a NO independent manner

Authors: Krzysztof Drygalski, Andrzej Chomentowski, Tomasz Kleszczewski and Beata Modzelewska

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Introduction: Resveratrol (RSV) is a natural polyphenol present eg. in grapes, berries or red wine. It has recently become an extremely popular study subject due to its wast pharmacological properties such as: anti-diabetic, cardioprotective or anti-proliferative. However, as for now it has not been examined as a potential muscle relaxant drug.

Aim of the study: The present study had two aims. The first was to assess the effect of RSV on a contractility of a gastric smooth muscles. The second, to determine whether its action is related with the synthesis of endogenous nitric oxide.

Material and methods: The study was conducted on a gastric snippets taken from the patients (n=5) undergoing the sleeve gastrectomy due to obesity. The snippets were collected during the operation and transported to the laboratory in an ice-cold Tyrod buffer. The layer of a smooth muscles were dissected, attached to strain gauge and placed in a tissue bath with Tyrod buffer. After acclimatization contraction of a muscles was stimulated using carbachol (100μM). Resveratrol was diluted in ethanol and added to the bath medium in an increasing concentrations (0,1μM-100μM). Endogenous NO synthesis were blocked using LNNA. The study composed of 4 groups: control, control + ethanol (solvent), RSV and RSV+LNNA. The residual muscle tension, contraction amplitude and area under the curve were recorded using strain gauge. The statistical analysis were done in ANOVA test, the results were considered statistically significant at $p \leq 0,05$.

Results: Exposure to RSV resulted in a significant, dose dependent, decrease of AUC by 13,4% and muscle tonus by 11,3% at 100μM. Moreover, high concentrations of RSV abolished contractile activity and contraction amplitude by 80,3%. The inhibition of endogenous NO synthesis pathway did not affected significantly the relaxant activity of RSV.

Conclusion: RSV relaxes smooth muscles of gastrointestinal tract in a NO independent pathway. Our study revealed another potential therapeutic effect of RSV. Furthermore, our results might explain the side effects of RSV therapy related with a distorted motility of gastrointestinal tract observed in clinical studies with this substance.

Key words: Resveratrol, pharmacology, muscle contractility

Title: Survey of gynecological knowledge among Polish secondary school students

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Affiliation: Students' Research Group at the 1st Department of Obstetrics and Gynaecology, Medical University of Warsaw.

Introduction: Basic knowledge of gynaecology is important for the health of young adults. Awareness of how the reproductive system works allows for early identification of worrying symptoms, while knowledge about sexually-transmitted diseases allows for preventative behaviours.

Aim of the study: This study aimed to survey secondary school students about their knowledge about menstrual cycle, contraception and prophylaxis for a number of diseases of the woman's reproductive system and sexually-transmitted diseases.

Material and methods: An authored, anonymous questionnaire consisting of 38 single- and multiple-choices was completed by 1078 secondary students from Warsaw, Ostrołęka, Tomaszow Mazowiecki and Parczew from June to September 2017. Statistical analysis was performed using Statistica 13.0 and Microsoft Excel.

Results: 703 women and 375 men were surveyed. The average age was 17.49 (15-21). The largest number of respondents were the countryside inhabitants (52%, n=561) and students from high schools (53%, n=572).

Correct response rate of physiology-related questions was 4.86 (SD=1.33) out of 7 and was higher among women (M=5.20, SD=1.17).68% of women had ever visited a gynaecologist (n=223), and 54.7% had a follow up visit once a year (n=122). Only 24% of women which declared themselves as sexually active had a pap-smear ever performed (n=52). More than a half of women claimed that they know how to perform a self-examination of their breasts (52%, n=351), while 77% of them knew how often they should do it (n=271).

35.5% of surveyed declared themselves as sexually active (n=381). The most common contraceptive method was a condom (74%, n=282). More than a half of the respondents believe that condoms protect against all sexually transmitted diseases (55.6%, n=598). The most common source of information about contraception among the surveyed was the internet (70.9%, n=765).Only 16.6% (n=179) of the surveyed were aware that hepatitis C can be sexually transmitted.

Conclusion: Teenagers should be educated about diseases of the female reproductive tract and those sexually-transmitted. Gynaecologists should emphasise prevention methods in their practices and make sure to perform pap tests among sexually active young women.

Key words: gynaecology, contraceptives, teenagers, prophylaxis, sexually-transmitted diseases

Title: Trends in quality of life after Bentall procedure conducted between 2012 and 2018.

Authors: Joanna Bisaga, Monika Kasperczak, Bartosz Kończyk

Affiliation: Medical University of Silesia in Katowice for all the authors.

Introduction: Post surgical quality of life is an important factor in every post-op patient management. It affects not only patients but also clinical practice in making treatment decisions.

Aim of the study: The aim of this study is to assess the short term and long term quality of life of the patients who underwent Bentall procedure between January 2012 and January 2018. By this study we wanted to measure the effects of disease and medical interventions on the individuals' perception of the position in life after diagnosed thoracic aortic aneurysm and dissection.

Material and methods: We included 40 patients eligible for this study who filled in The World Health Organization Quality of Life Questionnaire (WHOQOL-BREF).The WHOQOL-BREF questionnaire consists of 26 questions, which measure the following domains: physical health, psychological health, social relationships and environment. In statistical analysis we compared the similarities and differences corresponding to the number of years after the operation.

Results: The results show that the average patient after the Bentall procedure assessed the physical health lower and social relationships higher than the rest of the measured aspects. Women scored their quality of life higher than men in all age groups.

Conclusions: The conclusion of our study is that patients are very satisfied with their social relationships and support from their family and friends, but much less content with their work capacity and physical ability. Pain prevents them from everyday activities to little extent and they are rather satisfied with their sleep. Moreover, they are content with access to health services. They seldom feel anxious or depressed. Finally, they believe that their life is meaningful.

Key words: Cardiac surgery, Bentall, Quality of life, Thoracic aortic aneurysm, Dissection of aorta.

Title: Treatment of dyslipidemias – recommendations versus reality

Authors: Julia Wrzesińska, Marta Kazarców, Agnieszka Muth, Filip Sawczak, Maciej Cymes

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Introduction: Hypercholesterolemia is a modifiable cardiovascular risk factor associated with coronary heart disease and stroke. The benefits of lowering the concentrations of atherogenic lipoproteins are well documented.

Aim of the study: The study aims to assess the efficacy of dyslipidemia treatment and whether it is possible to realize the recommendations (ESC 2012) in standard medical practise.

Material and methods:The study is based on the retrospective analysis of medical documentation from an outpatient clinic. It involves the data from 100 patients and covers a 5-year period (2012-2017).

Results: 61% of patients were treated without medication changes or dose adjustments. In this category, the efficacy of treatment varied depending on cardiovascular risk. Those with the highest probability of death after 10 years (e.g. after myocardial infarction) presented with average LDL-C 2,79 mmol/l. Only 25% of them had LDL-C below the recommended 1,8 mmol/l. In the group of high cardiovascular risk (i.e. with diabetes mellitus) average LDL-C was 2,6 mmol/l with 44% under the target level of 2,5 mmol/l. In the remaining group of moderate risk the numbers were 3,02 mmol/l and 40% respectively. 39 patients had the medications changed, mainly because of an additional drug being prescribed. Average LDL-C in this group was 3,78 mmol/l. 12 patients required more than one modification. Importantly, there were 4 cases of drug adverse effects.

Conclusions: The control of lipid concentrations seem to be acceptable in the groups of moderate and high risk, where average LDL-C are very close to the target ones. The very high risk patients, on the contrary, appear to be relevantly undertreated, with average LDL-C nearly 1 mmol/l higher than recommended.

Key words: dyslipidemia, treatment, recommendations' achievability

Title: Arterial stiffness – a new tool to predict cardiovascular risk? – Correlation between arterial stiffness and the risk of atherosclerotic cardiovascular disease in Polish cohort

Authors: Małgorzata Tąpolska, Maciej Spałek, Urszula Szybowicz, Remigiusz Domin, Katarzyna Sochacka

Affiliation: Student Research Group of Public Health, Poznań University of Medical Sciences.

Introduction: Arterial stiffness is a laboratory factor reflecting rigidity of the arterial wall. Increased arterial stiffness may be associated with damage to the organs especially the heart and the brain. Therefore, arterial stiffness is said to be a novel predictor of cardiovascular events which are the leading cause of death in the world. Heart Risk Calculator designed by ACC/AHA is a tool which assesses an individual 10-year risk of heart disease or stroke depending on a list of known risk factors. Nevertheless, traditional markers do not fully illustrate cardiovascular risk and selection of new reliable markers may contribute to the improvement of predicting cardiovascular risk.

Aim of the study: We investigated the association between arterial stiffness and cardiovascular risk based on ACC/AHA calculator. The objective was to estimate whether arterial stiffness may be considered as a single marker that truly reflects the individual risk of cardiovascular disease and whether it is differed by sex, age, and BMI.

Material and methods: The study was conducted on a group of 297 patients aged 40-79 from Hypertension Clinic in Poznań for which demographics, anthropometry, laboratory data were assessed. Arterial stiffness parameters which included stiffness index (SI) and reflection index (RI) were measured using Pulse Trace PCA2. Cardiovascular risk (RISK) was estimated for each using Heart Risk Calculator which includes age, gender, race, total cholesterol, HDL cholesterol, systolic blood pressure, hypertension therapy, diabetes, and smoking. The correlation between arterial stiffness markers and cardiovascular risk was analyzed using Spearman's rho test in groups differentiated by age, sex and BMI.

Results: Our research showed that there is a moderate positive correlation between SI and RISK (Spearman R=0,43, p<0,05). Spearman correlation coefficient for women was 0,39 while in the group of men it was 0,35. After differentiation by age only three age ranges obtained significant p-value: 50-54 (R=0,37), 60-64 (R=0,42) and 65-69 (R=0,34). A strong positive correlation was seen in the obese class III group (R= 0,76), moderate in obese class I (R=0,5) and normal BMI group (R=0,5) while the overweight group presented a weak correlation (R=0,32). There was a very weak correlation between RI and RISK (Spearman R=0,19, p<0,05). When we evaluated all age ranges significant correlation was observed only for group aged 70-74 (R=0,44). Obese class I group presented a positive correlation (R=0,26) while the other BMI categories showed no significance.

Conclusions: Our research showed that there is a correlation between arterial stiffness markers and cardiovascular risk. Therefore, parameters such as SI or RI may be considered as a useful marker to predict individual cardiovascular risk, especially in particular groups presenting a strong correlation

Key words: arterial stiffness, cardiovascular risk, stiffness index, reflection index

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Title: The effect of age on systolic and diastolic blood pressure in patients with stable coronary artery disease

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Affiliation: The Invasive Cardiology Students' Scientific Group, Medical University of Białystok

Introduction: Hypertension is a very common health problem, related mainly to urban lifestyle, coexisting diseases (diabetes, kidney failure), poor diet (too much salt), stress, stimulants and lack of physical activity. Treatment, and above all, prophylaxis is very important because of dangerous complications such as heart failure, heart attacks, aneurysms resulting in strokes, retino and nephropathy. Some researches claim that an increase in blood pressure is an inevitable component of aging.

Aim of the study: The aim of our study is to establish the association between age and systolic and diastolic blood pressure values, as well as other causes in patients with stable coronary artery disease(SCAD).

Material and methods: The analysis was performed retrospectively according to the data collected by the Department of Invasive Cardiology of the Medical University of Bialystok. 3291 patients with SCAD, admitted for invasive diagnostic or invasive treatment, were included into the study. Analysis comprised medical history, basic laboratory test and clinical data. Statistical analysis was performed using chi square, Student's t, Mann-Whitney U and ANOVA tests. P value ≤ 0.05 was considered as significant.

Results: We observed that diastolic blood pressure was decreasing with age. Systolic blood pressure was inceasing until the age of 85, and then decreased. Hypertension, chronic kidney disease, anaemia, hyperuricaemia and carotid stenosis occured more frequently in elderly. There was no difference in diabetes mellitus.There were no significant differences between age groups in statin or β-blockers treatment and significant upward trend in Ca-blockers and diuretics treatment. Angiotensin-converting-enzyme inhibitors (ACEI) usage was greater among younger patients and those over 85 years old.

Conclusions: In our study decreasing diastolic and increasing systolic blood pressure is associated with age-related progressing atherosclerosis. It is very important to prevent the development, or use an appropriate treatment of isolated systolic hypertension, which is responsible for the majority of undesirable cardiovascular events. In the elderly the most accurate treatment is using ACEI, thiazide diuretics and Ca-blockers. β-blockers should be used only in coegsistance with ischemic heart disease or arrhythmia. However, each of the above groups of drugs is the first-line medication in the case of SCAD that patients undergo.

Key words: blood pressure, hypertension, atherosclerosis, ageing

Title: The role of probiotics in treatment of brain-gut-axis associated diseases.

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Introduction: Brain and gut are connected in a bidirectional neurohumoral communication system called brain-gut axis. Human intestine contains about 100 trillion bacteria called gut microbiota. Mostly, the gut microbiota is composed of anaerobic bacteria, which belong to either the Bacteroidetes or the Firmicutes phylum with minor volume of other. Recent studies prove that failure in functional interactions between host and gut microbiota results both: gastrointestinal (GI) and neuro-mental diseases. Probiotics are defined as live microorganisms whose consumption in adequate amounts provides specific health benefits. Researches discovered that probiotics can prevent and alleviate gastrointestinal diseases, such as: inflammatory bowel disease (IBD), irritable bowel syndrome (IBS) or mental diseases: depression, anxiety, autism and schizophrenia.

Aim of the study: Summary and systematically evaluate current literature on the impact of probiotic supplementation on higher mentioned diseases. We would like to emphasize the significant role of holistic treatment in both: GI and mental diseases and present the benefits of enriching treatment with probiotics.

Materials and Methods: Review of the latest literature.

Results: Probiotics supplementation has been proved to contribute to positive impact on GI microbiota. It reduced concentrations of Clostridium, which high level is linked with anexiety and agressive behaviour, and it is believed that this is related to the pathogenesis of autism. Probiotics increased concentrations of Lactobacillus, one of the most important species in GI microbiota, responsible among others in epithelial associations. Probiotic also improved immune system function by attenuating inflammatory responses or inducing IL-10 production, what is crucial in IBD and IBS. Probiotics increase antioxidants axtivity and reduce expression of stress response related proteins, what helps in reducing anxiety- and depression-related behaviors. Probiotic treatment has also provide efficacious in alleviating visceral pain responses. All reachers have proved a possitive results in probiotics supplementation compared to placebo.

Conclusions: There is a mutualistic relationship between gut microbiota and the host. Alterations in gut microbiota structure and composition have signification in pathogenesis of various disorders including IBS, autism, depression. Probiotic supplementation potentially promises to be an adjuvant strategy to ameliorate or prevent these diseases.

Key words: gut microbiota, brain-gut axis, probiotics

Title: Perception of own sexuality of women suffering from PCOS

Authors: Magdalena Zybała, Agnieszka Materna, Aleksandra Buska, Izabela Wasilewska

Affiliation: SKN Ginekologii I Poloznictwa

Introduction: PCOS is a disorder affecting approximately 4-12% of women in the reproductive period. The disease may contribute to weight gain, changes in appearance that may affect the decline in women's self-esteem.

Aim of the study: The aim of this research is to compare the sexuality of women suffering from the PCOS and women who do not suffer from this syndrome.

Materials and Methods: 1166 respondents have taken part in the survey. This study is based on the results of the author's anonymous questionnaire consisting of 25 questions. Statistical analysis has been made in the Statistica program.

Results: It has been shown that women with PCOS syndrome feel less attractive compared to healthy women (42.2% vs.25.8%). The level of satisfaction with sexual life was less well assessed in women with the syndrome-30.5% answered that they are not or rather not satisfied with their intimate life.In the healthy responders group, such responses were observed by 7.1% less. A common feature of both groups was the age of sexual initiation and the frequency of the intercourse. The first intercourse has been experienced by women of both groups between 15 and 20 years of age. On the question of how often all the respondents responded most frequently, "several times a month". More women with PCOS syndrome have a permanent sexual partner. At the same time, as much as 78.9% of the respondents within that group, found emotional closeness with the partner to be very important, compared to the second, healthy group, where 62.8% gave the same response.

Conclusions: Women with PCOS should be encouraged to consult their intimate problems with specialists in the field of sexuality.Symptoms that accompany polycystic ovary syndrome can directly affect the feeling of their own attractiveness, which in result might have a negative impact on their sexual life.

Key words: Sexuality, awareness, PCOS, gynecology

Title: Evaluation of prevalence of applying sunscreen and knowledge about UV radiation among Polish citizens.

Authors: Sara Świerczyńska

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Introduction: Ultraviolet radiation is one of the most important environmental factors affecting the appearance and condition of the skin. Distant effects of cumulative UV action are premature aging of the skin and stimulation of the development of carcinogenesis. On the other hand, sun radiation is necessary for human life. In moderate doses, it improves the well-being by increasing mental and physical performance, and activates the synthesis of vitamin D3 in the skin. In order to avoid negative effects of radiation, skin must be protected by applying cosmetics with UV light filters.

Aim of the study: The aim of the study was to assess the universality of the use of sunscreens by Polish residents, as well as to check their knowledge of ultraviolet radiation.

Materials and Methods: The survey was conducted in April 2018 on a representative group of Polish citizens using the author's questionnaire. The questionnaire was completely anonymous and all participants were informed about the purpose of the study. The survey was completed by 567 respondents aged between 14 and 63 (average age=23,2). The vast majority of the respondents were women (n=539).

Results: The use of sunscreens was confirmed by 92,77% of respondents (n=526), most of which used them only during their stay on the beach (n=199). The use of filters throughout the year was declared by 13,69% (n=72). As many as 83,71% of respondents during their dermatological treatments declared using UV filters. The most frequently chosen SPF values were 30, 50 and 50+. The same filter applied to the face and body was used by 34,60% of respondents. The filter with a higher SPF factor was used on face by 55,70%. Respondents while choosing a sunscreen most often focused on the amount of protection against UVA and UVB, the price and the formula of the cosmetic. As many as 82,89% of surveyed admitted that in the past they suffered from sunburn. Finally, the respondents were asked to complete 13 true-false questions assessing their knowledge of UV radiation. The average score in the test was 8,68 points and the median was 9 points. The most problems were caused by questions about the characteristics of UVA and UVB radiation. Every third respondents did not know that UVB radiation is important in initiating the process of vitamin D3 synthesis.

Conclusions: Currently, the prevalence of the use of sunscreen is far greater than it was a few years ago. People are more aware of the need to care for their skin and proper protection from UV rays. However, it is still necessary to spread knowledge about UV radiation, especially its harmfulness.

Key words: sunscreen, UV radiation, photoaging, carcinogenesis, skin protection

Health Sciences II

PhD students
and
Professional workers Session

Jury:

Agnieszka Bańkowska, PhD

Kamila Sadaj-Owczarek, PhD

Ewa Zieliński, PhD

Piotr Dzięgielewski, PhD, Brig Gen

Moderator:

Karolina Suwała

Kosma Kołodziej

Title: Oncological package in Poland

Authors: Joanna Synoweć [1], Katarzyna Pogorzelczyk[2], Marlena Robakowska[3], Daniel Ślęzak[4]

Affiliation: 1.University Clinical Centre in Gdansk, 2.Department of Emergency Medicine Medical University of Gdansk, 3.Public Health and Social Medicine Department, Medical University of Gdansk, 4.Emergency Medicine Workshop, Medical University of Gdańsk

Introduction: The oncology package came into force on January 1, 2015 as an innovative project to optimize the diagnosis and treatment of patients with cancer. He was to speed up this process to increase the chances of people suffering from oncological diseases. The project initiators used special incentives to help adapt the treatment entities to new procedures.

Aim of the study: The aim of the work is to summarize the advantages and disadvantages of the oncology package project in Poland, taking into account its functioning and fulfillment of the original assumptions. This is a summary of his 3 years of work from the point of view of people who were directly responsible for its implementation, that is, the coordinators of the oncology package.

Material and methods: The work includes a review of literature and expert opinions - 10 coordinators of the oncology package of the University Clinical Center in Gdańsk. The collected opinions in the form of interviews were analyzed, thanks to which the advantages and disadvantages of the oncology package were distinguished.

Results: The functions of the oncology package coordinators are specified in the given legal acts. They are best orientated on issues related to the package. Experts agreed that the idea of an oncology package is good, but the project itself is underdeveloped. Patients still have difficulty in finding themselves in the process of cancer therapy. The problem is also the temptation of abuse in the case of issuing DiLO cards. Coordinators spend too much time keeping documentation and explaining ambiguities related to the settlement of benefits. Patients for whom the coordinators have less time than they need are suffering from this.

Conclusions: The idea behind the oncology package is right and undoubtedly speeds up the oncological diagnosis process. On the other hand, this project has many flaws and gaps to work on. For this reason, it is worth listening to the voices of the oncology package coordinators who have the most knowledge about them.

Key words: oncological package, oncological treatment, oncological fast track, oncological patient.

Title: The level of public knowledge and the profitability of the automated external defibrillators located in Tri-city

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Introduction: Every year in Tri-city there are, on average, 353 SCA cases. One of the survival chain components is a rapid defibrillation. It contributes to stabilizing a disturbed heart function. In case of an out-of-hospital cardiac arrest it is appraised as the best method of emergency medical treatment. As shown by world literature, low level of knowledge and awareness about the use of automated external defibrillators equipment among the public, affects the low profitability of operation of these devices.

Aim of the study:The purpose of the study is to perform a pharmacoeconomic analysis, examination of AED equipment profitability in Tricity, as well as the interpretation and comparison of the results obtained to the potential situations. On the other hand the study will confront profitability analysis with the level of knowledge and awareness of the Tri-City residents on the use of AED equipment.

Material and methods: On the basis of world literature and own studies, the research material provided information concerning the cases of OHCA, costs and the exploitation of AEDs, as well as the data on later hospital treatments in Tri-city. The following paper includes CEA, CBA and CUA pharmacoeconomic analyses of a current situation (AEDs used 27 times). On the basis of available information, a comparison of the economic and social survey results has been made.

Results: CEA, CBA and CUA pharmacoeconomic analyses showed absolute lack of economic viability. Economic indicators did not reveal appearance of possible return on investment.

Conclusions: Current situation of AED application isn't cost-effective. The low result of using the AED apparatus is influenced by the low level of knowledge about their use among the Tri-City inhabitants.

Key words: sudden cardiac arrest, automated external defibrillator, survive chain, Tricity, first aid

Title: Fraity Syndrome Preliminary Study of a Group of Patients from the Kuyavian-Pomeranian Voivodship

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Introduction: The Frailty Syndrome concerns the elderly and is associated with pathological decreasing of physiological reserves. This makes that even a non-serious factor leads to unexpectedly severe health effects. It is worth implementing screening tests to detect the occurrence of Frailty Syndrome (FS), the state of possibility of its occurrence (pre-frail).

Aim of the study: Screening for a Fraity Syndrome (FS) among the elderly.

Material and methods: 80 people were examined. Inclusion criteria: age ≥60 years, exclusions: occurrence of dementia, psychiatric illnesses, lack of mobility. An MNA, MMSE test and a study using the Share-Fi calculator were carried out, socio-demographic information and medical history were collected, as well as body composition and nutritional habits. The Shapiro-Wilk Test was used for statistical analysis, non-parametric tests were used. Kruskal-Wallis test was used to compare the values of the analyzed groups. When the test result was statistically significant ($p < 0.05$) post-hoc analysis was performed, comparing the subgroups with the Mann-Whitney U test. Statistica 13.1 was used.

Results: The prevalence of the Frailty Syndrome was 24%, pre-frail 42.67%, non-frail 33.33%. The frail was characterized by a higher median age, number of disease entities and medications used. The number of disease entities was for the group frail 5, prefrail 4, non-frail 2, medicines taken 6.5 drugs, 5 drugs and 3 drugs, respectively. Significant differences were noted in relation to age ($p = 0.0004$), number of disease entities ($p = 0.01$) and medication ($p = 0.023$). Non-frail patients lasted longer in a relationships, had fewer illnesses, used better diet, had more muscle mass and received fewer medications. People with FS showed statistically significant difference in non-physical activity up to 30 years of age. 94% of people with frail do not currently undertake physical activity.

Conclusions: The prevalence of weakness syndrome increases with age and the number of disease entities and medications. People with FS do not currently perform physical activity. Not taking physical activity up to the age of 30 by frail persons may be associated with a reduced reserve of strength and muscle mass as well as bad diet, lacking in proper sources of macro- and micro elements. The results confirm the need for screening.

Key words: weakness syndrome, syndrome frailty, socio-demographic factors, diet, physical activity, body composition.

Title: The influence of myofascial therapy on the efficiency of a patient's hand after surgery - a case report

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Introduction: The human body is created for movement. The general motility of the body can be divided into fine and gross motor skills. Gross motor skills refer to global movement. Fine motor activity, however, concerns movements within the hand. Both types are a very important element of everyday human functioning, which ensure full independence and independence. Every day, the human body is exposed to numerous external factors that can lead to temporary or permanent loss of motor skills.Low motor dysfunction is a very common complication of surgical procedures and fractures in the palms. Due to the complexity of the movement within the hand, the restoration of fitness in the palm of your hand is a tedious and time-consuming process. Nevertheless, the rehabilitation process must be targeted so that the patient can achieve complete or possibly greatest efficiency.

Case description: Case description refers to a patient who suffered serious damage in the right hand as a result of an accident at work. The patient urgently underwent an operation to stabilize the broken bone and stitch the damaged median nerve. After the surgery, he underwent intensive rehabilitation, the main element of which was muscular and myofascial therapy of the hand and postoperative scar. After 4.5 months of rehabilitation, the level of hand efficiency was so good that the patient could return to work.

Conclusions: Myofascial therapy is a very effective method of work, which can be successfully used to restore full efficiency in the palm of your hand. It affects the improvement of the range of motion and the reduction of pain. The effect of its use is also the elasticity and mobilization of scar tissue resulting from surgical intervention.

Key words: Myofascial therapy, rehabilitation, hand surgery

Title: Analysis of the effectiveness of treatment of Parkinson's disease using deep brain stimulation

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Introduction: Parkinson's disease (PD) is the most common neurodegenerative disorder. Its symptoms significantly reduce the quality of life of patients. Deep brain stimulation (DBS) is an increasingly common method alternative to conservative treatment. The research is the first in Poland assessment of the cost and effectiveness of PD treatment using DBS.

Aim of the study: The purpose of the study was to assess the direct costs of treatment and the daily functioning of patients with PD undergoing DBS, during one year before surgery and one year after.

Material and methods: The analysis included data from patients with diagnosed PD who underwent a DBS procedure. The study group was of 40 patients operated at the Department of Neurosurgery of the 10th Military Clinical Hospital in Bydgoszcz, from 1st January 2016 to 31st December 2016.

Results: Authors in the study used cost-effect analysis (CEA) from the perspective of the national health fund - NFZ. Authors pointed cost areas associated with PD treatment based on medical records and interviews with patients. Area of costs included: outpatient specialist treatment, admissions, pharmacotherapy, diagnostic tests, stays in the sanatorium and medical rehabilitation, ambulance with ER admissions and medical equipment. A one-way sensitivity analysis was carried out for the price of the neurostimulator. To determine the cost of obtaining an additional health effect, an incremental cost-effectiveness ratio (ICER) was calculated. The functioning of patients before and after neurostimulator implantation was determined using the Schwab-England scale (SE ADL) as a scale of independence of life and quality component.The average cost of treatment PD with DBS method a year before surgery was 9277 PLN. In the annual period after the surgery the costs were reduced by 8.98% and in the cost structure there was a reduction in the areas: hospitalization, diagnostic tests, sanatorium / medical rehabilitation. The cost of the neurostimulator and its implantation amounted to 47652 PLN. DBS did not compensate during the assumed ten year period also including results of one-way sensitivity analysis. Patients independence and quality of life measured by the Schwab-England scale increased from 58.75% to 72.75% ($p < 0.00001$).

Conclusions: The use of DBS in the treatment of PD reduces the cost of treatment in analyzed period by 8.98%. In the ten year post-operative period the cost of the DBS procedure will not be compensated. The cost of obtaining an additional health effect - 10% on the SE ADL scale - is 33441 PLN. After DBS procedure the functioning of the patients improves.

Key words: Parkinson's disease, costs, Deep Brain Stimulation

Title: The use of myofascial release in the case of soft tissue necrosis after a plaster cast. A case report.

Authors: Piotr Ożóg, Dawid Natański, Anna Grochowska

Affiliation: 1.Department of Physiotherapy, 2.Department of Physiotherapy, 3.Department and Clinic of Geriatrics

Introduction:Necrosis is a sequence of morphological changes that occur after cell death in the body. It consists in the progressive destruction, mainly enzymatic and denaturation of irreparably damaged cell proteins. It may occur, among others, due to mechanical damage caused by long-term use of a plaster cast after orthopedic injuries. Strong gypsum pressure on tissues and long-term immobilization can lead to a significant reduction in blood supply, and therefore also deterioration of the nutritional status of tissues subject to pressure, which in extreme cases may lead to necrosis. One of the therapeutic options that can be used in this type of changes are myofascial release techniques (MFR). The manual techniques used are aimed at improving the flexibility and the slide between individual layers of soft tissues, which in turn should lead to improved blood supply and nutrition of damaged tissues.

Case report: The prepared case report contains a methodology and presented in the form of pictures the results of the use of a series of MFR treatments in a patient after ankle injury, in which the soft tissue necrosis in the region of the Achilles tendon occurred after the applied plaster cast.

Conclusions: In the described case, a significant reduction of soft tissue necrosis was observed after the use of MFR. Therefore, it seems that it is worth considering the MFR if such changes are found after using a plaster cast. However interpretation of the results in this case is limited to one participant, thus the need to conduct research with a well-developed research procedure on a larger group of participants that will allow a more objective assessment of the effectiveness of this therapeutic method.

Key words: Myofascial release, soft tissue necrosis, plaster cast

Title: Effect of scar massage and mobilization in patient after cardiac surgery – case report

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Affiliation: 1.Department of Physiotherapy, 2.Department of Physiotherapy, 3.Department and Clinic of Geriatrics

Introduction: Coronary artery bypass grafting and valvular heart surgery are the most common procedures performed at cardiac surgery clinics. Progress in surgical technique, instrumentation and post-operative care is significant. Guides for patients after surgical operations that contain practical tips are helpful, but there is no information on rehabilitation and scar improvement. Wound reparative process after surgery, burns, injuries, and inflammatory processes results in a spectrum of scar formation ranging from nearly scarless healing to excessive fibrosis or atrophy. Scarring is considered a major medical problem that leads to aesthetic and functional sequelae. Scar tissue is clinically distinguished from normal skin by an aberrant color, rough surface texture, increased thickness (hypertrophy), occurrence of contraction, and firmness.

Aim of the study: The aim of the study was to assess the effects of massage and mobilization of the scar in patient after cardiac surgery.

Material and methods: We present a case of a 70-year-old woman with a hypertrophic scar after aortic valve replacement surgery. The patient was referring to post-cardiac rehabilitation in ambulatory care 5 months after the surgical intervention. In the interview, the patient reported discomfort around the postoperative scar. Before and after the theraphy the scar was evaluated using the POSAS (The POSAS consists of two parts: a Patient Scale and an Observer Scale). There were also made ultrasound examination and anthropometric measurements of the scar. After the tests, a therapy was planned with the use of techniques by Manheim and Chaitow - it is a collection of techniques that focuses on freeing restrictions of movement in the scar tissues. The procedure was performed three times a week for 2 months during 10-20 minutes, including 20 therapy sessions.

Results: After a series of cardiac rehabilitation, there was an improvement in mobility and less stiffness of the scar, reduced discomfort and improved color and shape of the wound. All changes were noted by the patient as well as the person conducting the research. The difference in ultrasound was also shown. There were no changes in anthropometric measurement.

Conclusions: Massage and mobilization of the scar is effective in improving the scar after an open heart surgery.Direct techniques are effective and safe forms of conservative work with scarring after cardiac surgery. Improving the scar positively affects the patient's comfort and quality of life.It is necessary to undertake further studies to examine a larger group of participants in order to confirm benefits of massage and mobilization of the scars to reduce time needed to allow for recovery.

Title: SPME-LC-HRMS as ultimate tool for determination of both microsomal metabolism and melanoma in vitro cell based model

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Introduction: The use of solid phase microextraction (SPME) in combination with high resolution mass spectrometry (HRMS) for cell culture metabolomics analysis allows getting more sophisticated data from in vitro assays. Due to fact that SPME is equilibrium based non-exhaustive microextraction technique it enables performing multiple extractions from a single sample with no influence to tested cells. Opportunity of time course analysis from single sample reduces total number of samples, and eliminates of inter-batch variability.

Aim of the study: This work aims to show the capability of SPME to measure the influence of combretastatin A4 (CA4) on melanoma B16F10 cell line and its metabolism with rat liver microsomes

Material and methods: Effective concentration of CA4 was determined by the MTT-based cytotoxicity. The protein binding and extraction recovery were determined. Extraction protocol was established directly in 96-well plate, for small molecules extraction, a fiber format of SPME was utilized with multiple analysis from the same sample. Whole procedure can be considered as HTS and non-disturbing for cells. Next, metabolomics analysis by LC-HRMS (Q-Exactive Focus) was performed. Additionally, for untargeted drug metabolism assessment rat liver microsomes (RLM) analyzed via protein precipitation (PP) and SPME was carried out.

Results: Free fraction of drug in cell medium was 30 % and single extraction recovery was 5%. For cell metabolomics analysis concentration of 5 nM of CA4 was utilized. Extracellular metabolic pattern of cells was changed after administration of the tested drug. This suggests pharmacological activity of administered compound towards studied cell line model. The most important metabolomics change were reflected in the levels of aminoacids (e.g.: valine, proline,) low molecular mass acids (pyroglutamic acid) and amides (palmitamide). Using direct immersion SPME from cell cultures after exposure to drug allows obtaining information changes during single experiment without affecting cells growth. The non-targeted metabolism investigation of transformations of the parent drug led to identification of previously reported as well as unreported metabolites. The main path of CA4 metabolism is O-demethylation and aromatic hydroxylation respectively. There was no differences found between PP and SPME analysis of RLM in terms of identified metabolites, but more efficient sample clean-up and possibility of time course assessment with SPME makes the technology highly recommended for further metabolism analysis.

Conclusion: The use of SPME-LC-HRMS is a suitable for cell cultures in high-throughput manner and metabolism assessment. Work has been supported by National Science Center Preludium grant No 2016/23/N/NZ7//01929 (microsomal metabolism) and Nicolaus Copernicus University Statutory grant No 451 (cell metabolomics).

Key words: combretastatins, solid phase micrextraction, electrochemistry, metabolism, melanoma cell line

Title: Impact of depression on the risk of falls in the elderly.

Authors: : Karolina Klimkiewicz-Wszelaki, Remigiusz Sokołowski, Anna Grochowska, Anna Ziółkowska, Wojciech Stemplowski, Eliza Oleksy, Natalia Sokołowska, Paulina Kasperska

Affiliation: Department and Clinic of Geriatrisc, Collegium Medicum NCU in Bydgoszcz

Introduction: Falls of the elderly are one of the important problems of everyday life. They constitute a burden both for people who experienced them and their guardians. Epidemiological research prove that people over the age of 65 35-40% experienced a fall during the year and after 80 years of age up to 50 %. Depressive disorders are after dementia the second most frequent psychopathological syndrome in the elderly and together with it belong great geriatric problems affecting the physical functioning of the elderly.

Aim of the study: The aim of the study was to assess the risk of falls in the elderly with depression.

Materials and Methods: In the study were enrolled 323 patients. Two groups were selected based on a medical examination and Geriatric Depression Scale (GDS) consisting of 30 questions. The research group (I group) consisted of 59 people diagnosed with depression (mean age 77.03). The control group (II group) consisted of 264 people without depression (mean age 77.23). In both groups, a Comprehensive Geriatric Assessment was performed, which includes the Tinetti Test that allows to assess the risk of falling in people over 60 years of age. The study was conducted at The Clinic and Department of Geriatrics, Ludwik Rydygier Collegium Medicum In Bydgoszcz, Nicolaus Copernicus University. The results were analyzed statistically ($p<0,05$).

Results: The mean points of the GDS scale in the research group was 13.24 points. While in the control group 7.41 points. The mean Tinetti score in subscale: Balance was 12.14 pts. in the group of people with diagnosed depression (group I) and in control group (group II) it was 13.12 pts. This difference was not statistically significant ($p = 0.055$). The mean Tinetti score in subscale: gait in the I group was 9.52 points. and in the II group 10.16 points. The difference was statistically significant ($p = 0.018$). The total mean Tinetti score in people from the I group was 21.75 points. In the II group the result was at the level of 23.21 points. The difference was statistically significant ($p = 0.026$).

Conclusion: Our study draws attention to the fact that older people with diagnosed depression are more likely to fall. This testifies to the relationship between physical functioning and emotional state of older people. Depression is associated with suffering, deterioration of the quality of life, and impairment of physical activity. Rapid diagnosis and the inclusion of appropriate treatment can prevent the increased risk of falls and its negative consequences in people with depressive disorders in the elderly.

Key words: falls, the elderly, depression, risk of falls, The Tinetti Test, Geriatric Depression Scale

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Title: The effect of a relaxation massage during pregnancy on the level of satisfaction of women's sexual life

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Introduction: According to available studies, during pregnancy more than 70% of women decrease the frequency of sexual contact and satisfaction with this area of life. This is due to, among other things, the feeling of being unwell and the problems with the pregnant ones. Massage, as a form of treatment of movement disorders and relaxation, performed regularly during pregnancy can bring many benefits, also affect the level of sexual satisfaction.

Aim of the study: The purpose of the study is to confirm the main thesis, which assumes that regular massage can positively affect the level of satisfaction of the pregnant woman's sex life.

Materials and Methods: The study group consisted of 30 women in the course of normal pregnancy, aged 21 - 40 years. Pregnant women which have participated in the study, after getting the consent from physician, were being subjected to a full body relaxation massage, once a week, from 24th to 35th week of pregnancy (2-3 trimester). Before and after the study began, patients anonymously completed an online questionnaire assessing the level of sexual satisfaction with the FSFI (Female Sexual Function Index; domain I, II and V).

Results: There were no statistically significant differences between responses given in 24th and 35th week of pregnancy. In the majority of women surveyed, there was no change in the frequency of sexual craving, frequency and intensity of sexual arousal during sexual activity, and a satisfaction with this aspect did not decrease. On the other hand, there was a slight increase in the intensity of desire and interest in sex life. In the vast majority of cases, the level of satisfaction with sexual life, including the level of emotional closeness and sexual relationship with the partner remained unchanged despite the progress of pregnancy.

Conclusions: The effects of massage such as relaxation, pain reduction and movement improvement, and the reduction of swelling, cellulite or stretch marks, have a significant effect on the overall well-being and perception of the body by the pregnant. These are the aspects necessary for a healthy, satisfying sex life, which makes it possible to believe that the lack of decrease of sexual satisfaction observed in the first group is due to the beneficial effects of regular massage.

Key words: pregnancy, sex, sexual satisfaction

Title: Health problems of sexual minorities caused by social homophobia and lack of acceptance

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Introduction: In the latest research carried out all over the world, Poland is one of the most homophobic countries in Europe. In schools, sex education is removed and a negative attitude towards gays and lesbians is promoted. This knowledge is very often based on stereotypes about this group. Homophobia, lack of acceptance, and heteronorm affect the quality of life, especially of young LGBT people who, at adolescence, discover that they are not heterosexual. Minority stress, depression, eating disorders, drink alcohol, suicidal thoughts and suicide attempts are more frequent among them. The lecture aims to draw attention to the problem and the need to educate the medical staff in this area. In other own studies it has been shown that the medical community is the most homophobic environment.

Aim of the study: The aim of the study is to present contemporary research on the impact of homophobia and the lack of social acceptance on the quality of life and health of sexual minorities. The results of research on the quality of life of LGBT youth in Poland and their relationship with family, thoughts of suicide and suicide attempts will also be presented. Studies shows how a big problem has LGBT young group in mental health area.

Material and methods: Anonymous survey, research on young people from the LGBT community aged 15-25. Number of respondents: 462. An online survey conducted in 2016. An overview of contemporary research in this area.

Results: 30 percent of LGBT young people suffer from mental and physical abuse from close family members LGBT youth, compared to their heterosexual peers, smoke more cigarettes and drink more alcohol 70 percent has suicidal thoughts 30 percent respondents had incident of suicide attempt. Minority stress, depression, eating disorders, drink alcohol, suicidal thoughts and suicide attempts are more often in LGBT group.

Conclusions: Attention should be paid to the needs of LGBT youth. In particular on the big problem which is of suicidal thoughts and suicide attempt. Needed is a special education program for specialists, medical staff, psychologists and teachers who will have skills in working with LGBT youth and will be able to help in professional way.

Key words: LGBT, Homosexuality, LGBT youth, suicide attempt

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Title: Kidneys function and their effect on cognitive function and balance disorder in the elderly patients

Authors: Wojciech Stemplowski[1], Remigiusz Sokołowski[1], Aneta Popiel[2], Eliza Oleksy[1], Karolina Klimkiewicz-Wszelaki[1], Anna Ziółkowska[1]

Affiliation: 1.Nicolaus Copernicus University in Toruń, Ludwik Rydygier Collegium Medicum in Bydgoszcz, Department and Clinic of Geriatrics, 2.Medical University in Wroclaw, Poland

Introduction: Falls and Instability Syndrome are one of the Principal Geriatric Syndromes. The background of this issues hide many mechanisms. Two of them are central neurological system disorders and peripheral damage to the vestibular system. In many aspects disturbance of body fluids homeostasis may affect the above. MDRD is an indicator of glomerular filtration rate, together with creatinine level those factors demonstrate efficiency of the kidneys. With age MDRD level drops by half.

Aim of the study: Correlation of kidney function and predisposition to falls in people over 60 years without diseases of the urinary tract.

Material and methods: The subject ware patients (n=290, 60+ years) admitted to Department of Geriatrics in Bydgoszcz. Exclusion criteria were: glomerular diseases (N00-08), acute kidney failure and chronic kidney disease (N17-19), other disorders of kidney and ureter (N25-29), other diseases of the urinary system (N30-39). Comprehensive Geriatric Assessment was conducted, and then the following data were collected: age, height, weight, BMI, MoCA score, Tinetti score (three sub-tests on: gait, balance, gait and balance). Obtained data were compared to creatinine, MDRD level and analysed with STATISTICA v13.1 (StatSoft Polska). Shapiro-Wilk tests and Spearman's rank correlation coefficient were conducted. Results are presented in the form of a tables and scatter charts.

Results: Creatinine level correlated only with weight (R=0,31, p<0,001) and height (R=0,24, p<0,001). MDRD level showed an inverse dependence from weight (R=-0.24, p=0.042) and age (R=-0.24, p=0.003). Comparison of MDRD with Tinetti subscales, showed correlation with domains: balance (R=0,20, p=0,003), gait (R=0,26, p=0,016), gait and balance (R=0,25, p=0,001). There was no correlation with MDRD and MoCA, BMI and height.

Conclusions: While MDRD's correlation with age is not a surprise, it is worth noting that risk of fallings decreases with higher MDRD level which correspond to better kidney functions. It means that reduced renal function (with age) may be one of the elements which increases risk of falls among elderly people. Maintaining kidney efficiency until late age can minimize this risk. Possible mechanism is lower risk of disorders of organs responsible for balance (e.g. vestibular system of the labyrinth) as a result of a more efficient filtration of substances (e.g. ototoxic).

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Title: Monitoring of visual acuity and metamorphopsia using mobile applications in the eyes with neovascular form of age related macular degeneration

Authors: Karolina Suwała[1], Przemysław Zabel[1], Martyna Gębska-Tołoczko[1], Jakub J.Kałużny[1], Katarzyna Urtnowska[2], Kosma Kołodziej[3]

Affiliation: 1.Department of Biology of the Visual System 2.Obstetrics Department, Reproductive Medicine and Andrology Section 3.Department of Clinical Neuropsychology

Introduction: The neovascular form of age-related macular degeneration (nAMD) bindswith the accumulation of fluid under the retina or within the sensory retina. The consequence of this is the displacement of retinal layers and damage to photoreceptors, which causes disturbances in the functioning of this tissue. A characteristic symptom of the disease, apart from the reduction in visual acuity, are visual metamorphopsis. Thanks to repeated intravitreal injections of antiVEGF preparations, most patients improve functional and structural eyes with choroidal neovascularization (CNV) against the background of nAMD. Maintaining a beneficial therapeutic effect, however, is associated with monitoring the state of the retina, which requires systematic, monthly ophthalmologic examinations. In this situation, it seems a good solution to introduce tests that allow the patient to self-control the retina function. Such tests could include applications enabling the examination of visual acuity and the presence of metamorphopsia.

Aim of the study: The aim of the study was to assess the usefulness of visual acuity applications and metamorphopsia applications in the diagnosis and monitoring of neovascular AMD (nAMD).

Material and methods: 30 eyes with the active form of nAMD qualified for intravitreal injections of aflibercept were included in the study. Before the first, fourth and seventh injections, the patients underwent an ophthalmologic examination including distance visual acuity, near visual acuity, metamorphopsy scores using the M-charts, Amsler test and SdOCT. At the same time, an examination of near visual acuity and metamorphopsis was performed using original applications installed on the tablet. The results of the study were subjected to statistical analysis.

Results: During therapy, improvement in distance visual acuity was noted. Regardless the method of examination the fluctuations in distance and near visual acuity and the extent of metamorphopsis were not statistically significant. Significant correlations were found between proprietary mobile applications and commonly used tests. No correlation was found between the degree of metamorphopsia and near vision acuity and the thickness of the retina.

Conclusions: The correlation between the retinal anatomical state in patients with nAMD and function tested with simple tests is poor. The most useful method of monitoring the effects of treatment is visual acuity. Mobile applications used during the study correlate with commonly used tests, which in the future gives the possibility of easier and faster examination of patients.

Key words: metamorphosia, visual acuity, application, telemedicin

Pharmaceutical Sciences

Young scientists,
PhD students
and
Professional workers Session

Jury:

Professor Jerzy Krysiński, PhD

Marcin Koba, PhD

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Piotr Kośliński, PhD

Wojciech Filipiak, PhD

Moderator:

Iga Stryjak

Karol Jaroch

Title: The influence of steroid hormones on active DNA demethylation in breast cancer cell lines

Authors: Kinga Linowiecka, Justyna Szpotan, Marek Foksiński

Affiliation: Department of Clinical Biochemistry, Faculty of Pharmacy, Collegium Medicum in Bydgoszcz, Nicolaus Copernicus University in Torun, Poland

Introduction: The experimental evidences have demonstrated that active DNA demethylation process can affect DNA methylation pattern. Methylated cytosine (5-methylcytosine, 5-mC) could be converted to 5–hydroxymethylcytosine (5–hmC), and then to further oxidation products (5–formylcytosine (5–fC), and 5–carboxylcytosine (5–caC)) by TET proteins oxidation in active DNA demethylation process. 5-hmC derivatives are subsequently distinguished and excised by thymine DNA glicosylase (TDG) in base excision repair process, and unmodified cytosine is incorporated to DNA chain, which leads to DNA demethylation. The alterations in DNA methylation pattern are proven to have an impact on cancerogenesis. In almost 70% of breast cancers cases, there is increased expression of estrogen/progesterone receptors. Estrogens (E2) as natural ER ligands are implicated in growth and proliferation of cells e.g. in mammary gland. Moreover, E2 may act as gene expression regulators though their ability to bind ER. Based on literature data, it was suggested that E2 can affect DNA methylation by promoting demethylation of CpG islands in promoter regions of genes.

Aim: Excessive estrogens exposition may influence on promotion and progression of breast cancer in human. We would like to determine whether estrogen and progesterone supplementation of human breast cancer cells with estrogen/progesterone receptors has impact on cells epigenome by inducing changes within active DNA demethylation pathways.

Materials and Methods: Cultured breast cancer cell line (MCF7) was treated with different concentrations of β–estradiol and progesterone. In order to asses expression of TET1, TET2, TET3 and TDG we applied qRT-PCR with Universal Probe Library probes, and for direct 5–methyl–2'–deoxycytidine (5–mdC) and its derivatives assessment we used two-dimensional ultra-performance liquid chromatography with tandem mass spectrometry detection (2D-UPLC-MS/MS).

Results: We noticed increased mRNA expression level of TETs in cells with specific supplementation in comparison to non-treated ones, moreover changes in expression were also observed between different concentrations of β–estradiol and progesterone. Furthermore, we also noticed differences in the levels of DNA demethylation products after diverse hormones supplementation.

Conclusions: So far, there have been no investigations assessing the role of steroid hormones in active DNA demethylation. Our research suggests a connection between DNA demethylation and steroid hormones supplementation in human breast cancer cell lines. This knowledge may shed a new light on the mechanisms involved in the development of hormone–dependent breast cancer.

Key words: DNA demethylation, TET, breast cancer cell lines, steroid hormones

Title: The use of natural cannabinoids and endocannabinoids in therapy

Authors: Mirosław Malec

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Introduction: Cannabinoids are chemical compounds that naturally occur in the resin of the Cannabis sativa plant, colloquially called cannabis. These substances have effects similar to drugs secreted by the human central nervous system and the immune system, which leads, among other things, to create different moods, relieve pain and other temporary changes in the human body. One of the Cannabinoids is THC, a well-known substance that causes the psychoactive action associated with marijuana, but many other cannabinoids show promising effects of treatment of various diseases.

Aim: This study aimed to review current reports on the role of the natural cannabinoids in therapy.

Materials & Methods: Selective literature review.

Results: Over 20 years of research has shown that human brain cells and cells in the nervous system have two types of receptors or unique molecules that cannabinoids can capture. When cannabinoid encounters the receptor, it can cause a phenomenon in our cells, and we can compare it to the way the key is rotated in the lock, the specific door will not be opened until we place the correct key (cannabinoid) that rotates in the lock (receptor). Cannabinoid receptors are found in the part of the brain that supports cognitive functions, memory, psychomotor skills, feelings of contentment and pain, which is why some cannabinoids like THC cause a "high" feeling. However, other cannabinoids, such as CBD, can interact with receptors and minimize feelings of anxiety, pain, anxiety, and also offset the psychoactive effects that THC causes. The human body contains cannabinoid receptors that play the role of a natural component in the immune system. This theory is further supported by the existence of the endocannabinoid system, which contains naturally occurring chemicals in the human body, stimulating cannabinoid receptors. So far, preliminary studies have shown that these substances: inhibit the growth of cancer cells, chemotherapy is more effective, we do not damage healthy cells and tissues, stimulate appetite, relieve pain and inflammation, including chronic pain, reduce nausea and vomiting, eliminate anxiety, improve the quality of sleep, help in the fight against viral infections, relieve muscle spasms associated with MS disease.

Conclusion: To conclude, CBD is one of the most effective cannabinoids, has shown significant potential in scientific research, can suppress epileptic seizures, psychotic symptoms of schizophrenia, or carcinogenic changes. Hovewer, there is a need for further research into the safety and efficacy of cannabinoids in therapy.

Key words: cannabinoids, marijuana, CBD, THC, therapy

Title: Quality of food supplements – what is on the label and what in the capsule?

Authors: Agata Walkowiak, Kacper Wnuk, Wirginia Ciupak, Natalia Piekuś-Słomka, Bogumiła Kupcewicz

Affiliation: Department of Inorganic and Analytical Chemistry, Faculty of Pharmacy, Nicolaus Copernicus University in Torun, Bydgoszcz, Poland

Introduction: Recently, many people have shown a growing interest in different kinds of herbal products perceived them as safe and harmless. Herbal medicines and supplements become more and more popular, particularly those with antioxidant activity. The pharmaceutical market offers a wide range of this products but it must be stated that not all the products are good quality. Generally, products containing a plant extract can be divided into two groups: drugs and food supplements. It is well known that the second group is controversial because of frequently seen discrepancies between what's written on a label and what is inside in the capsules or tablets. Strong competition, as well as an increasing need for quality control make the traditional analytical methods less attractive. Therefore, the better and faster screening methods which facilitate quality control are still desirable.

Aim: The purpose of the work was to detect discrepancies in the composition of Ginkgo biloba (GB) extracts and acai berries (AB) extracts with the use of correlation spectroscopy in the UV-VIS and mid-IR range combined with chemometric methods.

Metarials and methods: In the study, 22 ginkgo products (six drugs and 16 food supplements) and 10 accai berries products (lyophilisates and supplements with extract) were analysed. All of them were bought at local pharmacies and healthy food shops. UV-Vis spectra were recorded in the range of 220 - 600 nm for aqueous and/or water-methanol (20:80) extracts. For GB products, the spectrum of water extract (X axis) was correlated with the spectrum of water-methanol extract (Y axis), respectively. For detecting the spectral differences, two kind of correlation coefficients were proposed: similarity coefficient (Csim) between spectra and symmetry coefficient (Csym) for each spectrum. Both correlation coefficients are calculated as an arithmetic mean of the Pearson and Spearman coefficients for respective part of spectra. FTIR spectra was recorded in the range 700-4000 cm-1 using ATR technique. Raw spectra were analyzed using Cluster (CA) and Principal Component (PCA) Analysis. For correlation maps a multidimensional PCA was used. Antioxidant activity of all the products was assayed by spectrophotometric method with DPPH radical.

Results: The correlation spectra of the gingko drugs are very similar and diagonally symmetric, which proves the comparable qualitative composition of both extracts. In contrast, correlation maps of supplements showed lower similarity and symmetry coefficients. The shape of the spectra and Csim, Csym values indicate the presence of additional substances in GB supplements. Analysis of IR correlation maps for AC products indicate differences associated with antioxidant activity.

Conclusions: The presented approach allows us to (i) discriminate between adulterated and non-adulterated food supplements with Ginkgo biloba extract, (ii) detect low-quality acai berries extracts.

Key words: dietary supplements, chemometric methods, acai beries, Ginkgo biloba

Title: The synthesis of new isoindole derivatives and preliminary prediction of biological activity of obtained products

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Introduction: The reaction of N3-substituted amidrazones with cyclic anhydrides can lead to different products, such as 1,2,4-triazole and isoindole derivatives and also linear compounds. Isoindole derivatives can exhibit anti-inflammatory, insulin-mimetic, antithrombotic and antitumor activity. These compounds showed low antibacterial activity too.

Aim: The aim of the study was to obtain new isoindole derivatives and predict their potential biological activity with the Prediction of Activity Spectra for Substances software (PASS).

Materials and Methods: The reaction of N3-substituted amidrazones with 2,3-dimethylmaleic anhydride was carried out in various conditions (solvent, temperature). All synthesized structures were confirmed by spectral methods (1H NMR, 13C NMR, MS) and the purity of obtained compounds were characterized by elemental and chromatography analyses. Additionaly the molecular structure was determined by X-ray crystallography. Potential biological effects of new compounds were predicted using PASS program and the parameters of bioavailability were calculated with Molinspiration software.

Results: Two new isoindole derivatives were synthesized in reaction of N3-substituted amidrazones with 2,3-dimethylmaleic anhydride. One of the obtained products showed polymorphic forms. The products of the reactions comply to Lipinski's rule of five and they should exhibit good absorption after oral intake. The potential antidiabetic, kidney stimulant, erythropoesis stimulant, antiviral acivities were predicted by PASS program.

Conclusions: Various methods of syntheses of new isoindole derivatives have been proposed and new compounds were obtained. In contrast with others cyclic anhydrides 2,3-dimethylmaleic anhydride promotes the formation of isoindole derivatives. All of the products fulfilled the rule of five, which suggest their good penetration through biological membranes. Obtained products can reveal various pharmacological effects, what was predicted by PASS program. However further biological test will be necessary to confirm potential activities of obtained compounds.

Key words: amidrazone, isoindole derivatives, drug research, PASS.

Title: The impact of decitabine treatment on active DNA demethylation and deamination process in human colon cancer cell lines

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Introduction: DNA methylation is one of the most widely studied epigenetic modification that affects multiple cellular processes i.e. embryonic development, genomic imprinting and gene repression. Genetic alterations of DNA methylation are a hallmark of many human diseases including cancer. The process of DNA methylation is regulated by the family of DNA methyltransferase (DNMT) enzymes, namely DNMT1, DNMT3a and DNMT3b. These enzymes transfer a methyl group from S-adenosyl L-methionine to the 5' carbon of cythosine which results in methylation. Deregulation of DNMTs has been reported to be involved in malignancy. Hence, it has been suggested that the inhibition of DNMT activity is an effective way to reduce the development of tumors and appears to be an interesting target for cancer therapy. Hitherto, the U.S. Food Drug Administration (FDA) has approved two hypomethylation agents Vidaza (azacitidine or 5-azacitidine by Celgene, 2004) and Dacogen (decitabine or 5-aza-2'-deoxycytidine by SuperGen, 2006) against myelodysplastic syndromes (MDS) and acute myeloid leukemia (AML). Azacitidine and decitabine inhibit DNA methylotransferases (DNMTs) leading to passive demethylation and loss of DNA methylation. However, their demethylating activity is not fully elucidated.

Aim: The main objective of this research was to find out whether decitabine may affect active DNA demethylation or deamination process in human colon cancer cells – HCT 116.

Materials and Methods: Experimental studies have been carried on HCT 116 cell lines. We have exposured abovementioned cell line to widely known epigenetic drug – decitabine. To analyze the effects of decitabine treatment on metabolites of active DNA demethylation and deamination pathways i.e. 5-hydroksymethylcythosin (5-hmCyt) and 5-hydroksymethyluracil (5-hmUra) we have used 2D-UPLC/MS/MS technique. Expression of TETs and TDG have been performed using RT-PCR method.

Results: Interestingly, we have found that decitabine may alter active DNA demethylation process. Our research has demonstrated paradoxical increase of 5-hmCyt in HCT 116 cells treated with decitabine whereas we have not observed changes in expression of TET and TDG genes compared to control.

Conclusions: We assume that our observations have important implications in decitabines' mechanism of action and potential as a treatment for colon cancer.

Key words: decitabine, DNA demethylation, epigenetics

Title: Advantages and limitations of live cell imaging cytotoxicity assays, in the case of the impact of chemotherapeutic drugs on AFSC`s

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Introduction: Estimating the risks and benefits of administering drugs during pregnancy is a frequent challenge. Particularly, we lack sufficient data on the effects of biologically active compounds on the fetus. Amniotic fluid is an attractive source of stem cells (AFSC`s), they can become a reliable, ethical model representing the human fetus for cytotoxicity study. Unfortunately, due to high population doubling times of isolated AFSC's, cell senescence and a possibility of isolation failure, some of commonly used cytotoxicity assessing methods need to be replaced by less conventional ones. Live cell imaging assays might prove to be very advantageous under those circumstances, while providing additional data that would be otherwise unobtainable such as additional images for morphology comparison and excluding false positive results.

Aim: The aim of this study was to compare live cell imaging cytotoxicity assays against known, established methods, when examining the impact of chemotherapeutics on AFSC`s.

Materials and Methods: AFSC's were isolated from amniotic fluid obtained from pregnant women undergoing amniocentesis procedure (material provided by the Department of Obstetrics and Gynecology Bydgoszcz, Poland). Cells were isolated under sterile conditions, using 350xg centrifugations and then cultured using DMEM/F12 supplemented with 20% FBS, 5µg/ml amphotericin B, 100µg/ml penicillin/streptamycin mixture, 10ng/ml bFGF and cultured at 37°C, 5% CO2, 95% humidaity. 100, 10, 1 and 0.1 µM Cisplatin (CP) and Doxorubicin (DOX) cytotoxicity was assessed using MTT assay (concentration of tetrazolium salt 1mg/ml) and JuLI Stage (kindly provided by ALAB Sp. z o.o.) proliferation assay. Apoptosis induction based on presence of active Casp3/7 was studied by FLICA method (DEVD concentration 5µl/1ml medium) using live imaging in JuLI FL and by Olympus CKX53 FL microscope.

Results: Cytotoxicity of both CP and DOX has been proven by MTT, JuLI Stage proliferation assay and FLICA assay using JuLI FL against AFSC's. DOX cytotoxicity in high concentrations (100, 10µM) was difficult to evaluate using JuLI Stage, required use of higher sensitivity settings and was only able to produce reliable results till the 2 and 24h respectively. 10µM DOX was the only concentration that yielded significantly different results from the control (p=0,046) below the 24h of incubation.

Conclusions: Although both, traditional methods and live cell imaging cytotoxicity assays have yielded similar results in low drug concentrations, in our opinion it is best to use them in conjunction, as supplementary assays, and not as separate stand-alone ones. Live cell imaging cytotoxicity assays depend highly on software image interpretation, and thus assay resolution and sensitivity decrease and background noise increases drastically when in use with compounds with high visible light absorption like DOX or cell debris are present.

Key words: AFSC`s, chemotherapy, pregnancy, cytotoxicity

Title: Non-commercial clinical trials in Poland - legal aspects, potential benefits and risks

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Introduction: First clinical trials in Poland were documented in the 90s of the twentieth century. Currently Poland is the largest clinical trials market in CEE. There are about 400-500 new studies registered in Poland every year (458 trials were registered in 2016). The Pharmaceutical Law is the basic act regulating the legal aspects of clinical trials in Poland. Clinical research are an indispensable element for the development of medicine, especially in such branches as oncology or orphan diseases. They are the basic tool for assessing the effectiveness and safety of new therapies, assessing predictive factors, establishing new standards of therapy and costs minimizing. There are two groups of clinical trials - commercial and non-commercial studies (Investigator Initiated Studies - IIS). There are several differences between commercial research projects and non-commercial projects. Non-commercial research focuses on the analysis of registered drugs in new indication or in different stage of treatment (e.g. combination therapy with radiotherapy or surgery). IISs contribute to the development and improve of knowledge and clinical practice.

Aim: The purpose of this paper is to review the most recent statistics about non-commercial clinical trials in Poland and in other European Union countries, review difficulties in conducting non-commercial trials in Poland and benefits of IIT and present changes in polish legislation - "green light" for the non-commercial clinical trials in Poland.

Material and methods: A review of the current literature, legal basis and statistical data about non-commercial clinical trials in Poland.

Results: In 2011 just over 0,5% of clinical trials reported to Polish Regulatory were non-commercial trials (3 studies). In 2014 six non-commercial trials were recorded in Poland (1,5% of all clinical studies) and in 2016 fifteen IISs were noticed (3%). For comparison, statistics found that 25% of clinical trials in UK were Investigator Initiated Studies. The European Medicines Agency indicates that 40% of all clinical trials in Europe are academic/non-commercial clinical trials. A small number of non-commercial clinical trials in Poland might be related to the following barriers: - high costs of study preparation, registration and conducting, with definitely lower budgets of these type of trials - lower profits for Sites and Investigators in IISs - still insufficient awareness, knowledge and education about non-commercial clinical trials - administrative and legal barriers In 2014 the European Union implemented new legal regulations for increasing the number of non-commercial clinical trials in Europe (e.g. Regulation (EU) No 536/2014 of the European Parliament and of the Council). Furthermore, in 2015 new important changes were implemented to Polish Pharmaceutical Law - "green light" for the development of the non-commercial trials market in Poland.

Conclusions: In summary, there are many benefits to conducting non-commercial clinical trials, but a number of important limitations need to be considered.

Key words: non-commercial clinical trials, Investigator Initiated Studies, clinical research, Pharmaceutical Law, Investigator, Sponsor

Title: Potential role of selected antiepileptics used in neuropathic pain as human GABA transporter isoform 1 inhibitors.

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Introduction: 4-Aminobutanoic acid (GABA) is one of the main inhibitory neurotransmitters in the mammalian brain and spinal cord and the abundant appearance of GABA indicates its importance in the mediation or modulation of the central nervous system (CNS) functions. GABA is an endogenous substance synthesized in GABAergic nerve terminals and it has been estimated to be present in 60-70% of all synapses in the CNS. Upon depolarization high concentrations of GABA are released from the nerve terminals into the synaptic cleft to activate postsynaptic receptors. When released from the presynaptic terminals GABA is subsequently transported out of the synaptic cleft and its vicinity by plasma membrane GABA transporters (GAT). For many years, anticonvulsant drugs have been used as potential analgesics in various neuropathic pain states. This type of pain is a chronic disease that stems from a primary lesion or dysfunction of the central or peripheral nervous system. It is estimated that approximately 40% of neuropathic patients are resistant to the currently available analgesics. This necessitates the exploration of novel drug targets to treat neuropathic pain of various origins. Several studies have examined the analgesic activity of GABA uptake inhibitors but there are still insufficient data for the design of new compounds having/displaying pain-relieving activity and little is known about their efficacy in neuropathic pain conditions.

Aim: To confirm the role of GAT in neuropathic pain the chemical interaction of selected antiepileptic drugs with a model of human GABA transporter 1 (hGAT1) was described using the molecular docking method. To establish the role of hGAT1 in chronic pain, tiagabine, a selective hGAT1 inhibitor, was assessed in the in vivo experiments for its antiallodynic properties in two mouse models of neuropathic pain.

Materials and Methods: The 3D structures of investigated molecules were downloaded from the ZINC database. Subsequently, geometry optimization was carried out for each compound using the Gaussian v. 09. Finally, the Gasteiger charges were assigned to each compound using the Autodocktools program. The calculation procedures applied in the survey are typical for docking studies. Molecular docking was performed using the Autodock 4.2 suite of program.

Results: Docking analyses performed in this study provided the complex binding energies, specific hydrogen bond components, and hydrogen bond properties such as energies, distances and angles. It was found that all investigated drugs could interact with active site of hGAT1. The binding modes of all compounds with hGAT1 were examined in detail.

Conclusions: The data of the docking studies strongly support the assumption that the antiepileptic and analgesic actions of the studied drugs can be at least in part related to the strength of their chemical interactions with hGAT1. In vivo experiments with tiagabine confirmed the involvement of hGAT1 in the regulation of the mechanical nociceptive threshold in neuropathic pain.

Key words: molecular docking, analgetics, neuropathic pain, GABA, hGAT1

Title: The nature of the legal opinion and the status of the Bioethics Committee in the system of Polish pharmaceutical law

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Introduction: Bioethics committees play very important role in the protection of the interests and rights of clinical trial participants. Their task is to evaluate and supervise research on humans. They achieve their goals, inter alia, by providing opinions, which must be positive to be able to conduct clinical trials.

Aim: This work has the goal of determining the powers of the parties before the Bioethics Committee and correlated with those powers responsibilities of the Bioethics Committee, which largely depend on the recognition of the opinion of the Bioethics Committee as an administrative decision. Furthermore, the objective of this work is to postulate de lege ferenda to improve the quality of accepted regulations.

In analysing this problem from the administrative law point of view, the answers to two fundamental questions were sought: Can the biomedical committees be considered a public administration authority in accordance with Article 5 § 2 point 3 of the Administrative Procedures Act? And - Is the opinion of the committee an administrative decision, or it has a character of a statement of knowledge?

Materials and Methods: Analysis and commentary have been provided on the provisions relating to clinical trials under Polish law, including administrative law - both substantive and procedural - as well as the pharmaceutical law and regulations governing the medical practice of doctors. Also examined were the views of the doctrine on this topic, with particular emphasis on convergence presented. No less important part of the study was the reference to the jurisprudence in the analysed topic.

Results: The issue of recognition of bioethics committees as public administration authorities and their resolutions as administrative decisions is disputed, and by no means been completely solved. The nature of the legal opinion of the bioethics committee and their legal status as a public administration authority is ambiguous and contentious in the doctrine. Similarly is the situation in the jurisprudence not uniform in this regard, and individual judgments differ significantly, both with regard to the verdict and argumentation used.

Conclusion: Issue that needs regulation is the legal nature of the opinion of the bioethics committee. The classification of this opinion as an administrative decision carries some advantages for the sponsor, primarily in the form of opening of the appeal process before the administrative courts. On the other hand, it raises some concerns of a constitutional and systemic nature. In any event, the existing unclear regulations deserve critical assessment and require changes.

Key words: pharmaceutical law, opinion of the Bioethics Committee

Title: Botanicals in cosmetics – are they common and safe?

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Affiliation: Poznan University of Medical Sciences

Introduction: The contact allergy reaction is a form of the acquired delayed hypersensitivity. Ingredients of beauty and sanitary products are one of the most common causes of this condition. In recent years, there has been an increased spread of the plant ingredients. Their popularity may result from the widespread belief that natural ingredients are less harmful than chemically synthesized ones.

Aim: The aims of the projects were to assess frequency of the contact sensitization to the selected plant ingredients in patients with eczema, and to run a comparative analysis of the spread of these ingredients in beauty and sanitary products available at the chemist's and drugstore.

Methods and Materials: We conducted a study with the participation of the experimental group (n=181, F=120, M=61, average age= 48) and the control group (n=42, F=32, M=10, average age=42). The European Standard Allergens Set was used to conduct the patch test. Additionally, the patch test was conducted for plant allergens such as Oleum olivae, Arnica montana, Menthae piperitae aetheroleum, Taraxacum officinale, Matricaria chamomilla, Melaleuca alternifolia. The interpretation of results was carried out in accordance with ICDRG guidelines. 4842 beauty and sanitary products from 10 categories were analyzed. All the products were available on market in February 2018 in one of the biggest drugstores and chemists on the Polish market. The products were analyzed for the presence of the aforementioned plant ingredients.

Results: There were no positive reactions on plant allergens in patients in the experimental group and the control group. Among the analyzed products available at the drugstore, the most common plant ingredient was chamomile (6.01%) and at the chemist's olive oil (6.58%). The least common plant ingredient was common dandelion (0%). Chamomile was most frequently used in child care products (d=drugrstore: 14.17%, ch=chemist's: 6.6%) and intimate hygiene products (d: 11.32%, ch: 10.42%) whereas olive oil most often appeared in care lip products (d: 11.76%, ch: 18.64 %)

Conclusions: Many beauty and sanitary products contain plant ingredients. It seems that they do not cause positive reactions and do not aggravate the symptoms in patients with contact dermatitis despite the wide prevalence and probable allergic potential of these products.

Key words: eczema, plant ingredients, cosmetics, beauty and sanitary products, patch testin

Poster Session

Young scientist

Jury:

Katarzyna Szot, MSc

Natallia Veryho, MD

Moderator:

Katarzyna Urtnowska

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Title: Usefulness of selected cell penetrating peptides in the case of expression plasmids introduction into primary human vascular endothelial cells

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Introduction: Due to its structure, the cell membrane prevents macromolecules like plasmids, siRNA or proteins from penetrate inside the cell. The possibility of treating various diseases throughout intracellular structures entails the search for new ways of transporting molecules through the cell membrane. The methods developed so far are divided into viral and non-viral systems. Viral systems, although effective, carry considerable risks such as inflammatory reactions and the potential for obtaining virulence by viral particles. For this reason, increasing attention is directed towards non-viral systems. One such method is the use of cell-penetrating peptides that have demonstrated their utility in the case of introducing nucleic acid molecules and proteins into cells in both in vitro and in vivo conditions. Furthermore, in concentrations sufficient for therapeutic purposes they do not show cytotoxicity or signs of an inflammatory reaction in the treated cells.

Aim: The aim of the study was to assess the ability of chosen cell-penetrating peptides to introduce the expression plasmids to human coronary artery endothelial cells.

Material and methods: The research material was the was primary human coronary artery endothelial cells obtained from a 23-year-old man who died of a head trauma. The plasmid used was pmaxGFP determining the expression of green fluorescent protein. To introduce the plasmid three types of penetrating proteins - KALA, TAT and Pep-1 were applied. Binding of cargo (1 or 2µg) with CPPs was based on the generation of non-covalent interactions between molecules under different conditions and incubation times (21°C, 15 min; 21°C, 30 min; 37°C, 15 min and 37°C, 30 min). Additionally, plasmid and CPPs were mixed at different charge ratios. The comparison of effectiveness consisted in the visual evaluation of pmaxGFP expression with Zeiss live-cell imaging system.

Results: The results are presented in the form of extensive photographic documentation showing cells incubated with selected peptides and pmaxGFP plasmid in variable charge ratios. Although in several cases the GFP-positive cells were visible, the overall efficiency of the transport was low and no satisfactory to be used in endothelial monolayer transfection. Additionally, the highest charge ratio used (1:16) exerted a cytotoxic effect on endothelial cells, especially after treatment with KALA peptide.

Conclusion: Despite the lack of a significant cytotoxic effect at lower charge ratios, none of the proteins used achieved satisfactory transport efficiency. In this case it may suggest superiority for the covalent bond formation between cargo and cell-penetrating peptide over non-covalent interactions.

Key words: cell penetrating peptides, endothelium, genome editing

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Title: Development of cyclophosphamide biological activation method for *in vitro* cytotoxicity studies.

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Introduction: Cyclophosphamide (CFA) has been proven to be useful in therapies of various types of carcinoma. It is a pro-drug metabolized by the liver with cytochrome P enzymes into its potent, cytotoxic forms. These metabolites present strong, alkylating properties and can drastically influence growth of rapidly proliferating cells. Due to the aforementioned drug being a pro-drug, *in vitro* studies are very difficult, and often omitted by researchers. A range of problems needs to be overcome to ensure a reproducible, efficient and cost effective method development. It is necessary to remember that the activation method should ideally effect only the drug activation and should not present unnecessary cytotoxicity and stress to the cultivated cells to ensure higher assay resolution, and to evade false positive results. Many, useful informations can be obtained from CFA *in vitro* research, such as the possibility to fine-tune drug doses required for therapy, or deepen the understanding of this drug pharmacokinetics

Aim: The aim of this study was to establish optimal concentrations and incubation parameters of the compounds necessary for biological activation of CFA, for *in vitro* studies

Results: 3T3 cells (mouse fibroblasts) and AFSC's (amniotic fluid stem cells) obtained from amniocentesis of pregnant women were used to determine the optimal CFA activation method. Amniotic fluid samples were provided by Department of Obstetrics and Gynecology, the Jan Biziel hospital, Bydgoszcz. Assays were conducted using 96-well microplates and 16 well e-plates with the cell density of 2 000 and 5 000 cells per well respectively. To measure efficiency of selected concentrations cell viability MTT assay (1mg/ml tetrazolium salt) and xCELLigence Real-Time Cell Analysis was performed. The tests compared CFA in 500, 200, 100, 10, 1 (μM) concentrations, S9 fraction from two sources in 5, 2.5, 1.5, 1 and 0.5 (μl/100μl) concentrations, NADPH in 1.5, 1, 0.8 and 0.5 (mM) concentrations, $MgCl_2$ in 10, 5, 1 (mM) concentrations and 100 μM KCl. Apoptosis assay using FLICA method was also performed (using DEVD; 5μl/100μl of medium) under a fluorescent, archiving microscope.

Conclusions: Our studies show that 100μM CFA with 0.5μl/100μl S9 and 1.5 mM NADPH had the greatest effect on cell viability. In addition, the cell proliferation assay showed that S9 fraction in concentration of 0.5μl/100μl medium had the least negative effect on AFSC's proliferative capability. The study showed no significant difference in cell apoptosis using our test groups.

Those results show that the developed method may potentially be a useful tool in various *in vitro* studies of pro-drug cytotoxicity assays. Our results suggest further need of lowering the concentration of S9 fraction and increasing the concentration of NADPH for obtaining a more optimal activation method.

Key words: cyclophosphamide metabolism, toxicity, S9, NADPH

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Title: Commercial cytotoxicity assays in nanomaterial-modified drugs research - challenges and perspectives.

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Introduction: Nano-technology is currently one of the most rapidly growing areas of modern medicine, allowing extensive modification of currently used chemotherapeutics. However, studies with nanomaterials can be extremely challenging due to their structure, light absorptionand size, which may interfere with the analysis method such as commonly used tests like MTT, BrdU and clonogenicity assay or analysis in xCELLigance. One of the most promising nanomaterials is graphene oxide (GO), which, with ciprofloxacin (CIP), can be potentially used in targeting genito-urinary cancertreatment.

Aim: The aim of the research is to assess the usability of commonly performed tests in cell culture and modify the methodology to be adapted to work with nanomaterials, like GO.

Materials and Methods: Cell lines used in study: transitional-cell human bladder carcinoma (T24), renal cell adenocarcinoma (786-0). Cell viability was investigated by MTT assay and proliferation potential was evaluated by BrdU assay (BrdU Cell Priliferation Kit, Abcam). Morphological cells were observed under aninverted microscope. GO was synthesized by a modified Hummer's method. CIP was modified with GO so that the final stock concentration (of CIP) used in this research was between 10μM and 1000μM.

Results: The results show that the tests which are colorimetric in nature may give false positive results because of GO sediment present, which has a high light absorption, especially in high concentrations cases. The biggest problems arise during BrdU and clonogenity assay, because due to methodology, cells are fixated and GO sediment tends to reside in the wells undesirable. Microscopic observations verify the naked-eye observations and show GO residing in wells even after rinsing with PBS.

Conclusions: A comparison of the efficacy of commonly used and modified drug is difficult and it is necessary to modify the methods and select tests, which will be used in research with nano-materials. It is necessary to always analyse assay results inconjunction withnaked-eye and microscopic observations.

Key words: nanomaterials, graphene oxide, ciprofloxacin

Title: The negative effects of UV radiation on the anterior segment of the eye taking into consideration the different latitude of the research

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Introduction: Human population have daily contact with UV radiation because its main source is the Sun. UV radiation is necessary for life, it activates vitamin D3 synthesis which allows proper functioning of calcium-phosphate metabolism what prevent children from rickets and adults from osteoporosis. UV causes the tanning, stimulates some enzymatic systems and pituitary gland, supports oxidation-reduction system and endocrine glands. Small dosis of UV radiation cause mood improvement, acceleration of metabolism and general stimulation of the organism. Bactericidal properties are used in hospitals to disinfect rooms and medical tools and also in food industry to disinfect food. However UV can be also harmful and even lethal. Excessive exposure of the body to the UV radiation can cause DNA, RNA, proteins and amino acids (e.g. tyrosine, tryptophan) damage what causes occurence of mutations in the genetic code and in consequence appearance of cancers. None of the research shows positive impact of the UV radiation on the eye. A lot of negative effects related to the impact of UV on the eye are observable. Those symptoms are called opthalmoheliosis and contains: pain and photophobia, excessive tearing, photokeratitis, photoconjuctivitis, pterygium, pinguecula, cataract, AMD as well as cancers of the visual system organ.

Aim: Assessment of the influence of the UV radiation on the anterior segment of the eye based on the literature review

Materials and Methods: Review of the literature and research reports

Results: - pterygium is as much as 53% of all cases ophthalmological diseases in Taiwan and only 1,3% in Tehran pinguecula around five times more often concerns residents of the rural areas (15,2% of all of the ophthalmological cases) than urban areas (3,7%) and in Shanghai concerns 75,57% respondents after the age of 50 in Argentina more patients with climatic droplet keratopathy come from the area where the intake of products rich in vitamin C is lower (the correlation coefficient of the disease for patients with balanced diet rich in vitamin C (AA) was $p<0,001$)

Conclusions: Independent studies show that UV has negative impact on the anterior segment of the human eye. Most of the study sites are localized in the equatorial area because UV radiation level is the highest there. Differences in the incidence of complications connected to the UV exposure, caused by different place of residence, age, nutritional status and different level of education and prevention are observable.

Key words: UV radiation, anterior segment of the eye, negative effects

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Title: Free radical theory of aging

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Introduction: Aging is a complex biological process. Basic scientific observations define it as the aging of an organism which cells have reached the limit of their divisions. A lot of research has been done to understand molecular mechanisms of aging, and a base of one of the most common theories is crucial role of reactive oxygen species (ROS), especially free radicals. Oxidative stress is a condition characterized by excessive activity of ROS, being a result of disturbances of the balance between the production and neutralization of oxidants.

Aim: The work briefly reviews the relationship between the aging of the body, oxidative stress and the development of various diseases. The objective also includes the presentation of main mechanisms of oxidative damage and their influence on nucleic acids, proteins and fats. Additionally, the communication summarizes the outcomes of examinations that verify the assumptions of the free radical theory of aging.

Materials and Methods: A brief review of the literature (to April, 2018) related to the role of oxidative stress in aging of human body. The work is based on results from a cross-search of international databases such as Medline/Pubmed, Scopus and Springer Link/ICM.

Results: Aging is a cascade biological process, characterized by a progressive impairment of the efficiency of repair mechanisms and antioxidant defense, and thus, resulting in accumulation of damage to cells and organs. Therefore, aging is a degenerative process, caused by increasing number of damage in the cell and leading to disturbance of functions of all its components, and as a result, gradual tissue failure and death of the body.

Oxidative damage to cellular macromolecules are induced by ROS. Repair systems are not so well developed for proteins and fats. Modified proteins and fats can be replaced with newly synthesized molecules. The most important harmful effects result from DNA damage, because they lead to mutations, which may imply cancerogesis. Thus, oxidative modifications of DNA have more serious physiological consequences. With increasing age, repair systems undergo an augmented weakness, which contributes to the amplification of cellular damage.

Conclusions: Excessive generation of ROS and chronic oxidative stress are important factors, involved in the etiology and pathophysiology of various age-related disorders, including neurodegenerative diseases. Damaging effects of free radicals may contribute to the development of cardiovascular diseases, respiratory diseases, cancer, diabetes, nervous system diseases and eye diseases, such as cataracts or glaucoma. Maintaining cellular homeostasis and delay the aging are difficult and complicated actions. However, it is assumed, that strengthening the antioxidant defense by a diet rich in antioxidant ingredients (vitamin C and E, magnesium, selenium, zinc, flavonoids, β-carotene) may result in a longer life span.

Key words: free radicals, aging, repair systems, oxidative modifications ,

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Title: Mysterious cyclin F – Oncogene or cancer suppressor?

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Introduction: Cell cycle deregulation is a common feature of human cancer. Cancer cells frequently display unscheduled proliferation, genomic and chromosomal instability. The mammalian cell cycle is controlled by a subfamily of cyclin-dependent kinases (CDKs), the activity of which is modulated by several activators (cyclins). Among the cyclins, cyclin F is the most interesting because its function in cell cycle progression is CDKs independent. Cyclin F is expressed during S phase and peaks during the G2 phase of the cell cycle and is characterized by a wide spectrum of action involving cell division, cell differentiation, DNA repair and signal transduction – processes crucial for cancer development.

Aim: The study summarizes current knowledge about the potential role of cyclin F in cancer development, progression, and treatment response. We describe possible molecular pathways altered in cancer cells due to abnormal expression of cyclin F.

Materials and Methods: The work was prepared based on the analysis of publicly available data. The information contained in the work comes from the resources of the National Library of Medicine and current articles in the field of medical and chemical sciences. The NCBI PubMed database has been searched for studies on cyclin F and its involvement in cellular processes related to carcinogenesis.

Results: The analysis of the literature data indicates the ambiguous role of cyclin F in cancer development. Cyclin F has been identified as a component of the SKP1-CUL1-F-box (SCF) complex. This ubiquitin-protein ligase complex mediates the ubiquitination of the proteins destined to proteasomal degradation and cyclin F in this complex is responsible for target recognition. Cyclin F controls the cellular dNTP pools and prevents genome instability by promoting RRM2 degradation. On the other hand, cyclin F transmits mitogen signaling through AKT to the core cell-cycle machinery and this discovery has potential implications for proliferative control in malignancies where AKT is activated. It is possible that oncogenic or tumor suppressive status of cyclin F depends on cancer type. Low expression of cyclin F is associated with poor differentiation and unfavorable prognosis whereas increased levels of cyclin F mRNA is an independent poor prognostic marker for overall survival.

Conclusions: The role of cyclin F in carcinogenesis still waiting for elucidation. There is an urgent need for further investigations on the field of the significance of cyclin F in cancer development and treatment because the involvement of cyclin F in key cellular processes such as cell cycle, cell signaling, and DNA repair causes that cyclin F can be considered as a valuable prognostic marker and a potential target for cancer therapy.

Key words: Cyclin F, Oncogene, Cancer Suppressor

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Title: The significance of Circulating Tumor Cells by ill with cancer

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Introduction: Circulating Tumor Cells (CTC) are cells that are freed from the initial lump and are classified as an important element of tumor metastasises which come into being. In the peripheral blood there are very few ($1/10^5$-10^7/ml) mononuclear cells. Their presence in blood may signal an agressive course of a tumor disease or that micro metastasises arose. Invasional potential is bigger through expression and activation of various maltoproteins and through continuous cooperation with a surface of the endothelium. When the tumor cell has characteristic features of mesenchymical cells, it contributes to migration from blood vessels to a new tissue.

Aim: To evaluate the effectiveness of cancer diagnostic using circulating cancer cells.

Materials and Methods: State-of-the-art screening for CTC technologies and clinical applications was conducted in MEDLINE through PubMed

Results: Observed higher were connected with shorter living period. CTC was connected with initial tumors HER2+. Higher plasma of the CTC was connected with worse reaction when it came to healing.

Conclusions: Identification and monitorin of tge CTCs in the peripheral blood can be used to diagnose tumor diseases.

Key words: Ovary's Cancer, Circulating Tumor Cells

Title: The reasons for the popularity of training programes at home, and their associations with self-esteem and health.

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Introduction: Maintaining health and physical fitness engages a growing group of young Polish woman. With increasing availability of the Internet and development of social media ''virtual trainer'' gained great popularity. Part of woman are performing at-home workouts in small groups.

Aim: To explore reasons for the popularity of at-home workout programes, and their associations with self-esteem and health

Materials and Methods: The study was conducted among 108 women who at least once exercised at home with ''virtual trainer''. The age of the respondents ranged between 19 and 28 years old. The following methods were used: the Body Esteem Scale (BES scale) by S. Franzoi and S.Shields in the Polish adaptation of M. Lipowska and M. Lipowski; Physical Activity Measure-Revised (MPAM-R scale), BMI -scale and original questionnaire

Results: Women perform home exercise programs 3-5 times a week. Along with physical activity in the form of home training, women began to control the diet, and increased the interest in the effects of various forms of activity. After the beginning of the workout, the women observed improvement of physical and mental well-being as well as improvement of the physical condition. They did not notice an increase in pain or injuries. The main determinants of the motivation of those surveyed according to the MPAM-R scale are Fitness/health and Apperance. In the BES scale tested, the Physical Condition score was the highest, the Weight Concern and Sexual Attractiveness ratios were comparable.

Conclusions: Taking physical activity in the form of home training is a positive phenomenon. Young women often choose this type of activity - to improve their appearance as well as fitness and health.

Key words: fitness, motivation, self-esteem, woman

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Title: Heart failure of unknown etiology in a 32 year-old male

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Introduction: Heart failure is a condition in which the heart is unable to generate a cardiac output sufficient to meet the demands of the body's tissues or the appropriate minute capacity is maintained by increasing the diastolic pressure, which results in the reduction of exercise tolerance and excessive water and sodium retention. Heart failure affects 26 million people in the world and is the main cause of hospitalization in Europe.

Case Report: A 32 year-old man was admitted to the Cardiology Department with symptoms of heart failure - NYHA III, mainly reduction of exercise tolerance and shortness of breath (orthopnea). The physical examination showed: blood pressure 186/143 mmHg, moderate peripheral edema, obesity (BMI=37). The patient was previously treated with lisinopril (10 mg) due to hypertension. One month before the hospitalization, the patient developed a respiratory system infection, which was treated with antibiotic. There was no history of heart diseases in the patient's family.

ECG showed no features of acute myocardial ischemia. Sinus tachycardia 100/min, normal axis, left ventricular hypertrophy, ST depression up to 1 mm and negative T waves in I, aVL, V5, V6. In laboratory tests, there were elevated levels of BNP (2416,8 pg/ml), hsTnI (56,1 ng/l), CRP (19,44 mg/l) and WBC (31,64 10^3/µl). The transthoracic echocardiogram showed segmental dysfunction of cardiac muscle contractility, LVEF about 22-24% and moderate mitral valve regurgitation, aorta diameter 40 mm.
In chest RTG minimal signs of fluid in right pleura, no signs of pneumonia was noted.
Cardiac MRI showed neither myocardial edema nor delayed contrast enhancement. Angio-CT scan did not show significant coronary arteries stenosis. During a 24-h Holter ECG monitoring no heart rhythm disturbances were observed.
Patient treatment consisted of: eplerenone (50 mg), atorvastatin (20 mg), carvedilol (2 x 25 mg), furosemidum (2 x 40 mg), lercanidipine (2 x 10 mg), lisinopril (2x10 mg).
After 12 days of uncomplicated hospitalization, the patient with recommendations was discharged. Control echocardiography was recommended in 3 months' time.
LVEF at 3 months follow-up was about 28-30%.

Conclusions: Heart failure is a condition that is rarely seen in young adults. Based on performed diagnosis ischemic changes in the myocardium, myocarditis, valve defects and heart arrhythmia have been eliminated. Despite the optimal treatment the increase of LVEF in control echocardiography was unsatisfactory.
Based on the clinical picture, should the patient be qualified for ICD implantation in the primary prevention of sudden cardiac death?

Key words: heart failure, unknown etiology

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Title: Heparine induced thrombocytopenia after plasmaferesis in thrombothic thrombocythopenic purpura treatment.

Authors: Ewelina Pudłowska, Norbert Kwella

Affiliation: Department of Nephrology, Hypertension and Internal Medicine, Collegium Medicum, University of Warmia and Mazury in Olsztyn, Poland

Introduction: Thrombothic thrombocythopenic purpura (TTP) pathophysiology is based on lack or deficiency of plasma metaloproteinase ADAMTS-13 causing decrease in ultra large von Willebrandt complexes disintegration leading to intravascular platelet activation and clotting formation in microcirculation. Depending on a place of clots formation patient might present symptoms such as impaired consciousness, sight disorders, abdominal and muscular pain. HIT I is a benign type caused by direct interaction between heparine molecule and platelets surface resulting in minor coagulation episodes. Heparine withdrawal provides homeostasis maintenance. HIT II is caused by immunological reaction to neoepitops formed by heparine-platelet interaction. The course is severe requiring despite heparine withdrawal also fondaparinux treatment.

Case report: 51 year old man admitted due to massive subcutaneous haemorrhages, abdominal and muscular pain, haematuria, psychomotor hyperactivity and sight disorder. In laboratory tests: anaemia, thrombocythopenia, decreased haptoglobin level and elevated LDH. Schistocytes present in blood smear. Coombs reaction negative. In further testing – decreased ADAMTS-13 level being final confirmation of TTP diagnosis. UHF filled drain plasmaferesis (PF) and steroids treatment where instituted (total of 24 fresh frozen plasma units exchanged) using enoxaparine as anticoagulation. On 11th day of hospitalization platelet level decreased again. ELISA test was performed - anti-PF4 antibodies positive. Citrate filled drain PF were instituted. Patient was discharge on 20th day of hospitalization in generally good condition.

Conclusions: Hypothesis 1: TTP patients are predisposed to HIT reaction and therefore their heparine contact should be limited. Hypothesis 2: There were no functional PF4 antibodies test performed. ELISA test only proves exsistance of PF4 antibodies in patient circulation. Giving immunosupression caused by steroids as well as complete plasma exchange it's unlikely that patient's immune system was capable to produce new antibodies of its own. Considering that PF4 antibodies must come from plasma donors and a second platelets decrease was caused by TTP relapse

Key words: heparine induced thrombocythopenia, plasmaferesis

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Title: The influence of physical activity on the mobility of the spine in pregnant women. What is the knowledge of pregnant women about physical activity?

Authors: Anna Ziółkowska[1], Paweł Wojtczak[1], Wojciech Stemplowski[1], Karolina Klimkiewicz-Wszelaki[1], Eliza Oleksy[1], Remigiusz Sokołowski[1]

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Introduction: Physical activity of pregnant women is still a contentious issue. Some doctors recommend physical activity, while others say that regular activity is not recommended. According to American College of Obstetricians and Gynecologists, moderate everyday physical training is safe and brings many benefits.

Aim: The aim of the study is to assess of spine mobility and the knowledge of pregnant woman about the indications for regular physical activity.

Materials and Methods: The study was conducted amongst 41 women in the course of physiological pregnancy. During the study, women were in the second or third trimester of pregnancy. The study of the range of motion and the shape of the curvature of the lumbar spine was performed using the CMS10 ZEBRIS aperture. In addition to this a survey about physical activity was conducted. The examined women reported their willingness to participate in the study in 2017 and 2018. All of them were clients of one of the birth schools in Bydgoszcz or patients of one of the gynecologists from Bydgoszcz.

Results: Average flexion: forward (53,83°), back (15,71°), left (23,42°), right (24.68°). Average rotation: left (16,49°), right (15,78°). 100% of the examined female respondents are aware that regular activity is appropriate for pregnant women and may improve their physical health. 70.73% of women think that physical activity is advised, while 29.27% think that it is recommended but only in moderate amounts. 75.61% of respondents engage in physical activity, however, in the majority of women it is limited to just walks. Only 12.2% of women engages in yoga and only 14.63% in special exercises for pregnant women in the fitness club, in the case of Pilates – only 2.44% of respondents declares active participation.

Conclusions: The range of motion of the lumbar spine in pregnant women is limited, regardless of the physical activity being practiced or not. Woman's knowledge about physical activity is at acceptable levels although it does not translate to real world activities performed by them.

Key words: mobility of the spine, physical activity, pregnancy, woman's knowledge about physical activity

Title: Causes of zinc deficiency in patients with Hashimoto's disease

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Introduction: In recent years, the number of causes of autoimmune Hashimoto's thyroiditis – a chronic disease that usually leads to hypothyroidism – has increased. There is a lot of talk about selenium in Hashimoto's, but zinc is very important element in maintaning health. Zinc (Zn) is necessary for the production of TSH and its deficiency disturbs the transition of T4 to active T3. Zinc induces monocyte adhesion to the endothelium, which increases the immune response.

Aim: Gathering information on the causes of zinc deficiency in the current literature. Proper functioning of the immune system is closely related to the presence of zinc in the body, especially in patients with Hashimoto's disease.

Materials and Methods: Review of the latest literaturę

Results: Research shows that eating habits affect the concentration of Zn in the blood of patient, same as vaccinations and taking hormonal contraception. Autoimmune thyroiditis often coexists with celiac disease. Poorly conducted gluten-free diet often leads to deficiencies in micronutrients including Zn. Zinc deficiency is also affected by crops poor in this element and only up to 30% of the zinc delivered with food is absorbed into the body. Zinc deficiency can also be genetically inherited.

Conclusions: Recently, a lot of attention has been paid to micronutrient deficiencies in Hashimoto's disease. Therefore changing certain behaviors and zinc supplementation can improve well-being and may be an effective option in the treatment of this disease.

Key words: Hashimoto's disease, zinc, deficiency

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Title: The Gut-Brain Axis past and future

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Affiliation: Nicolaus Copernicus University, Collegium Medicum in Bydgoszcz, Poland

Introduction: As we all know, from the first days of life we have been colonized by gut microflora. Recent researches shown that there is an meaning of interaction between the brain and microbiota which we called the gut brain axis. This correlation may have a significant influence on normal nervous system function. This interaction between brain and the gut is very important not only for a healthy brain but also plays a vital role in many common disorders like irritable bowel syndrome (IBS), inflammatory bowel disease and even mental dysfunctions. This axis is very important to maintaining homeostasis and perhaps better understanding of these correlation might lead to new, more specific and effective therapies. In our review we summarize the approachable data about importance of this interaction.

Aim: Summary and systematically evaluate current literature on the impact of microbiota on common bowel disorders. I would like to focus on role for the gut microbiota in Irritable Bowel Syndrome.

Materials and Methods: Review of the latest literature.

Results: Gut microbiota function and composition has been proved to contribute in the origin of Irritable Bowel Syndrome. Recent researches shown that rifaximin in patient with symptoms like abdominal pain and bloating providing noticeable relief. Not only antibiotics have positive influence on patient also probiotics may have a significant efficacy in the treatment of gastrointestinal symptoms in IBS. Probiotics are probably better option because their long-term use is safer.

Conclusions: There is an interaction between the host's body and gut microbiota. Disorder of structure and composition microbiota is related to the pathogenesis of IBS. Nevertheless the fact that composition of gastrointestinal microbiota is changeable make it a new interesting purpose for doctors.

Key words: Gut-Brain, Microbiota, Neurobiology

Title: The relationship between mental disorders and inflammatory bowel diseases.

Authors: Szymon Obuszewski, Aleksandra Salamądra, Michał Denkiewicz,

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Introduction: Inflammatory bowel disease is a group of inflammatory states of the colon and small intestine. Crohn's disease and ulcerative colitis are the main types of inflammatory bowel disease. These are chronic diseases, with periods of acute illness and remission at irregular intervals. Among the etiological factors, genetics, the environment and immunological reactions are underlined. Symptoms of the disease depend on the location, size and extent of inflammatory changes. One of the most serious complications, which is often underestimated, is the increased frequency of mental disorders in patients suffering from inflammatory bowel disease. The most common mental disorders in inflammatory bowel disease are depression and anxiety, however, some epidemiological and biological data suggest that other disorders, such as bipolar disorder, occur more frequently.

Aim: Presentation of the current state of knowledge on epidemiology of mental disorders among patients with IBD and their underlying biological mechanisms.

Materials and Methods: Review of the latest literature.

Results: Studies show that inflammatory bowel disease most often occurs in people between 20 and 40 years old, in full social and professional activity. Persistent ailments of the digestive system, other organs and mental state significantly limit their bio-psycho-social functioning and negatively affect their quality of life.

Conclusions: As a result of the significant impact of psychiatric disorders on the course of IBD, including the frequency of exacerbations, treatment outcomes and quality of life, emphasis should be placed on close cooperation between gastroenterologists and psychiatrists. Screening of patients with Crohn's disease and Ulcerative colitis for mental disorders should become part of the routine care provided for IBD. Obtaining remission also in the field of mental functioning, in addition to remission of somatic symptoms, appears as a promising end point in IBD therapy.

Key words: inflammatory bowel disease, depressive disorders

Title: Occurrence of changes in women's self-esteem due to appearance of an Oncology disease

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Introduction: Self-esteem is an important element of every individual's life. It affects not only the human's well-being, but also its interactions with the public.

Aim: The aim of the study was to determine whether and how cancer disease affects the self-esteem of women. In addition, it was attempted to show whether the degree of changes in self-assessment is different when diagnosing gynecological tumors compared to non-gynecological cancers.

Materials and Methods: The survey was carried out in the form of an anonymous questionnaire, sent electronically via social networks and online forums. The questionnaire consisted of 21 questions and was prepared in Polish and English. The respondents were divided into two groups: women with gynecological tumors and women with non-gynecological tumors. The results were statistically developed using the Statistica program.

Results: In a group of women aged 46-76, a tendency to changes in self-esteem after diagnosing oncological disease was observed. Among women who were diagnosed with gynecological tumor or breast tumor, a significant change in self-assessment was found. This concerned more than 40% of the surveyed population. The greatest impact on lowering the patient's self-esteem was caused by disease-related ailments and newely formed changes in appearance. It has been shown that there is a significant difference in the perception of attractiveness in patients with gynecological or breast tumors in comparison to patients suffering from non-gynecological tumors

Conclusions: For many women oncological disease is associated with a reduction of their self-esteem, which is why psychological care of these patients is very important.

Key words: self-esteem, oncology disease, gynecology

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Title: Blue light - potential hazard to vision

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Introduction: The lighting industry has rapidly change since the discovery of the light-emitting diodes (LEDs) and especially from the time when the energy-effective blue-light LED was coupled with a yellow phosphorus coating to produce the white-light LED. The LEDs are widely used not only for illumination of domestic and public environments but also are present in many electronic devices,particularly for screen backlighting in TVs, smartphones and laptops. Yet it is known that the LEDs aeaging, as their physical features degrade over time, primarily through bleaching of the phosphorus shield.

Aim: The aim of this paper is to show an important physiological role of the blue light which affects the sleep and circadian rhythms, its role in pathogenesis of seasonal affective disorders, as well as to characterise mechanisms of the age-related macular degeneration (AMD).

Materials and Methods: The paper is a review of more than 40 research papers and review papers about the blue light hazard from 1988 to 2017 year, which were found mainly in the PubMed database.

Results: Recent studies on animals and cell models proved that the short wavelength visible (blue) light exposure on the retina induces the oxidative stress. The authors analyze the blue-light induced oxidative stress, a role of the retinal microglia and Müller cells and the endoplasmic reticulum stress response. The possible connections of these factors with the pathogenesis of aged-related degeneration (AMD) were also discussed.

Conclusions: The problem of excessive blue-light emission was noticed and given the term “blue-light hazard”, which indicate that more intensive studies as well as more strict law regulations in this matter are essential to protect the eye health of people worldwide.

Key words: blue light, light-induced retinal degeneration, LED, Age-related Macular Degenaration (AMD)

Poster Session

PhD students
and
Professional workers Session

Jury:

Professor Jerzy Krysiński, PhD

Marcin Koba, PhD

Katarzyna Szot, MSc

Natallia Veryho, MD

Moderator:

mgr Katarzyna Urtnowska

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Title: Assesment of the effectiveness of a mobile application relative to the classic paper version of M-CHARTS in the detection of visual metamorphopsis.

Authors: Adriana Wielgus[1], Jakub J. Kałużny[2], Jakub Dreliszak[3]

Affiliation: [1]Department of Nursing Pedagogy and Didactics CM UMK ; [2]Department of Biology of the Visual System CM UMK; [3]Students' Scientific Association for Department of Emergency Medicine and Disaster CM UMK

Introduction: In the era of rapid medicine and technology development, we can use traditional research methods in modern applications. It provides opportunities for diagnosis and prevention of some diseases, an example of which are mobile applications for eye examination – e.g. metamorphopsis. This disorder causes impaired visual perception, often caused by retinal elation or swelling. These disorders are usually limited to one aspect, so that the object can still be recognized.The application allows the patient 24/7 access to the study, quick and easy handling and recording of the test result. This allows both the doctor and the patient to continuously monitor the patient's eye condition

Aim: The aim of the conducted research was to evaluate the effectiveness of the mobile application in relation to the classic paper version of the M-CHARTS test in the detection of visual metamorphopsis.

Materials and Methods: 33 patients (66 eyes) were examined and applied for ophthalmological examination to the Ophthalmology Clinic in Bydgoszcz. Prospective studies were conducted from November 2016 untill March 2017. The study protocol was approved by the Bioethical Commission of Collegium Medicum UMK, and all persons participating in the study signed the required consents.To confirm the occurrence of visual metamorphopsia among patients, the following materials were used: M-CHARTS test (in paper version), Amsler's test, a mobile application for metamorphopsy testing. As a result of the research, numerical material was obtained, which was subjected to statistical analysis.

Results: Metamorphosis was found in 26 eyes using the Amsler test, 27 eyes - M-CHARTS test and 20 eyes - a mobile application. The average age among patients was 55.03 years, and the average time of the study was 119.63 seconds. During conducting the research using the mobile application, 15 people did not need help, and 18 - yes. The relationship between the age of the patient and the time of testing from the mobile application is equal to $p = 0.156$. Correlation between the need for help and the age of patients was $p = 0.0233$.Evaluation of the effectiveness of a mobile application comparing with the classic paper version of the M-CHARTS test in the detection of visual metamorphopsis: (i)right eye vertically: $p = 0.0339$, (ii) right eye horizontally: $p = 0.0027$, (iii) left eye vertically: $p = 0.414$, (iv) left eye horizontally: $p = 0.0027$

Conclusions: The studies showed correlations between the M-CHARTS test and the mobile application in terms of metamorphopsy detection for the right eye - vertically and horizontally, and the left eye horizontally. There was no relationship between the patient's age and study time (from the mobile application). There was a significant correlation between the patient's age and the need for additional help during the examination by the application. The existence of this relationship shows the need for continuous education of patients - especially in older age.

Key words: metamorphopsis, mobile application, vision,

Title: Development and biological characterization of 18 F-labeled pegylated benzamides as PET probes for melanoma

Authors: Chris Yen-Chen Lo, Shih-Yen Wu, Szu-Ping Huang, Ren-Shyan Liu, Hsin-Ell Wang

Affiliation: National Yang-Ming University

Introduction: N-(dialkylaminoalkyl) benzamide (BZA) and its derivatives have been shown to exhibit a high specific binding to melanoma and were used for positron emission tomography (PET) imaging

Aim: In the quest of optimizing the efficiency of melanoma diagnosis and reducing normal tissue uptake, we synthesize several polyethylene glycol (PEG) modified 18 F-labeled BZA derivatives, [18 F] FP3 BZA, [18 F] FP4 BZA, [18 F] FP5 BZA, and characterize these novel radiotracers as promising PET probes for melanoma detection.

Materials and Methods: Three [18 F] fluoropegylated BZA derivatives were synthesized via a one-step conjugation reaction and displayed high hydrophilicity. The specific uptake of these radiotracers in pigmented B16F0 cells and human amelanotic A375 cells were investigated. The biodistribution studies and microPET imaging of melanoma-bearing mice after administration of [18 F] fluoropegylated BZA derivatives were performed

Results: Starting from the tosylated precursors, [18 F] fluoropegylated BZAs can be readily prepared within 40 minutes with high radiochemical yield (>50%) and high radiochemical purity (>98%).Much higher uptake of [18 F]fluoropegylated BZAs in pigmented B16F0 cells than that in amelanotic A375 cells was noticed. Modification of PEG moiety longer than 4 units may hinder the binding ability of BZA to melanin. In bio-distribution studies, higher tumor uptake in B16F0 tumor (7.53 0.78 %ID/g at 2 h postinjection) than that in A375 tumor (1.26 0.25 %ID/g at 2 h postinjection) was observed after intravenous injection of [18 F] FP3 BZA. The findings in microPET imaging of melanoma-bearing mice post administration of [18 F] FP3 BZA were consistent with those observed in biodistribution studies.

Conclusions: Our study demonstrated that the short chain PEG-modified 18 F-labeled BZA analogues, especially the [18 F] FP3 BZA, is a promising melanin agent, and may find clinical applications in the diagnosis and staging of malignant melanoma.

Key words: melanoma, PET imaging, 18F-tracer

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Title: Application of Principal Component Analysis in Clinical Data Exploration

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Introduction: Chemometrics is the scientific discipline that allows for the complex analysis of large data sets. A principal component analysis (PCA) is a chemometric tool that uses mathematical algorithms to calculate new orthogonal variables—principal components. This procedure is used to determine the relationship between samples and/or measured variables. Chemometric techniques are still undervalued instruments in clinical data exploration.

Aim: The goal of the study was to investigate the usefulness of chemometrics methods in clinical data analysis based on the comparison of results obtained by PCA and classical statistical analysis [1,2].

Materials and Methods: Results of the evaluation of blood hemostasis parameters (levels of the A subunit of factor XIII, XIII-A; fibrinogen; high-sensitivity C-reactive protein, hs-CRP; procoagulant activity of microparticles, MPs; microparticles exposing tissue factor, MPs-TF; protein Z, PZ; factor X, FX; protein Z-dependent protease inhibitor, ZPI; total tissue factor, TF) in thirty patients undergoing off-pump coronary artery bypass surgery measured before the operation (first day) and one week after (seventh day) were used as study materials. Principal component analyses were carried out using STATISTICA™ 13.1 (DELL Inc., USA).

Results: Results of the blood sample tests were divided into two data sets. The first included only three variables: XIII-A, fibrinogen, and hs-CRP. The created principal component analysis demonstrated changes in the analysed parameter levels between pre-surgical (first day) and post-surgical (seventh day) patients. These observations were similar to Wilcoxon test results [1]. Notwithstanding, PCA showed that the variability of individual outcomes of fibrinogen and hs-CRP. The second database was comprised of MPs, MPs-TF, PZ, FX, ZPI and TF. Chemometric analysis designed for whole the databank did not allow for the identification of changes of variables between the two-time points. The calculations considered the type of surgery (Off-pump coronary artery bypass surgery can be realised with or without touching aorta—touch and no-touch techniques.) and in the "no-touch" group, it was noted that some parameters (especially MPs, MP-TF, FX, ZPI) were changed. Obtained conclusions were indistinguishable to the results of classical statistical analysis [2]. PCA also exhibited correlations between examined hemostasis parameters.

Conclusions: The findings of the presented study suggest that principal component analysis is a valuable tool for intensified statistical analysis.

Key words: chemometry, principal component analysis, clinical data exploration

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Title: Evaluation of constitutional *BRCA1* and *CHEK2* genes mutations associated with risk of acute myeloid leukemia.

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Introduction: Molecular mechanisms responsible for the development of acute myeloid leukemia (AML) are not yet fully understood. Therefore, it seemed interesting to study the relationship of constitutional *BRCA1* and *CHEK2* tumor suppressor gene mutations to AML risk. *BRCA1* and *CHEK2* are tumor suppressor genes that play a key role in cell cycle regulation, DNA repair regulation of apoptosis and in maintain the stability of chromosomes.

Aim: Finding AML susceptibility genes among DNA damage response genes can help to fully understand the pathogenesis of the disease and to help identify those at high risk.

Materials and Methods: 100 consecutive patients with *de novo* AML, before the treatment, six of the most common mutations in the Polish population were analyzed, *BRCA1* constitutional mutations: c.5266dupC, c.4035delA, c.3756_3759delGTCT, c.3700_3704delGTAAA, c.3779delT, c.181T>G and four *CHEK2* mutations: c.444+1G>A, c.1100delC, del5395, p.I157T. The median age of the patients at diagnosis was 56 years (18-87). The tests were carried out in DNA from peripheral blood using the AS- and RFLP-PCR technique and sequencing analysis, and the constitutional nature of the detected lesions was verified by a DNA test of buccal swabs. At the time of the diagnosis, the karyotype of the bone marrow cells of each patient was also assessed using classical cytogenetic methods and fluorescence in situ hybridization (FISH).

Results: : In the analyzed group, no pathogenic mutations in the *BRCA1* gene were detected. In one patient with AML diagnosed in 76 years of age a heterozygous *BRCA1* variant c.3713C> T was detected in exon 11 of benign clinical significance. The variant was also present in DNA from the swab of the cheek, which confirmed its constitutional nature. In 6 (6%) patients *CHEK2* mutations was detected: in five pI157T and in one c.444+1G>A. Sequence analysis confirmed the heterozygous status of detected mutations. All mutations were present both in DNA from peripheral blood and in DNA from the patient's cheek swab, which confirmed their constitutional nature.

Conclusions: The *CHEK2* mutations were not associated with the risk of AML (OR = 1.2, 95% CI 0.4-3.1, P = 0.798). The median age of CHEK2-positive patients was 17 years lower than in *CHEK2*-negative (42 vs. 59 years), but not statistically significant (P = 0.095). Abnormal karyotype was found in 47 (51%) patients: in 19 - a complex karyotype, including a patient with a *BRCA1* variant, in 12 - numerical aberration, in 11 - a balanced translocation, and in 5 - an unbalanced translocation. The obtained results show that chromosomal instability in AML is not related to congenital *BRCA1* and *CHEK2* mutations, which suggests that the mechanism of AML development is independent of innate *BRCA1* or *CHEK2* inactivation.

Key words: *BRCA1*, *CHEK2* mutations, AML

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Title: Hematological effect of driver mutations of *JAK2*, *CALR*, or *MPL* in primary myelofibrosis.

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Introduction: The most common genetic alteration in primary myelofibrosis PMF is *JAK2*V617F mutation, present in about 60% of patients. In about 10% of patients, *MPL* mutations are identified and in about 25% insertions/deletions of exon 9 of *CALR* gene. Mutations of *JAK2*, *MPL* and *CALR* are mutually exclusive. "Triple negative" PMF cases, without any of them are associated with poor prognosis. Mutations in *JAK2* and *MPL* genes lead to constitutive activation of *JAK2/STAT* signaling pathway that results in increased proliferation of myeloid and magakaryocytic progenitors in absence of TPO and EPO. *CALR* gene encodes calreticulin, a protein which plays role in intracellular signaling, Ca^{2+} storage, regulation of gene expression, cell adhesion, apoptosis and autoimmune response. *CALR* mutations cause high activation of *JAK2/STAT* pathway.

Aim: The aim of the study was to evaluate mutational status of *JAK2*, *MPL* and *CALR* genes in Polish group of PMF patients and to assess the prognostic significance of the mutations in this cohort.

Materials and Methods: *JAK2*/V617F and *MPL*/W515K/L mutation status were assessed using AS-PCR. Direct sequencing was performed to detect insertion/deletion of exon 9 of *CALR* gene. *CALR* mutation type was classified according to Klampfl et al. Relationship between the presence or absence ("triple negative") of these mutations and hematological and clinical data of patients was analyzed with Mann Whitney U Test.

Results: Of the 113 patients studied, 44 (43%) carried *JAK2*/V617F, 25 (24%) *CALR* exon 9 indel, 3 (3%) *MPL*W515 mutation, and 32 (31%) were "triple negative". Most patients with a *CALR* gene mutation harboured type 1 (12 cases) and type 2 (6 cases) mutations. We found significant correlation between high WBC count and *JAK2*/V617F mutation (p=0,004), and between high plateled (PLT) count and both; *CALR* mutation (p=0,027) and "triple negative" status (p=0,0012).

Conclusions: The results confirm practical and clinical usefulness of mutation detection in *JAK2*, *MPL* and *CALR* genes in patients suffering from primary myelofibrosis.

Key words: *JAK2* gene, *CALR* gene, *MPL* gene, mutation, myeloproliferative neoplasm

Title: *NPM1* and *TP53* mutations in Normal Karyotype AML

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Introduction: Acute myeloid leukemia (AML) is a heterogeneous clonal disorder with presence of diverse genetic abnormalities in hematopoietic stem cells. *NPM1* (nucleophosmin gene) mutations are frequent alterations in normal karyotype AML (NK AML). Until now 56 different mutations of exon 12 of *NPM1* have been described, mostly insertions. The NPM protein plays an important role in cell cycle and apoptosis control. It cooperates with several proteins, including p53 and ARF. *TP53* encodes a tumor suppressor protein which consists of transactivation, DNA-binding and oligomerization domains. Due to alternative splicing it may exist in 13 different isoforms. Alternative splicing of intron 9 leads to production of 2 different proteins, p53β and p53γ, without oligomerization domain (stop codon is localized in exon 9b). These isoforms can be present in acute myeloid leukemia (AML) cells

Aim: The goal of the study was to compare mutational status of *NPM1* and *TP53* and to search for association between mutations in *NPM1* and *TP53*genes.

Materials and Methods: Materials and method: Out of 87 cases of NK AML we selected by direct sequencing 29 patients with mutated *NPM1* gene. Subsequently we analyzed exons 4-9 of *TP53*gene.

Results:Results: In the group of 29 mutated *NPM1* cases we found several polymorphisms in exons 4, 6 and 8 of *TP53*gene. We have not found any deleterious mutations.

Conclusions: The *NPM1* gene mutations were not correlated with *TP53* gene mutations in our patients. This finding may be related to the fact that the *TP53* gene mutations are associated mainly with complex karyotype (Haferlach et al, Leukemia 2008).

Key words: *TP53* gene, mutation, acute myeloid leukemia

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Title: Analysis of the effectiveness of the original training program "Paramedics for Africa" in Ghana

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Introduction: Ghana is a developing country located in West Africa and mostly remind of infectious diseases but civilization diseases and accidents have an increasing share in overall mortality in this country. The lack of basic equipment in Emergency Medical Services, the low level of education of emergency workers and the large distance between hospitals are the main causes of high accident mortality rates. Lack of regulations on Emergency Medical Care causes that some employees do not have even basic knowledge of Emergency Medical Care. Paramedics for Africa team has created trainings adapted to conditions in Ghana targeting mainly at reduction in mortality in pre-hospital care by increasing diagnostic capabilities and treatment options. 81 employees of the ambulance service, hospitals and clinics were trained in the pilot version of the Paramedics for Africa training on February and March 2017.

Aim: The purpose of study was assessment of the effectiveness of the original training program 'Paramedics for Africa' in Ghana.

Materials and Methods: Among of the participants of the training were 67 people with random gender, age, level of education, place of work and place of residence who have agreed to take part in the study. The study was carrying out using author's knowledge test before and after the training. All of the results obtained have been subjected to statistical analysis by STATISTICA 13.1 programme.

Results: The level of knowledge about Emergency Medical Care among of employees who rescue lives in Ghana is significantly low. The average test result before the start of the training was only 46,1%. Pilot Paramedics for Africa trainings result in an increase in the level of knowledge among participants by 32,4% on average. It has been proven that age, level of education, place of work and place of residence affect the level of knowledge of Emergency Medical Care and also affect the increase in the level of efficiency during the training.

Conclusions: Paramedics for Africa training affects the level of knowledge among of all groups however the highest efficiency index has been observed among of ambulance service employees and among of people with primary education and without education wherefore this groups are recommended as a target group of the trainings during next editions.

Key words: Paramedics for Africa training, Emergency Medical Care, Ghana, effectiveness