



ABSTRACTS

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Innovation and Commercialization
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PART I

6th International Conference
MEDICAL SCIENCE PULSE
Integration of Science and Care:
Innovation and Commercialization
Opole, May 23-24, 2019

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STOPPING HEMORRHAGES FROM THE LIMBS—RAISING EFFICIENCY THROUGH TRAINING ON HUMAN UNFIXED PREPARATIONS

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KEYWORDS: cadavers, bleeding, hemorrhage, paramedic, learning, education

Introduction. Hemorrhages from the limbs rank among one of the most frequent injuries endangering human life. Immediate help from witnesses and rescue services is necessary in such cases. Developing the skill to stop bleeding manually requires adequate training. One modern training method is the use of cadavers that accurately imitate real patients.

Aim. The aim of this research is to evaluate the effectiveness of learning to stop bleeding manually on freshly frozen corpse.

Material and methods. Thirty-one people took part in the training. They had already trained on medical phantoms. The participants practiced stopping the hemorrhage twice on the cadavers while time was recorded. The second attempt occurred after a short briefing from a teacher. After the training, the participants filled out a questionnaire regarding the level of course satisfaction on a scale of one to five.

Results. On the first run the average time to stop bleeding was 2.06 seconds (SD ± 1.61); in this trial the longest time was 10 seconds and the shortest

was 0.7 seconds. On the second attempt, the average time was 1.52s (SD ± 0.59); in that trial the longest time was 4.1 seconds and the shortest one was 0.8 seconds. The average rating for course satisfaction among the respondents was 4.48 points (SD ± 0.88).

Conclusions. The research showed that training on cadavers increased the quickness of reactions while stopping the hemorrhaging. Moreover, it indicated that training on medical phantoms does not ensure acquisition of optimal ability to perform rescue procedures.

MILK SUPPLY FROM THE HUMAN MILK BANK AND NATURAL FEEDING OF PREMATURE NEWBORNS

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KEYWORDS: milk banks, breast feeding, premature birth

Introduction. Feeding preterm newborns from the first moments of life is a great challenge for modern neonatology. Human milk has an irreplaceable nutritional, therapeutic, trophic, stimulating and prophylactic value for this group of infants. Acquiring breast milk after preterm delivery requires specialized preparation of a therapeutic team that looks after the mother and the newborn in the hospital. The supply of milk from the Human Milk Bank (HMB) for this group of newborns is the second choice of nutrition, after Mother's Own Milk (MOM).

Aim. The aim of the study was to assess whether the supply of Donor Human Milk (DHM) shortens par-

enteral nutrition in premature newborns.

Material and methods. A retrospective analysis of DHM supply was carried out for 116 newborns born before 37 weeks of gestational age (including 29 newborns < 32 0/7 weeks of gestational age and 87 at 32 0/7–36 6/7 weeks gestation) admitted to the Neonate Intensive Care Unit (NICU) in the University Hospital in Wrocław during the period 10/02/2017 to 31/12/2017.

Results. The duration of DHM use did not differ in the separate groups of 5.03 +/- 5.19 days (range 1-25 days) and 6.78 +/- 5.08 days (range 1-23 days)

(rho = 0.097 respectively), p = 0.256. The relationship between duration of total parenteral nutrition (TPN) and volume of DHM (Spearman's ratio rho = -0.194, p = 0.026) was that the longer the TPN time, the smaller the DHM supply was assessed.

Conclusions. The supply of milk from HMB allowed for the shortening of the time of parenteral nutrition in the most immature newborns treated in the NICU. Mothers of near-term infants (born between > 32 0/7 and < 36 6/7 weeks of gestational age) require special lactation care to achieve exclusive breastfeeding after DHM from HMB.

SIGNIFICANT ASPECTS OF COMMUNICATION IN NURSING CARE OVER PATIENTS WITH THE LOCKED IN SYNDROME

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KEYWORDS: patient, locked in syndrome, communication, therapeutic team, psychosocial problems

Introduction. Locked in Syndrome (LIS) is a major challenge for medical environments in terms of diagnostic assessment due to the rarity of the disease and the similarity of features resembling a coma or a vegetative state. Lack of behavioral response in patients with LIS is not synonymous with the occurrence of unconsciousness. The problem for the therapeutic team and caregivers lies in communication with the patient and the patient with the external environment, which contributes to lowering the quality of life of LIS patients.

Aim. Proposal for the implementation of nursing interventions and new ways of communicating with the patient to improve the quality of life of patients with LIS.

Material and methods. The study of the patient with LIS was carried out from 01.12.2016–01.03.2017 in the Care and Treatment Center in Opole. The case study method was used in the work. The following techniques were used: analysis of the patient's medical records, interview, measurement, analysis of vital signs and indirect and direct observation of the patient. The tools used in the study were: Barthel Scale—to assess the patient's performance, Glasgow scale—to assess consciousness and the Waterlow scale—to assess the risk of pressure ulcers. The research received a positive opinion from KB No. 10/PI/2017.

Results. Therapeutic care for a patient with LIS is omni-directional and requires a holistic approach to

the patient. It includes the assessment of the patient in terms of retained awareness and the implementation of an effective form of communication with the patient using the AIEOU alphabet or C-EYE. Care activities play an important role in preventing complications of the respiratory system, cardiovascular system and long-term immobilization.

Conclusions. The patient's experience of acceptance from the therapeutic team and carers and the communication led to better tolerance of the disease and a sense of security. In order to improve the quality of life of the patient, maintenance of close therapeutic team cooperation in the care of the patient with LIS is necessary.

THE DESIRE TO CHANGE THE APPEARANCE OF YOUNG WOMEN AGED 23-30 WITH AESTHETIC MEDICINE AND PLASTIC SURGERY

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KEYWORDS: aesthetic medicine, plastic surgery

Introduction. Since the earliest times women have been looking after their appearance using various treatments and cosmetics. Nowadays, the development of aesthetic medicine as well as plastic surgery allows for the improvement of the appearance of not only mature women, but more and more young women who want to beautify and eliminate defects that are unacceptable to them.

Aim. The aim of the work is to examine if young women aged 23-30 would like to change their appearance by means of aesthetic medicine and plastic surgery.

Material and methods. One hundred women aged 23-30 were asked to complete an anonymous questionnaire containing questions such as:

1. Are you interested in aesthetic medicine or plastic surgery?

2. What defects of your beauty would you like to be solved with the help of aesthetic medicine or plastic surgery?

3. What would be the reason for using aesthetic medicine or plastic surgery?

4. Have you already used aesthetic medicine or plastic surgery?

Results and conclusions. The surveys showed that 68% of young women were interested in aesthetic medicine or plastic surgery. Probants wanted to change their appearance through: breast augmentation—24%, breast reduction—12%, abdominal liposuction—14%, lips augmentation—18%, rhinoplasty surgery—8%, buttocks augmentation—6% and face lift—4%. The reason for using aesthetic medicine or plastic surgery was: the desire to improve the appearance of the exterior—64%, increasing self-

esteem—24%, ambient pressure—2% and rejuvenation—10%, while 16% of probants already used aesthetic medicine or plastic surgery. It is remarkably amazing that women aged 23-30 think at such a young age to change or improve their own appearance, and 16% have already benefited from these kind of treatments. The survey showed that external appearance is a primary goal for young women. 66% of women were unmarried, 34% were married women, 52% came from the city and 48% were from the village. It showed that not only people from large cities want to use the benefits of aesthetic medicine or plastic surgery to improve defects of the body. Such treatments have become popular not only among mature women, but a large portion of young women think about improving their appearance.

INTERREGIONAL COLLABORATION FOR A FAST AND DEEP UPTAKE OF PERSONALISED HEALTH – REGIONS4PERMED

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KEYWORDS: healthcare system, personalised medicine, personalised health

Introduction. Personalised medicine (PM) represents a paradigm shift away from a 'one size fits all' approach to the treatment and care of patients with a particular condition, to one which uses emergent approaches in particular technological areas such as diagnostic tests, functional genomic technologies, and molecular pathways to better manage patients' health and to target therapies. Nowadays, the challenge for national and regional authorities is to enable the shift from a REACTIVE healthcare system (based on an episodic and acute care model) to a PREVENTIVE (stratifying at-risk individuals and ensuring that preventive action is taken to intervene well before the onset of symptoms, let alone illness) and PREDICTIVE (leverage and integrate cutting-edge technologies to not only stratify risk, but even predict risk and intervene even further upstream) system—so-called Personalised Health (PH). In the face of this potential huge leap forward, the fact that PH lacks the cooperation and coordination needed to organise the still very fragmented field is a severe drawback to its development and to the placement of investments in an effective manner.

Aim. Regions4PerMed has the overarching goal to set up the first interregional cooperation on PM, align strategies and financial instruments, identify key investment areas and release a European regional agenda in order to speed the delivery of PH services to the patients.

Material and methods. The Regions4PerMed project is funded by the European Commission under the H2020 Programme. The 4-year project was launched in November 2018 and is a joint project of 6 partners. Fondazione Regionale per la Ricerca Biomedica (Italy), Sächsisches Staatsministerium für Wissenschaft und Kunst SMWK (Germany), Axencia Galega para a Xestión do Coñecemento en Saúde (Spain), Lower Silesia Voivodeship Marshal Office (Poland), Tuscany Life Sciences (Italy), Wrocław Medical University (Poland). Regions4PerMed establishes a continuous dialogue among the European PM community. It brings together decision makers (regional authorities) and stakeholders within organised cross-sectoral and cross-regional workshops and conferences on five key thematic areas: Medical big data & Health

care Governance, Connected Health, Health Industry, Innovation in healthcare and Socio and health economics.

Results. The main outcome of Regions4PerMed is to maximise participation of regional authorities in the Key Strategic Areas activities and to provide policy recommendation to regional, national and European Policy makers. The results of each Key Strategic Areas will define the main challenges and main bottlenecks.

Conclusions. It is expected that the strength of the consortium and expertise of each partner will bring expected outcomes and increase consciousness in the area of PH. It is crucial to direct major efforts towards coordinating and aligning relevant stakeholders in PH action across Europe and beyond, create a participatory approach, build trust, enable a multi-stakeholder process and channel investments towards PH. All this considered, Regions4PerMed coordinates regional policies and innovation programmes in PM and PH to accelerate the deployment of PH for citizens and patients.

ANALYSIS OF VARIABLES MODULATING PREVENTIVE AND HEALTH BEHAVIORS OF HOME CAREGIVERS OF ONCOLOGICAL PATIENTS REMAINING IN THE HOME ENVIRONMENT

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KEYWORDS: prevention, health behavior, home caregivers, cancer disease

Introduction. A low index of prophylactic actions in the healthy population is a major healthcare concern, both in medical and socio-economic terms. Health behaviors play a key role in proper caregiver function for patients with cancer in the home environment, which translate into the quality of caring for a sick person in the home environment, especially in the field of palliative care.

Aim. The aim of the study was to determine the differences in the frequency of modifiable factors related to health and prophylactic behaviors in the group of home caregivers of oncological patients in the home environment.

Materials and methods. The study covered 83 caregivers, in a stay at home environment in 7 institu-

tions—Palliative Home Care Teams, across Poland. The research tools included the Author's questionnaire and the Inventory of Health Behaviors. Spearman's rho rank correlation and Shapiro-Wilk test were calculated for statistical analysis.

Results. The highest rating for health behaviors was by the group of caregivers in the field of preventive behavior $Me = 3.83$ (min-max 1.50–12.17) ($p < 0.001$), the lowest in terms of health practices $M = 3.28$, $SD = 0.66$ ($p > 0.05$). The results showed a statistically significant difference between age ($p = 0.002$), type of related guardian ($p = 0.006$), and the occurrence of cardiovascular diseases. An analysis of the research results indicated a statistically significant relationship between cigarette smoking and the marital status of the surveyed caregivers ($p = 0.031$), the degree of the

caregiver's relationship with the person being looked after ($p = 0.029$) and the dependence on drinking alcohol and the marital status of the surveyed caregivers ($p = 0.037$). The influence of existing neurological disease ($p = 0.006$) and taking sedatives ($p = 0.009$) on preventive examinations in the examined group of caregivers was also observed. The frequency of performing a mammography in the examined group of women was influenced by age ($p = 0.001$), marital status ($p = 0.041$), and work performed ($p = 0.008$).

Conclusions. Variability in health and prophylactic behaviors in the group of caregivers of oncologically ill people in the home environment underline the need to develop appropriate interventions and to promote the prophylactic actions of caregivers by therapeutic home palliative care teams.

A NEW MODEL USING PENTRAXIN 3 TO PREDICT SIGNIFICANT FIBROSIS IN PATIENTS WITH CHRONIC HEPATITIS C

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KEYWORDS: *Pentra score*, chronic viral hepatitis C, significant liver fibrosis, predictive model

Introduction. The invasive nature of liver biopsy and a number of contraindications have stimulated the introduction of alternative diagnostic methods. Levels of pentraxin 3 (PTX3) concentration in serum showed high reliability for the diagnosis of significant fibrosis in patients with chronic viral hepatitis C (CHC).

Aim. The aim of this study was to develop a predictive model using PTX3 levels and other serum-based biomarkers for evaluation of significant fibrosis (F2 or more) in CHC patients not receiving antiviral treatment and to confirm its accuracy in an independent cohort.

Material and methods. A total of 207 CHC patients were analyzed. To achieve the aim of the study, a training group (n=138) and a validation group (n=69) were formed. In the training group, parameters related to the presence of significant fibrosis in univariate and multivariate analyses were examined. We constructed a formula for predicting significant fibrosis and validated its accuracy in the validation cohort.

Results. In multivariate analyses, age and PTX3 were found to be significant predictive factors linked to the presence of significant fibrosis; hyaluronic acid showed borderline statistical significance for the presence of significant fibrosis. Using these variables, we

constructed the formula *Pentra score*. In the training and validation sets, the *Pentra score* yielded the highest AUROCs (0.894 and 0.867) for predicting significant fibrosis among serum liver fibrosis markers.

Conclusions. *Pentra score* is a new panel of biomarkers that can be used as a non-invasive method for prediction of significant fibrosis in CHC patients. Our index should be validated in a larger number of patients and in different ethnic groups.

ANTICANCER EFFECT OF VITAMIN D

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KEYWORDS: vitamin D, deficiency, supplementation to cancer

Introduction. The major biologic function of vitamin D is to maintain normal blood levels of calcium and phosphorus. Deficiency of vitamin D is usually associated with skeletal degeneration (osteomalacia or osteoporosis), but it is known that it also causes improper functioning of the nervous and muscular system, inflammation of the skin, general weakening of the body, and reduced immunity. In recent years, scientific evidence linking vitamin D status or supplementation to cancer has increased.

Aim. We aimed to investigate the effect of vitamin D deficiency on incidence and mortality of cancers by systematic review of randomized controlled trials and meta-analyses.

Material and methods. We used PubMed to search Medline and ClinicalTrials.gov database until April 2019. Terms: vitamin D, 25-hydroxyvitamin D, 25(OH)D, calcifediol, calcidiol together with: cancer, malignant, anticancer, antitumor were entered in the search engine tools. No restriction for type of cancers was applied.

Results. Higher circulating levels of vitamin D appeared to be associated with reduced risk for mortality and improved survival of colorectal cancer (approximately 40% risk reduction, pooled RR 0.88) and breast cancer (35% risk reduction, pooled RR 0.56), but not with reduced cancer incidence. In prostate cancer, vitamin D had an inhibitory effect on

the progression of the disease. The evidence for an anticancer effect in the case of melanoma, lung and ovarian cancer are controversial.

Conclusions. It seems that an anticancer effect of vitamin D was revealed for certain types of cancers, especially colorectal and breast cancer, and that it had a stronger influence on risk of mortality reduction than for cancer incidence. However, the available data are still limited.

BECKWITH-WIEDEMANN SYNDROME - WHAT ELSE CAN WE EXPECT?

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KEYWORDS: Beckwith-Wiedemann Syndrome (BWS), Pheochromocytoma, hypertension, child

Introduction. Beckwith-Wiedemann syndrome (BWS) is an overgrowth disorder characterized by many clinical abnormalities, generally neonatal hypoglycemia, macroglossia, omphalocele and umbilical hernia. The disorder is associated with a high risk of embryonal malignancies. The incidence of malignant tumors is highest in cases of hemihypertrophy.

Case Description. We present the case of a 10-year-old girl with BWS diagnosed in the first year of life. The patient was under the care of many specialists (oncologist, endocrinologist and nephrologists) because of the health problems correlated with

BWS. She was admitted to our department because of hypertension and heart murmur. She described a few episodes of malaise, weakness and sweating in a period of one year. During the diagnostic process we found cardiomyopathy and a hormonally active tumor in the right adrenal gland, which turned out to be pheochromocytoma. After surgery and removal of the tumor, the patient was under periodic care. During one of the routine checks, 5 years after surgery, we found another tumor in the left adrenal gland, which appeared to be another pheochromocytoma with high levels of urine noradrenalin.

Conclusions. BWS is associated with many physical abnormalities and the tendency of tumor growth. The association of this syndrome with some malignant tumors is well documented. This report presents a pediatric patient with BWS and pheochromocytoma. To our knowledge, only three cases of adrenal pheochromocytoma in patients with BWS have been reported. This case shows that patients with BWS should be under careful periodic observation. Special attention should be paid to patients with BWS associated with hemihypertrophy. The physicians should be aware of the symptoms of pheochromocytoma.

FUNCTIONAL ASSESSMENT OF PEOPLE TRAINING CROSSFIT BEFORE AND AFTER MOBILITYWOD TRAINING

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KEYWORDS: CrossFit, FMS test, mobility, risk of injury

Introduction. CrossFit is a popular form of physical activity. However, due to its specificity and high intensity it is also associated with a considerable risk of injuries. An essential element of anti-traumatic prevention is a comprehensive functional assessment of the competitor, while the appropriate mobilization techniques are used in MobilityWOD training, allowing the musculoskeletal system to properly prepare for the demanding physical effort.

Aim. The aim of the study was to carry out a comprehensive analysis of basic movement patterns and identify limitations and compensation before and after conducting MobilityWOD training among people training CrossFit.

Material and methods. 30 men practicing CrossFit were examined. The Functional Movement Screen (FMS) was used for functional assessment. This was followed by a training aimed at improving the mobility of the so-called MobilityWOD, after which the FMS test was carried out again.

Results. Based on the analysis, it was found that people training CrossFit obtained more favorable results in the FMS test after conducting the MobilityWOD training. The average test result in the first study was 15.9 points; after the MobilityWOD training a higher average score of 17.3 points was obtained. The difference between the average results of the FMS test was statistically significant. In three single tasks—

Deep Squat, Shoulder Mobility and Active Straight Leg Raise, statistically significant differences were also noted.

Conclusions. The average result of the FMS test for the examined persons—15.7 points—indicates attempts to compensate and the occurrence of asymmetry in the course of performed tasks. The estimated risk of injury in the studied group was 25-35%. The average result of the FMS test, after completing the MobilityWOD training—17.3 points—is much more advantageous, but it still predisposes the exercisers to injury. The use of MobilityWOD training contributes to the improvement of mobility and increases the functional quality of movement.

ASSESSMENT OF INDEPENDENCE IN SATISFYING BASIC LIFE NEEDS AND SELF-CARE IN THE ELDERLY

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KEYWORDS: seniors of very old age, self-maintenance, senior independence

Introduction. The process of doubling the aging population, which involves an increase in the total segment of seniors as well as the subpopulation of very elderly persons (aged 80 and more), results from two well-known causes. The first is the decrease in the number of births and the second is a lower level of mortality. Demographers predict that by 2060 the number of people aged 80 and over will double in European countries. In Germany, Slovakia, Spain, Portugal and Greece, the proportion of these people will be 13.4-16.1% of the total population, and in Poland will be 12.3%. With the expansion of the life expectancy, the need to develop solutions supporting the elderly increases. One of the most important factors of healthy aging is to maintain functional

efficiency, which is the independence from others in satisfying basic life needs or the ability to self-care. It includes: mobility, nutrition, personal hygiene and control over physiological urges. The level of elderly self-maintenance depends on mental and physical condition.

Aim. Analysis of the level of independence in performing everyday life activities of late-aged seniors.

Material and methods. The study group consisted of men (n = 33) and women (n = 67) aged from 80-93, average age 82.97 years. The majority of people (76%) were residents of rural areas of the province, Opole, Lower Silesia and Silesia. To assess independence in the complex activities of everyday life the Lawton scale was used.

Results. The results were classified according to the assessment of the level of independence in the scope of complex activities of everyday life. The study showed that people aged 80 and over who live in rural areas are mostly independent (75%). Men in the study group had higher scores of independence than women.

Conclusions. The surveyed group that consisted mostly of seniors living in rural areas, in individual households, scored high on the Lawton scale. It is possible that the rough life conditions in the countryside, which reinforce maintaining independence and mobility due to difficult access to markets or any type of supporting institutions or the lack of city communication, played a role.

POSTURAL STABILITY IN YOUNG ADULTS WITH VARIOUS ACTIVITY LEVELS

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KEYWORDS: balance, postural stability, physical activity, young adults

Introduction. Physical activity is an essential component of healthy life. Research shows that physical activity of older adults leads to improvement of their postural stability parameters. Also, the level of activity undertaken seems to have an impact on the achieved scores. However, there are not many papers describing how the level of physical activity affects postural stability among young adults.

Aim. The aim of the paper is evaluation of postural stability in young adults, who undertake physical activity at various levels.

Material and methods. 40 young, healthy adults participated in study. Group 1 (G-1, age 22.4±1.6) consisted of 20 subjects with an average physical activity time of 2.5 hours per week. Group 2 (G-2, age 22.5±2.67) consisted of 20 subjects with an average physical activity time of 7 hours per week. Postural stability was assessed using dynamic platform Biodex Balance System SD. Testing was performed in single-leg stance during static and dynamic conditions.

Results. In static conditions, G-2 obtained significantly lower values for parameters of the antero-pos-

terior stability index ($p < 0.001$) and overall stability index ($p < 0.001$). In dynamic conditions, no statistically significant differences were observed between studied groups.

Conclusions. Young adults undertaking physical activity at a higher level achieved lower scores, which may indicate better postural stability in static conditions. In dynamic conditions postural stability reached a similar level in both groups.

THE IMPACT OF DIETARY AND PHYSICAL ACTIVITY INTERVENTIONS ON THE ENVIRONMENTAL DOMAIN OF THE QUALITY OF LIFE (QOL) OF ELDERLY PEOPLE WITH FRAILTY SYNDROME

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KEYWORDS: quality of life, elderly people, frailty, pre-frailty

Introduction. The occurrence of frailty and pre-frailty syndrome decreases quality of life (QoL) of the elderly. In view of the demographic aging of European societies, ensuring a high QoL for the elderly should become a major goal of both government and local community sectors.

Aim. To examine the influence of a nutritional intervention and physical activity intervention on the environmental domain of QoL (WBD4) of elderly people with frailty syndrome.

Material and methods. The study was conducted during 2017-2018 (n = 154) in three time intervals: before intervention (T0), after 3 months (T1) and

after 6 months (T2). A group subjected to dietary intervention (G1 = 41), a group undergoing physical activity intervention (G2 = 43), a group undergoing comprehensive nutritional and physical activity interventions (G3 = 46) and a control group (G4 = 68) were included in the study. A diagnostic survey was conducted using the WHOQOL-BREF questionnaire.

Results. In the control group, the average level of WBD4 was M = 12.90 (T0) SD = 3.17, M = 12.78 SD = 3.60 (T1) and M = 13.50 SD = 3.82 (T2) (p = 0.326). In the G1 group, the nutritional intervention increased the WBD4 level in subsequent periods: M = 14.1 SD = 2.86 (T0), M = 14.35 SD = 2.31 (T1), M = 15.74 SD =

0.81 (T2) (p < 0.001); similarly in the G2 group, the intervention of physical activity increased the level of WBD4: M = 14.83 SD = 2.87 (T0), M = 15.16 SD = 1.88 (T1), M = 15.38 SD = 1.82 (T2) (p = 0.003). A comprehensive intervention resulted in a significant increase in WBD4 after 6 months compared to the baseline: M = 14.50 SD = 2.25 (T0), M = 14.02 SD = 3.23 (T1), M = 14.88 SD = 2.75 (T2) (p = 0.015).

Conclusions. Introducing a nutritional and/or dietary intervention significantly increased the environmental domain level of QoL in elderly people with frailty syndrome. This data will be valuable for the planning of prevention interventions in this group.

PYRAZOLE-PLATINUM (II) COMPLEXES INFLUENCE CASPASE 3 EXPRESSION IN HT-29 COLON CANCER CELLS

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KEYWORDS: apoptosis, caspase 3, cisplatin

Introduction. Despite intensive medical developments, neoplastic diseases are one of the greatest problems in developed countries. According to global estimates, colorectal cancer now ranks third in terms of incidence and fourth in terms of mortality. Current therapy methods are not fully satisfying, therefore research on new chemotherapeutics are underway. Dinuclear platinum (II) complexes are a new class of potential anti-cancer drugs. Apoptosis is the programmed cell death process which plays an important role in maintaining homeostasis as well as eliminating mutated and self-reactive cells. The apoptotic signal received by specific cell structures

leads to an activation of intracellular enzymes called caspases, including executioner caspase 3 (CAS3), which in turn induces a cascade of reactions leading to cell death.

Aim. The aim of the study was to evaluate the effect of pyrazole complexes of platinum (II) on caspase 3 expression in HT-29 colon cancer cells.

Material and methods. To determine the effects of six novel derivatives of platinum (II) -PtPz1–PtPz6 compounds on the viability of colon cancer HT-29 and fibroblast cells, MTT assays were performed. Based on IC₅₀ value PtPz4 and PtPz6 were selected for further investigation. Colon cancer cells were cocultured for 24 h with

10 μM PtPz4, PtPz6 and cisplatin (Pt). To assess CAS3 expression in cell lysates Western blotting analysis was performed. CAS3 gene expression was evaluated by real-time PCR.

Results. PtPz4 and Pt significantly increased mRNA levels of CAS3 in the studied cells. PtPz6 also increased CAS3 expression; however, no statistical significance was observed. Moreover, CAS3 protein levels in HT-29 cells increased after PtPz4, PtPz6 and Pt treatment.

Conclusions. The results suggested an important role for pyrazole derivatives of platinum (II) in the activation of apoptotic executioner caspase 3.

EVALUATION OF PGC-1 α STIMULATION EFFECTS ON SPHINGOLIPID CONTENT IN INSULIN-RESISTANT L6 MYOTUBES

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KEYWORDS: PGC-1alpha, pyrroloquinoline quinone, sphingolipids

Introduction. Sphingolipids are important structural components of muscle cells; they also have an influence on intracellular signaling and metabolism. Stimulation of PGC-1 α by bioactive compounds, i.e., pyrroloquinoline quinone (PQQ), is involved in modifying sphingolipid metabolism through the regulation of the expression of genes engaged in lipolysis and lipogenesis.

Aim. A comparison of the effects of PGC-1 α stimulation on sphingolipid metabolism in L6 myotubes in basal and insulin-resistant states.

Materials and methods. Studies were performed on L6 myotubes treated with 0.5, 1 and 3 μ M of PQQ for 2 and 24 hrs. The effectiveness of PGC-1 α stimulation was assessed via mRNA (real-time PCR) and

protein (Western Blot) levels. The most effective PQQ concentration was selected for further studies. Insulin resistance was evoked by 16 h exposure to 0.75 mM palmitic acid and was followed by post-treatment with PQQ. Intramyocellular content of selected sphingolipids was determined by high performance liquid chromatography.

Results. PGC-1 α mRNA levels were significantly elevated after incubation with 0.5, 1 and 3 μ M of PQQ (2 hrs: +108%, +123% and +31%; 24 hrs: +179%, +208% and +85%, respectively). However, the co-activator's protein content increased only in the case of 0.5 μ M of PQQ (2 hrs: +24%; 24 hrs: +22%). Therefore, further studies were performed with this PQQ concentration. In a basal state, ceramide and sphin-

goline levels were elevated for both incubation times (CER: 2 hrs: +79%, 24 hrs: +132%; SFA: 2 hrs: +24%, 24 hrs: +94%). Furthermore, short-term incubation with 0.5 μ M of PQQ significantly declined sphinganine content (-21%). In insulin resistant L6 myotubes, prolonged (24 hrs) postincubation with PQQ substantially increased ceramide levels (+37%). Moreover, postincubation with 0.5 μ M of PQQ resulted in reduced sphinganine-1-phosphate (2 hrs: -52%, 24 hrs: -24%) and sphingosine-1-phosphate (24 hrs: -70%) amount.

Conclusions. Despite a well-established role of PGC-1 α in mitochondrial fatty acid oxidation, prolonged PGC-1 α stimulation potentiates the effects of palmitate on ceramide accumulation.

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THE REDUCTION OF MEDICAL PERSONNEL WORKLOAD IN THE COORDINATED CARE ORGANIZATION IN SIEDLCE DUE TO IMPLEMENTATION OF ELECTRONIC SICK LEAVE CERTIFICATES (E-ZLA)

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KEYWORDS: general practice, healthcare, workload

Introduction. In Poland, as of January 1, 2016, doctors can issue electronic sick leave certificates called e-ZLA. Previously, sick leave certificates were issued in paper form. Although paper form certificates in the Medical and Diagnostic Centre (MDC)—a coordinated care organization located in Siedlce, Poland, were usually prepared by the registration or nurse staff, a doctor's signature was still required. The copy given to a patient was to be provided by him to the employer, and in parallel, medical staff were obliged to provide another copy to the relevant social insurer branch within 7 working days.

Aim. The aim of the study was to assess the reduction of personnel time spent issuing sick leave certificates after the introduction of the new functionality

of electronic sick-leave certificates issued directly within the MDC client application in February 2018.

Material and methods. Time required to issue paper or electronic form certificates was assessed by the IT department of MDC, having access to the tasks' database.

Results. In the MDC, the average amount of work time spent was calculated at 13 min per one paper form certificate. The CMD serves approximately 85,000 patients and issues about 1,500 sick leave certificates every month. The MDC's first e-ZLA, sent directly from the client application, was issued on February 20, 2018. The concept of having e-certificates uploaded and stored within the system was

highly appreciated by the medical staff. The average time for issuing an e-ZLA, followed by its online transmission, was 2-3 min compared to 13 min for issuing paper-form sick leave certificates. The necessity of involving numerous employees in writing the sick leave certificates was also eliminated. This system also allows for tracking the history of e-ZLAs received by patients.

Conclusions. As a result of e-ZLA introduction, the registration staff and nurses were relieved from paper work and administrative tasks related to providing social insurer branches with paper copies of sick leave certificates. The decrease in paper work burden resulted in time savings which can now be allocated for patients.

THE KEY ROLE OF PRIMARY CARE PHYSICIANS IN CONVINCING PATIENTS TO PARTICIPATE IN THE SCREENING PROGRAM FOR COLORECTAL CANCER IN A COORDINATED CARE ORGANIZATION IN POLAND

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KEYWORDS: primary health care, mass screening, physicians

Introduction. Medical assistants/care coordinators play a crucial role in the coordinated care system. Tasks of nurses and some qualified supporting staff have been extended to enable the implementation of the pilot program *POZ Plus* in Polish primary health care. Nurses are authorized to actively perform a wide range of new activities. This role is especially important when using a personalized approach to the patient, needed during the implementation of large-scale prevention programs in the coordinated care setting.

Aim. The aim of the study was to assess who has the greatest influence on the patient's decision to undergo a screening colonoscopy test.

Material and methods. The study was conducted in the coordinated care facility Medical and Diagnostic Center in Siedlce, Poland (MDC) between 1st March and 15th June 2017. The research was carried out in two MDC endoscopy units among patients undergoing a colonoscopy screening. Patients were given a questionnaire after the examination.

Results. 138 patients participated in the study, including 80 (58.0%) women and 58 (42.0%) men. The largest group of patients reported that they were directly convinced to undergo colonoscopy by a family physician—75 (54.4%), 18 (13.0%) were convinced by a nurse, 22 (15.9%) by another specialist and 10 (7.25%) by a family member. 10 (7.25%) patients volunteered for colonoscopy and 3 (2.17%) indicated other reasons. The majority of patients—74 (53.6%),

answered that all necessary information about the preparation and the course of the test was provided by the nurse, 35 (25.36%) pointed out the family doctor, 9 (6.52%) the internet, 8 (5.80%) the specialist doctor, 3 (2.17%) the receptionist and 9 (6.52%) indicated other sources of information, including leaflets and notice boards.

Conclusions. This study shows that family doctors still play a crucial role in convincing patients to undergo preventive colonoscopy despite working in the environment of coordinated care, whereas nurses have a tremendous informational role for patients qualified for this prophylactic program. Therefore, there could still be a further role for nurses in the taking over of tasks in a coordinated care setting.

THE PROCESS OF NURSING A WOMAN AFTER ISCHEMIC STROKE. A CASE REPORT

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KEYWORDS: nursing process, ischemic stroke, case report.

Introduction. A stroke is a serious threat to life. Statistically, every third death in the world is a consequence of a stroke and the number of deaths reaches 4.5 million people a year. Stroke is also the most common cause of disability and lack of independence in the population over 40 years of age. Ischemic stroke accounts for 80% of all strokes. It usually occurs as a result of a large narrowing or closure of the lumen of a blood vessel that supplies blood to a certain area of the brain.

Aim. To present a plan of individual nursing care for a patient after ischemic stroke in a home environment.

Material and methods. The material is a description of the health situation of a 75-year-old woman after ischemic stroke. The work involved an individual case method in which the following techniques were used: interview and documentation analysis. In order to collect the necessary information about the current health situation of the patient, the observation method was also used.

Results. In the described woman, the main problem was the life-threatening risk caused by paroxysmal atrial fibrillation, incorrect health behaviors, risk of injury due to limited mobility, decreased mood and sleep disturbances, as well as headache and dizziness caused by fluctuations in blood pressure.

Conclusions. A high level of knowledge about the disease and activities reduced its negative effects allowing for greater patient involvement and better results in the treatment and nursing process. An important element of nursing care is health education, counseling and providing support. The personalized activities undertaken in the nursing process create an opportunity to improve the quality of life of patients after ischemic stroke.

ANALYSIS OF THE RELATIONSHIP BETWEEN SELECTED SOCIODEMOGRAPHIC VARIABLES OF PATIENTS WITH CHRONIC CARDIOVASCULAR DISEASE AND THE LEVEL OF QUALITY OF LIFE

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KEYWORDS: patients, chronic cardiovascular disease, quality of life

Introduction. The priority aim of treatment of patients with chronic cardiovascular disease is to improve their functioning and to reduce treatment costs. Both of these goals can be achieved by improving the quality of life (QoL).

Aim. The aim of the study was to analyze the relationship between selected sociodemographic variables and the QoL of patients with chronic cardiovascular disease, as part of primary care.

Material and methods. The study included 157 patients with chronic cardiovascular disease. The study used the author's interview questionnaire and the WHOQOL-BREF (Quality of Life Questionnaire).

Results. Women predominated among the patients, accounting for 62.4% (n = 98) of the subjects (n = 131),

and the median patient age was 65. The majority were people living in the city, 75.8% (n = 119), and 31% (n = 48) had vocational education, 60.3% (n = 88) were living in a relationship, 60.5% (n = 94) defining its material status as an average. In younger patients, higher QoL in the physical (r = -0.51, p < 0.001), psychological (r = -0.34, p < 0.001) and environment (r = -0.34, p < 0.001) domains were observed more often. People with lower education achieved lower QoL in the domains of environment (r = 0.41, p < 0.001), physical (r = 0.37, p < 0.001) and psychological (r = 0.20, p = 0.012). In people who did not live in a relationship, lower QoL in the physical (r = 0.36, p < 0.001), environment (r = 0.35, p < 0.001) and psychological (r = 0.25, p = 0.003) domains were observed more often. Patients living in the city achieved higher QoL

in the psychological domain (r = -0.17, p = 0.035). People receiving social benefits had higher QoL in the domain of social relations (r = -0.22, p = 0.007), but they achieved lower in the domains of environment (r = 0.29, p < 0.001), physical (r = 0.20, p = 0.014) and psychological (r = 0.19, p = 0.022).

Conclusions. There is a need to draw attention in primary healthcare to the QoL in the physical, psychological and environmental domains in patients < 65 years of age, with lower education, those who not in relationships and do not receive social benefits. It is also important to improve the QoL in the psychological domain in patients living in the countryside and in the social relations domain in patients who do not receive social benefits and declare worse financial situation.

THE IMPORTANCE OF PATIENT SATISFACTION IN PRIMARY CARE—A CROSS-SECTIONAL STUDY

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KEYWORDS: personal satisfaction, quality of health care, primary health care

Introduction. Patient satisfaction with services offered by Primary Care Centers (PCC) is related to the continuation of care, the patient's inclination to adhere to medical prescriptions and achieved treatment results. The level of patient satisfaction is an important indicator of the quality of healthcare, quality of life, mortality and medical care costs.

Aim. Determining: (1) factors significantly correlating with the level of patient satisfaction with the services offered by the primary care physician (2) differences between Emergency Department Patients (EDP) and PCC Patients (PCCP).

Material and methods. A cross-sectional study involved 400 patients. The parallel group technique was used. One group consisted of 200 EDPs and the second group included 200 patients from four PCCs (two rural and two urban). A diagnostic survey was applied. The Patient Satisfaction Questionnaire, Health Behavior Inventory, Modified Version of the Camberwell Assessment of Needs Appraisal Schedule and an original questionnaire were used.

Results. From among 60 tested variables, the strongest predictors of the level of satisfaction with PCCs' services in both groups were: the level of patients' health behaviors ($r_s = 0.45$, $p < 0.001$ PCC vs. $r_s =$

0.31 , $p < 0.001$ EDP), the level of meeting their needs ($r_s = 0.38$, $p < 0.001$ PCC vs. $r_s = 0.14$ $p = 0.047$ EDP) and availability of some specialist clinics (cardiology and orthopedics).

Conclusions. Undertaking initiatives at the level of outpatient care aimed at increasing the level of patient satisfaction with medical services may contribute to improving the health of the population and to increasing the level of care to meet the needs of patients. In the coordinated care system, the use of this relationship should be used to develop effective care plans.

ANALYSIS OF THE VARIABILITY OF TSH IN THE POPULATION HOSPITALIZED AT THE UNIVERSITY CLINICAL HOSPITAL IN WROCLAW DURING A ONE-YEAR OBSERVATION

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KEYWORDS: TSH, biological variation, medical laboratory, database, laboratory information system, indirect statistical analysis

Introduction. The examination of laboratory parameters provides useful information for assessing the current health condition of the patients. They are necessary for early detection and recognition of disease; however, their values are subject to high biological variability. Thyroid stimulating hormone (TSH) is the most common and important laboratory parameter used in the recognition of thyroid function disturbances. Discrepancies exist regarding its value as applied to diagnosis in laboratories versus scientific data.

Aim. The aim of the study is to evaluate the use of indirect statistical methods to characterize the values of selected endocrine laboratory parameters (TSH) and assess their variability.

Material and methods. Laboratory results of endocrine parameters such as TSH archived in the Laboratory Information System (LIS) in the Department of Laboratory Diagnostics derived from patients hospitalized at the University Clinical Hospital in Wrocław during a one-year observation (January-December 2018) were used. An indirect statistical method, the Hoffman method of graphic distribution of a given parameter, was applied as recommended in scientific literature.

Results. The TSH values did not differ between sex (male and female groups) and age groups (18-35, 36-55 and > 55 years). However, some discrepancies were observed between the current value range of this parameter, measured in the medical labora-

tory, and values in other populations presented in the scientific literature, especially concerning the values applied for hypothyroidism recognition.

Conclusions. Laboratory results of TSH archived in the LIS could be subjected to statistical analysis by indirect methods and are suitable and appropriate for variability assessment. Additionally, such analysis is a valuable source of information about the value distribution of this parameter not only in the population hospitalized at the University Clinical Hospital in Wrocław but also in the other regions, but additional studies are required.

ASSESSING HIV AND AIDS KNOWLEDGE IN YOUTH

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KEYWORDS: HIV, AIDS, public health, health promotion, virus, sexually transmitted disease

Introduction. The human immunodeficiency viruses (HIV) are two species of Lentivirus that causes HIV infection and over time acquired immunodeficiency syndrome (AIDS). We know possible routes of infection and prevention of infections. The most important considerations are making tests available for HIV and implementing treatment early enough. In order for all of this to bring the expected effect, i.e. to decrease the number of HIV infections and the incidence of AIDS, it is necessary to conduct large-scale health education.

Aim. To carry out an assessment of the level of the knowledge of middle and high school students about HIV and AIDS, as well as an assessment of the youth's ability to objectively address the threat of HIV/AIDS.

Material and methods. 152 students of Białystok schools. The criterion of inclusion in the sample

was having student status at the chosen school and parental consent, in the case of underage students. The research tool was a questionnaire of our own authorship.

Results. Only 48% of students knew the definition of HIV and 31% knew that of AIDS. 70% knew about the difference between HIV and AIDS. The studied group correctly indicated the potential routes of HIV infection. 90 people were aware that infection may occur during labor and 80 subjects indicated the use of shared shaving razors. 94% of students correctly believed that an infection can occur during the first sexual intercourse with an infected person. The most common sources of information on HIV for students were: the Internet (75%), television (65%) and school (61%). 73% of respondents knew that there is no vaccine against AIDS. 72% knew that a well-managed treatment can protect a child from transmitting a

virus to his mother. Only 59% of respondents said that a woman has a chance to give birth to a healthy child, provided that she knows about her infection and informs the doctor who is in charge of the pregnancy. 86% knew that an infected person cannot donate organs, tissues or blood. 58% correctly indicated that one of the reasons for the high mortality rate for AIDS is late detection of HIV infection.

Conclusions. HIV/AIDS knowledge amongst young people is not at a satisfactory level, in Europe and throughout the world. HIV/AIDS education should be continued and information about the possibility of a free HIV test should be provided. A low level of knowledge in young people can contribute to an increase in the HIV/AIDS epidemic. Pregnant women should be mandatorily directed to HIV testing so that the child can be protected from infection.

ASSESSMENT OF THE OCCURRENCE OF POSTURAL DEFECTS AND BACK PAIN RELATED TO STUDENTS CARRYING BACKPACKS

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KEYWORDS: postural defects, postural low back pain, backpack, physical activity, prevention

Introduction. In recent years, a significant increase in the incidence of postural defects in school youth has been reported. The well-established methods of prevention of functional defects of posture include implementing prophylaxis and rehabilitation. The examined children were in two critical periods. The first occurs at the age of 7, when the child shifts from an active lifestyle to sitting patterns. The second appears in girls aged 11-13, in boys 13-14 years, and is associated with pubescence growth, during which body proportions and the position of the center of gravity change. Students often show lower levels of physical activity than children. There is also a high report of spinal pain caused by wearing too heavy school-bags.

Aim. Assessment of body posture in the population of children attending Primary Schools in the city of

Białystok and determining if a relationship exists between the occurrence of postural defects and back pain and the carrying of a backpack.

Material and methods. 20 primary school students in Białystok, aged 7 and 12. The children's body posture was assessed by using the Kasperczyk scoring method and the author's questionnaire.

Results. 50% of the tested group had an asymmetrical position of the shoulders in the frontal plane, 45% had asymmetrical or slightly forward burses, 50% had shoulder blades protruding from the back surface to a distance of more than one finger. 85% of the respondents were characterized by a well-sprung chest. Among first-grade pupils, the majority had a sagging belly, which may predispose them to the formation of concave backs. 80% of the subjects had a

mildly shaped form of thoracic kyphosis. In only 10% of the learners, a slight deepening of lumbar lordosis was observed. 85% of the students surveyed did not report pain in the spine, 10% of them experienced pain in the thoracic segment of the spine and 5% experience pain in the cervical spine. Most students took part in additional activities: swimming (28%), soccer games (16%) and bicycle rides (12%).

Conclusions. Despite the increase of awareness and implementation of prevention programs, there is still a high percentage of children diagnosed with postural defects. Students report pain in different parts of the spine, which may be the result of wearing too heavy school-bags and sporadic participation in corrective gymnastics classes. It is considered reasonable to conduct screening tests on a larger population of children in order to properly adapt preventive programs.

OCCURRENCE OF LOW BACK PAIN IN STUDENTS OF PHYSIOTHERAPY AND COSMETOLOGY FACULTIES

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KEYWORDS: low back pain, physiotherapist, students

Introduction. Pain in the lower spine significantly impairs daily functioning in society. According to the World Health Organization, spinal disorders rank second among the most common painful ailments of modern civilization.

Aim. The purpose of the study was to assess the occurrence of low back pain, its character, intensity and how to deal with the problem.

Material and methods. The study was conducted on a group of 150 people. The respondents are physiotherapy students (n=62) and cosmetology students

(n=88). The author's questionnaire assessing the occurrence of low back pain syndrome in the population of students of physiotherapy and cosmetology was used to carry out the study. The approval of the Bioethical Commission of the State Medical Higher Vocational School in Opole No. 207/2016 was obtained for conducting the study.

Results. Pain in the spine occurred in 81% of physiotherapy students and in 67% of cosmetology students. No pain symptoms were reported in 19% of physiotherapy students and in 33% of cosmetology students. For the question determining the area of

pain, the largest number of people—56% of physiotherapy students and 59% of the cosmetology students—indicated the area of the lumbar region.

Conclusions. Pain in the lower spine occurs in the early stages of professional development in both physiotherapy and cosmetology students. The severity of the ailments and their frequency depended on the adopted positions and acquired postural defects. The manner of dealing with pain was often based on NSAID use instead of visits to a physiotherapist or a physician.

NUTRIENTS AND DIETARY SUPPLEMENTS FOR MEN VISITING THE GYM

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KEYWORDS: dietary supplements, protein nutrients, vitamin-mineral preparations, physical activity

Introduction. Increased physical activity of people who regularly attend the gym increases the demand for energy, nutrients (carbohydrates, protein, fats), vitamins and minerals. There is a need for an appropriate, balanced diet that will keep the body in good health, will promote the development of exercise skills and faster regeneration after exercise related to muscle and nervous system strain. Hence, the growing interest in nutrients and dietary supplements by people taking part in sports, mainly men participating in sports.

Aim. The aim of the study was to investigate the frequency of consumption of particular types of nutrients and supplements used by men attending gyms.

Material and methods. The study involved 100

men of different ages (from 15 to over 40 years of age), physically active, attending gyms, living in the Lower Silesian and Opolskie Voivodships. In order to obtain information on the dietary supplements used by the respondents and the purpose of their use, the author's questionnaire was used. The first part included social and demographic questions (age, education, economic situation), the level of training advancement and training objectives. The second part examined the knowledge of dietary supplements among the respondents and allowed for the determination of the frequency of their consumption by the respondents. Depending on the question, the questionnaire could indicate one or more answers.

Results. Protein conditioners were in constant supplementation in 58% of the subjects. Vitamin-mineral

preparations were taken daily (constant supplementation) by 36% of respondents, while omega-3 fatty acids were taken by 32%. Creatine was in constant supplementation in 22% of respondents, while 26% used it from time to time. As many as 96% of respondents did not take HMB at all. 2% used this supplement from time to time, another 2% rarely. L-carnitine was not used at all by 88% of respondents.

Conclusions.

1. Protein supplements, vitamin-mineral preparations, omega-3 fatty acids and creatine proved to be the most commonly used supplements for men attending gyms.
2. The least frequently used supplements were HMB and L-carnitine.

INFORMATION NEEDS OF DIGESTIVE TRACT SURGERY PATIENTS BEFORE AND AFTER THE SURGERY: AN EXPLORATORY STUDY OF WESTERN LITHUANIA

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KEYWORDS: information needs, digestive tract surgery, patients' education

Introduction. Information has a distinct value to operative care from the perspective of both the patient and the professional.

Aim. To describe the information needs of patients undergoing gastrointestinal surgery in western Lithuania.

Material and methods. The data were collected from patients of three Klaipeda city hospitals performing digestive tract surgeries in 2015 January – March 2015. Participants (n = 86) responded to a structured interview based on the topic list. The topic list (formed in the pilot study) covered information needs about treatment, the surgery itself, nursing, anesthesia, nutrition, rehabilitation, wound care,

physical activity, fear and anxiety. The interview responses were analyzed inductively with thematic content analysis. In the data analysis, the answers were divided into the following categories: information concerning oneself, concerning fear and anxiety, and information concerning the surgery and care.

Results. The interview revealed lack of information about disease, treatment and nursing care. The participants expressed fear and worries about their forthcoming surgery, anesthesia, pain, methods of pain management, possible complications and their prevention as well as the future concerning their disease in general.

Conclusions. The participants lacked information

about treatment, nursing, anesthesia, rehabilitation, wound care and about the post-surgery period, thus it is possible to assume they feel anxiety. The participants did not receive enough information and they were not included into treatment and nursing processes. The information needs of the participants were different before and after surgery. The benefits of additional information might comprise increased patients' involvement in decision-making and their ability to cope with stressful circumstances during the diagnosis, operation, and post-operative phases, adaptation to a diet and a stoma. This might contribute to decrease in the patients' anxiety, relief, reduction in mood disturbances, and better communication with family members.

EUROPEAN INITIATIVES TO BUILD INNOVATIVE PHYSIOTHERAPY STUDY PROGRAMS IN UKRAINE

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KEYWORDS: Ukraine, rehabilitation, education

Introduction. In Ukraine, the profession of physical therapy (PT) did not exist until 2016 when it was first recognized. Since 2017, Ukraine began to provide educational programs for physiotherapy. PT services are not provided as part of the health care and rehabilitation system. The military conflict in Eastern Ukraine brought about a sudden increase in the need for qualified physical therapists.

Aim. Currently, there is major and immediate need for PT professionals and PT services in physical rehabilitation programs across the country; this project aims to develop innovative physiotherapy study programs in Ukraine in line with the recommendations of the WCPT-EU and ENPHE.

Materials and Methods. The CBHE granted project “Innovative Rehabilitation Education - Introduction of new master degree programs in Ukraine” (nr. 598938-EPP-1-2018-1-LV-EPPKA2-CBHE-JP) is coordinated by the Latvian Academy of Sport Education. Ukrainian partners are represented by the Sumy State University, Lviv State University of Physical Culture, Testing Board and National University of Physical Education and Sports of Ukraine and Ternopil State Medical University. EU partners are represented by Satakunta University of Applied Sciences (Finland), the European Federation of Adapted Physical Activity, the Lithuanian Sport University (Lithuania) and Jozef Pilsudski University of Physical Education (Poland).

Results and Conclusions. Development of rehabilitation services, particularly physical therapy, is a national priority in Ukraine. It is also in line with the European workforce structure in healthcare, as all EU countries recognize the profession of PT and protect the use of the licensure designation PT by law. This workshop presentation will include the project outcomes obtained through May 2019 and open discussion will be encouraged in the audience about PT study programs in countries represented at the 6th International Medical Science Pulse Conference in Opole.

MALE AWARENESS AND USE OF HOME SKIN CARE PRODUCTS

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KEYWORDS: cosmetology, men skin home care

Introduction. Caring for external appearance is considered the domain of women. The cosmetics market has been dominated by women's care products, which can be observed on store shelves and advertisements where the images of attractive, well-groomed women promoting a particular product or brand prevail. Although there are more and more home care products on the market aimed directly at men, they still constitute a significant minority. The offer of face care products for men is much narrower than for women and often includes basic products such as face wash gel, tonic and cream.

Aim. The aim of the work is to evaluate how men are taking care of their skin and what kind of cosmetic products are they using in everyday skin home care.

Material and methods. One hundred men aged 20-60 were asked to complete an anonymous questionnaire containing questions about, among others: Do you think that it properly cares for your skin? Can you customize your home care yourself in case of skin problems? What kind of skin toning products do you use? Do you use sunblock?

Results and conclusions. Surveys showed that among the surveyed men, 65% wondered or learned how to properly nurture their skin at home, and the remaining 35% of respondents did not show interest in the issue of proper home care. 73% of the men surveyed answered in the affirmative that home care has a real impact on the appearance and condition of the skin, 24% of the men surveyed do not know if skin care affects the skin and only 3% responded negatively. More than half of the men surveyed, i.e. 61%,

do not tone the skin. 40% of respondents admitted that they do not know what tonics are for. Only 18% of men surveyed use a tonic of which 12% declared using a non-alcoholic tonic and 6% a tonic with alcohol. Over the summer, 54% of respondents use filtered creams, 33% do not use them at all and 6% of respondents do not know what filter creams are. Only 7% regularly use creams with photo protection among the responding men. The survey showed that:

1. Most men do not know how to properly care for their skin at home and cannot adjust care in the event of skin problems.
2. Men do not have sufficient knowledge about the correct use, selection and operation of cosmetic products.
3. Men forget about the use of care products.

IMPACT OF LIFESTYLE-RELATED EXPOSURE TO AIR POLLUTION ON SPIROMETRY AND FENO RESULTS IN YOUNG MALES

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KEYWORDS: air pollution, physical activity, lifestyle, spirometry

Introduction. Smog is a phenomenon that negatively impacts the respiratory system.

Aim. The aim of the study was to determine whether exposure to air pollution, physical activity and lifestyle affect spirometry results and nitric oxide levels in exhaled air (FeNO) in young, healthy males.

Material and methods. A questionnaire was distributed to 39 males aged 18-27 years (22.8 ± 2.2). They were asked about how often they engage in sports, their preferred means of transport, time spent outside of buildings, place of residence and symptoms related to air pollution. Then, the same group was subjected to spirometry and FeNO tests.

Results. Smog is a problem in the place of their residence according to all participants. However, the analysis showed that neither place of residence (distance from busy roads) nor time spent inside/outside buildings were related to worse spirometry results in the studied group. No correlation was found between engaging in sports and symptoms caused by smog. People that engaged in sports regularly declared having better stamina ($p=0.01$) and displayed higher values of certain spirometry results in comparison to people not involved in sports (FEV1 4.77 vs 4.41l, PEF 10.66 vs 9.46l/s, $p=0.03$). Analysis of preferred means of transport has shown that those using pub-

lic transportation had lower spirometry result values in comparison to those utilizing other means of transportation (FEV1/FVC% 100 vs 105% of predicted value, $p=0.04$), while people commuting by bike had increased FeNO values (36.7 vs 27 ppb, $p=0.04$).

Conclusions. Lifestyle-related exposure to air pollution did not have a significant impact on spirometry and FeNO results in young healthy males; however, slight differences were observed between users of different methods of transportation.

PART II

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EVALUATION OF CERVICAL CANCER PREVENTION

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Purpose. Determination of the level of cervical cancer prevention knowledge in women living in urban areas and in women living in rural areas.

Material and methods. The research was carried out using a survey method, based on the completion of an author's questionnaire, using a group of one hundred and twenty-seven (100%) randomly selected women, of which 67 (52%) were women living in urban areas, while the other 60 respondents (48%) were women living in rural areas.

Results. Women most often visit gynaecological surgeries once a year 38% (n=48). Half of the respondents correctly defined a cytological 52% (n=66) and colposcopic 50% (n=64) examination. More than half

of the respondents did not know when it is necessary to do colposcopy 51% (n=65), and a cytological examination according to the respondents should be performed once a year 68% (n=86). Women had a basic knowledge of the human papillomavirus virus (HPV). Respondents knew the risk of HPV infection. Women correctly identified the risk factors for cervical cancer and its symptoms, but the level of correct answers was low. 79% of women would like to expand their knowledge, which 73% said they obtained from the Internet. Most women (80%) admitted that women do not have enough knowledge about cervical cancer.

Conclusions. The research has demonstrated a lack of knowledge in women relating to the field of cervi-

cal cancer. Regardless of the place of residence, female knowledge was low. Midwives should increase the education of their patients regarding cervical cancer prevention. The largest problem was with knowledge about colposcopy and HPV. In efforts to expand their knowledge, women did not go to a gynaecologist or a midwife, but most often used the Internet. The level of knowledge demonstrated relating to symptoms and risk factors for cervical cancer was also unsatisfactory. The majority of women declared a willingness to expand their existing knowledge. Doctors, midwives and the entire medical community should promote prophylactic examinations among patients so that in the future women will be increasingly less affected by cervical cancer.



GUILLAIN-BARRÉ SYNDROME – THE CHALLENGES OF CARE

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Purpose. Identifying the most important care problems of the patient. Developing an individual nursing care plan. Preparation of care recommendations for a hospitalized patient with Guillain-Barré syndrome.

Materials and methods. The research was based on the method of an individual using the nursing process. In order to analyze the care problems, the observations—the interview with the patient and the family of the man and the analysis of medical records—were used, which together allowed for the identification of nursing problems and formulation of a nursing diagnosis.

Results. Nursing problems identified in the case of the patient with Guillain-Barré syndrome were as followed: the risk of respiratory failure due to weakening of the respiratory muscles constituting a life-threatening condition, cardiovascular disorders, tissue hypoxia caused by retention of secretions, risk of aspiration pneumonia, and above all, patient's anxiety caused by the state of health and the threat to life.

Conclusions. A patient with Guillain-Barré syndrome is an example of how severe and specific this disease is. Problems that occurred systematically

resulted in his life being dependent on third parties. This example shows how important the speed of contact with a doctor is in treating this syndrome as the initial visible symptoms of this disease are usually not seen by the public as dangerous. Guillain-Barré syndrome is not only a physical disorder but also carries a high psychological burden for the patient and the patient's family.



EVALUATION OF THE BASIC MOVEMENT PATTERNS AMONG PHYSIOTHERAPY STUDENTS APPLYING THE FMS TEST

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Purpose. The aim of the study was to assess the condition of basic movement patterns among female students of the Department of Physiotherapy using the Functional Movement Screen (FMS) test.

Material and methods. Fifteen first-, second- and third-year students of the Faculty of Physiotherapy at the PMWSZ in Opole took part in the research. Qualified participants had to perform seven movement tests and two negative ones. There were three trials of each exercise, the best trial of which was evaluated. They were graded on a 0-3 scale by three scorers to provide objectivity. The maximum score possible was 21 points. A score above 17 qualified the

participant to the group with the correct movement pattern, a score between 15-17 qualified as the group with asymmetries and compensation patterns and a score below 15 qualified as the group with irregularities in movement patterns.

Results. During the exercise none of the subjects reported pain. The most asymmetry and difficulties in the proper performance of the exercise occurred during the test of push-ups (mean result of 2.15), and the participants most easily performed the mobility test of the shoulder girdle (average result obtained 2.95). The highest scores were obtained by the third-year students because none of the respond-

ents obtained a qualifying result for the group with irregularities in movement patterns. The worst result was in the first year, where four people obtained such a result. Among the second- and third-year students, the results were more uniform in comparison to the group of first-year students.

Conclusions. The highest regularity in movement patterns was noted in the third-year students of Physiotherapy and the lowest in the first-year students. Further research is planned to record changes to existing movement patterns.



ASSESSMENT OF THE INFLUENCE OF ELECTROSTIMULATION AND DEEP ELECTROMAGNETIC STIMULATION ON BIOELECTRICAL ACTIVITY OF PELVIC FLOOR MUSCLES – A CASE STUDY

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Purpose. Assessment of the influence of electrostimulation and deep electromagnetic stimulation supplemented by pelvic floor muscle (PFM) exercises on the bioelectric activity of these muscles was the objective of this research.

Material and methods. Two nulliparous women with no changes in urinary-genital tract in anamnesis qualified for the research. One of patients underwent endovaginal electrostimulation, the other underwent deep electromagnetic stimulation twice a week for a period of four weeks. In addition, during this time both women performed PFM training in accordance with the recommendations. Both before and

after four weeks of therapy, the bioelectric activity of PFMs was measured. Two types of measurements were made—with and without sight control.

Results. In both cases an increase in bioelectric activity of PFM was observed, both in contraction and relaxation during measurements with sight control in comparison to measurements without sight control. In addition, after four weeks of therapy, an increase in bioelectrical activity of PFMs during contraction and a decrease during relaxation was observed in first patient. The exceptions were the rear shallow muscles—a decrease in muscle tension during contraction was noted. In the case of the second woman, a

decrease in bioelectrical activity was observed in all groups of PFMs during contraction and relaxation after four weeks of therapy.

Conclusions. It has been observed that vaginal electrostimulation and deep electromagnetic stimulation, complemented by training, are physiotherapeutic methods that can affect the bioelectric activity of the PFMs. Due to the existence of many factors that may interfere with the observed results, further measurements should be performed on a larger group of women.



ASSESSMENT OF KNOWLEDGE ON THE PHYSIOTHERAPIST PROFESSION BASED ON RESPONSES OF POLISH AND UKRAINIAN MEDICAL SCHOOL STUDENTS

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Purpose. The aim of the study was to assess the differences in awareness of medical university students about the physiotherapist profession in Poland and Ukraine.

Materials and methods. 40 people from the 1st year of The Public Higher Medical Professional School in Opole, Department of Physiotherapy and 40 people from the 4th year of The Public Higher Medical Technical School in Czortków, Paramedic Studies were qualified to carry out the research. A questionnaire consisted of 16 questions (6 open and 10 closed), it included questions about the criteria for selecting a potential physiotherapist for the patient, the range of services provided, gender, education and earnings.

Results. All students of The Public Higher Medical Professional School in Opole are aware that only a master's degree authorizes the person to provide services as a physiotherapist, while 55% of students of The Public Higher Medical Technical School in Czortków selected that completion of the relevant course was necessary in and 45% selected post-secondary or technical school was necessary. The answers to the questions about seniority, gender and possible place of work of physiotherapists were similar. For the question regarding whether they have ever used the services of a physiotherapist, 58% of The Public Higher Medical Professional School in Opole students responded in the affirmative, while only 15%

of the students of The Public Higher Medical Technical School in Czortków did so. As for the selection of a potential physiotherapist, 80% of the Ukrainian group would suggest using a doctor's recommendation.

Conclusions. On the basis of the research, there were significant differences in the awareness of students of medical schools in Poland and Ukraine regarding the physiotherapy profession. It is assumed that the reason for these differences may be a low level of knowledge due to the lack of universality of physiotherapy as a separate medical profession.



AN ATTEMPT TO EVALUATE THE INFLUENCE OF ELECTROSTIMULATION ON MUSCLE DEPENDENCE AFTER A NEUROSURGICAL TREATMENT – A CASE REPORT

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Purpose. The aim of the project was to verify whether electrostimulation of spastic muscles after neurosurgery would contribute to the improvement of neuromuscular transmission.

Material and methods. A 60-year-old female with spasticity of the lower limbs resulting from a surgical removal of meningioma of the spinal canal at the level of the thoracic spine was qualified for the study. The patient underwent a 30-day therapy consisting of electrostimulation of the medium- and low-frequency currents of the muscles of both lower limbs. The patient was assessed for the mean relaxation time of the stimulated muscles before the surgery, 24 hours after the last treatment and three weeks

after the therapy in order to control the observed effects. To assess the analgesic effect of the therapy, an analog VAS pain assessment scale was used.

Results. There was an increase in the average relaxation time for all muscles subjected to electrostimulation. The muscles of the biceps femoris showed an increase of 33.3%, the gastrocnemius muscles of 66.7%, the tibialis anterior muscle of the lower left limb of 80%, and the right lower limb of 77.8%. Before electrostimulation, in the case of quadriceps femoris muscles, no state of relaxation was observed, which could be observed after the end of the treatments. The number of important relaxations was also analyzed, which increased in quadriceps femo-

ris muscles, the tibialis anterior muscle of the lower left limb and the gastrocnemius muscle of the lower right limb. However, the amount of important relaxation of other muscles remained unchanged. In addition, the therapy helped to reduce the patient's pain.

Conclusions. Based on the collective results, it was observed that the electrostimulation of spastic muscles after neurosurgical treatment might contribute to the improvement of the nerve conduction of most spastic muscles. The effect of therapy can also be analgesic. Research should be carried out on a larger group of people to confirm observations.



TOBACCO PRODUCTS AND E-CIGARETTES – COMPARATIVE ANALYSIS OF SPIROMETRY TESTING

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Purpose. The aim of the study was to compare the results of spirometric tests in people who smoked traditional cigarettes and those who smoked e-cigarettes.

Material and methods. The study involved 45 people in the 20-30 age group. The subjects were assigned to three equal comparative groups: those who smoked traditional cigarettes, smoked e-cigarettes and non-smokers. In each group a spirometry test was performed using the SPIROBANK II ADVANCED spirometer. The measurements were taken before and after the 12-minute walk test.

Results. In each group, three spirometric indicators were evaluated: FEV1, FVC and FEV1/VC. In the case of the first two indicators in all comparative groups, a similar value was obtained. However, the lowest FEV1/VC index was observed in the group smoking traditional cigarettes. A group of e-cigarette smokers obtained results 11.9% higher as compared to the group smoking cigarettes, and in the non-smoking group the results were higher by 13.5%. Comparative analysis of the results obtained before and after physical exertion showed a decrease in each group by approximately 5% for the FVC indicator. FEV1 and

FEV1/VC indicators fell in the group of e-cigarette smokers by about 11%, and in the other two groups by about 6%. The non-smoking group obtained the best results for the walking test; however, the differences are not significant in relation to both groups of smokers.

Conclusions. Based on the collected results, it was observed that smoking traditional cigarettes and e-cigarettes does not significantly affect the results of spirometric testing and the tolerance of physical exercise by the body. In the future, further research is planned in this direction.



EVALUATION OF COGNITIVE PROCESSES IN OLDER PEOPLE USING THE CLOCK DRAWING TEST

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Purpose. The aim of the study was to evaluate cognitive processes of elderly people—residents of a social welfare home, and people living in their home environment—students of the University of the Third Age (U3A).

Material and methods. 99 residents of the Social Welfare Home in Skrzynno and 62 students of the University of the Third Age in Opole were examined. The subjects were aged 65-85 years. To study cognitive functions, the clock drawing test was used. Sunderland criteria were used to assess performance on the test (a 10-point score, where 10 is the best and means no errors, and 1 is the weakest).

Results. The analysis of the results of the clock drawing test allowed for the evaluation of cognitive functions among social welfare home residents and U3A students. In the group of social welfare home residents, 44.44% of the respondents achieved a score of 6-10 points, denoting drawings that are basically correct. 55.56% of the respondents achieved a score of 1-5 points, denoting incorrect drawings. In the group of U3A students, 77.42% of the respondents obtained a score of 6-10 points and a result in the range of 1-5 points was achieved by 22.58% respondents. It was statistically significant that better cognitive skills were found in the U3A group ($7.56 \pm$

3.04) in comparison with the social welfare home group (4.33 ± 3.35).

Conclusions. There was a difference in cognitive processes between social welfare home residents and people living in the home environment—U3A students. The students of the U3A had better cognitive skills. Results obtained in the range of 1-5 points suggested the possibility of dementia syndrome and the need for further accurate psychological diagnosis.



HISTONE H3 MODIFICATIONS OF REGULATORY T CELLS UNDER EXPANSION

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Purpose. Influence of stimulation on histone H3 modification of regulatory T cells (CD4+CD25+CD127-).

Materials and methods. Peripheral blood mononuclear cells (PBMCs) were isolated from human buffy coats obtained from anonymous healthy donors (Regional Blood Bank in Gdańsk). CD4+ cells were isolated by negative immunomagnetic selection (StemCell Technologies) and labelled with antibodies. Then regulatory T cells (Tregs) were sorted (Aria

IIu, BD Bioscience) with the following phenotype: CD3+CD4+CD25+CD127- and cultured with expansion stimulators or left unstimulated. After 7 days of culture, Tregs were harvested and frozen in -80°C. Next, histones were isolated and histone H3 modifications marked (Histone H3 Modification Multiplex Assay Kit, Abcam).

Results. We observed that stimulated Treg had a higher percentage of H3K4me1 modification, which

plays a major role in Treg development. Those types of cells had the highest level of lysine 9, 14, 18, 56 acetylation. This modification contributes to the shifting of transcriptionally inactive heterochromatin into euchromatin. The lowest percent of H3 modification was H3ser28P.

Conclusions. Tregs stimulated for proliferation reveal post-translational modifications, which may impact their activity.

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DIFFERENCES IN LENGTH AND BIOELECTRICAL ACTIVITY OF SCIATIC MUSCLES USING DIFFERENT TYPES OF STRETCHING

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Purpose. The aim of the research was to analyze differences in length and static bioelectrical activity of sciatic muscles after using different types of stretching.

Material and methods. Participants taking part in the research were assigned to three research groups randomly. In each group, a few measurements before and after therapy were taken: the range of flexion in hip joint using goniometer, static bioelectrical activity of biceps femoris using sEMG, and fingers-floor test. Then, participants were subjected to, in the first group—therapy based on post-isometric relaxation of muscles (PIR), in the second group—rolling using

roller Blackroll®, and participants in third group had static stretching performed.

Results. Each of the selected stretching techniques had an effect on muscle length and also on their static bioelectrical activity. After testing 45 participants, the following results were observed. The best effects in fingers-floor test were noticed in the rolling group. PIR was less effective, while static stretching was least effective compared to other forms of therapy. The biggest difference in increase of range of flexion in the hip joint was observed in group I, then group III and group II. In the rolling group, the biggest magnification on static bioelectrical activ-

ity of biceps femoris was recorded. PIR also slightly increased this parameter. Static stretching led to decreased bioelectrical activity of tested muscles, comparing to results before therapy.

Conclusions. In summary, each of the selected stretching techniques had effect on selected parameters of sciatic muscles. In terms of increase of the length of muscles and range of flexion in the hip joint, the most effective turned out to be rolling, in which case we noticed concomitant magnification of static bioelectrical activity of muscles. Depending on the type of desired effect, different techniques of stretching of sciatic muscles should be considered.



ALPACOTHERAPY AS A PART OF SUPPORTIVE THERAPY

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Purpose. The aim of the study is to expand knowledge about the influence of alpacotherapy on patients participating in it.

Material and methods. A diagnostic survey with a questionnaire technique was used, employing an original questionnaire consisting of a record section and nine questions. The target group was people taking part in alpacotherapy. 78 people responded: 30 men (38.5% of respondents) and 48 women (61.5% of respondents).

Results. 70.5% of participants were people under the age of 18 and 29.5% were adults. Each participant in alpacotherapy participates for at least two months with a frequency of not less than once a week. The most frequent reasons why respondents take part in alpacotherapy are: autism, depression, anxiety, disorders and communication problems and permanent stress. 100% of respondents recommended this type of therapy.

Conclusions. Therapy using alpacas brings the participants results in the form of peace, easier relationships with other people, learning how to care of someone and care itself. It is a well-proven form of supplementing conventional therapies and a way to deal with stress in a natural way. Alpacotherapy can be successfully recommended to people with disorders in both the behavioral, emotional and developmental areas.



THE RELATIONSHIP BETWEEN TATTOO AND COMPENSATIONS IN THE MYOFASCIAL SYSTEM – CASUISTIC WORK

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Purpose. The aim of the study was to the hypothesis that a tattoo and the therapy performed in its area will lead to compensation in the myofascial system.

Materials and Methods. A 22-year-old woman was qualified for the examination. The subject had a tattoo on the left side of the 7 to 10 ribs. The area of the tattoo had been mobilized twice. The mobilization movement was carried out in an easier direction. The left body side muscles' electromyographic examination was performed: m. tensor fasciae latae, m. obliquus externus abdominis, m. serratus anterior, m. latissimus dorsi, m. trapezius, m. biceps brachii and m. obliquus externus abdominis on the right

side. The measurements were made using EMG Myo-Plus2Pro with self-adhesive electrodes, arranged in accordance with the SENIAM protocol. A Bunnell scoliometer was used to assess the spine curvature in the thoracic region. Then measurements of the inspiratory and expiratory chest circumferences were measured by centimeter tape through points XI and THS. The measurement was read with an accuracy of 1 millimeter. All measurements were repeated before the tattoo, before each treatment, immediately after and within 24 hours after mobilization.

Results. The research has shown that tattooing can increase the bioelectric potential of muscles. Perform-

ing therapy at the tattoo site normalizes the changes and leads to balance in muscle tension. The tattoo also influenced the Cobb angle, which during therapy decreased by 34% and stabilized. Differences were also noticed in the mobility of the chest, which after the tattoo was reduced and during therapy returned to its initial state.

Conclusions. Based on the research, it can be concluded that a tattoo itself can be the underlying cause of compensation and lead to a worsening of already existing defects of posture.



ANALYSIS OF THE LEVEL OF SELF-AWARENESS, KNOWLEDGE OF THE JOB MARKET AND ESTIMATED EARNINGS AFTER GRADUATION OF STUDENTS OF THE DEPARTMENT OF PHYSIOTHERAPY OF THE PUBLIC HIGHER MEDICAL PROFESSIONAL SCHOOL IN OPOLE

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Purpose. The aim of the study was to analyze the survey on employment prospects after graduation, planned earnings, career paths and future patient preferences among students of the Department of The Public Higher Medical Professional School in Opole.

Material and methods. The research group consisted of students in their first and second year of uniform master's studies and students in their third year of bachelor studies at the Department of The Public Higher Medical Professional School in Opole. In three research groups of at least 50 people, a survey of 15 questions was distributed. The questions included in the questionnaire concerned, among other things, the assessment of the students' prepa-

ration for future work, the purposefulness of practical classes, the assumed earnings immediately after graduation and after 10 years in the profession and planned career development paths.

Results. Most first-year students of uniform master's studies assess preparation for the future profession in a satisfactory way (76%). In the group of second-year students, it was found that the University prepares them satisfactorily in 46% of cases. Among students of the third year of bachelor studies, this same satisfactory response was given by 55%. For the question regarding planned earnings after working for 10 years in the profession, 4% of respondents of the 1st year of the SS answered PLN 1,500-2,500

net. The same answer was given by 10% of second-year students and only 2% of students of the third year of bachelor studies. For the question about work after graduation, the two most frequently marked answers among the respondents were their willingness to cooperate with children and with athletes.

Conclusions. Based on the obtained results we concluded that along with acquired knowledge students' expectations after finishing high school change. The assessment showed that preparedness for the profession of physiotherapy changed over the school years examined.



PARENTS AS FIRST ASSISTANCE FOR THE NEWBORN CHILD

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Purpose. To determine the level of knowledge of newborn parents on the subject of first aid to the child in the first month of his or her life. Determining the level of knowledge passed to parents by health care workers on the subject of giving first aid to newborns. Understanding parents' level of knowledge about first aid among people with one child and more.

Material and methods. The research was conducted using a survey method, based on the completion of the author's questionnaire, on a group of one hundred (100%) persons—parents of newborns in maternity wards of hospitals in the Opolskie Voivodeship.

Results. Among the respondents, 40% (40 people) of people had contact with a midwife before giving birth, of which only 40% (16 people) of the respondents mentioned the topic of first aid. Respondents regarded the form of lectures as the least effective presentation of knowledge about first aid (80% = 13 people). The group that provided a larger percentage of correct answers (71%) was parents with one child and people with more than one child provided 64% correct answers; however, these were not significant differences. In turn, significant variation can be seen among people attending first aid classes

(67% correct answers) in relation to people who do not attend classes in the field of first aid for a newborn (46% correct answers).

Conclusions. The level of parents' knowledge on the subject of giving first aid to a newborn is very low. In classes with health care representatives, the topic of first aid is not discussed or the level is not satisfactory. The respondents did not distinguish between the principles of providing first aid to the newborn and the adult person. First aid classes increased parents' knowledge about first aid.



AN EVALUATION OF MEDICAL SIMULATION TRAINING FOR NURSES

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Introduction. Usually when we are patients of a hospital or simply visiting, we do not consider how much experience nurses and doctors working in this institution have. They owe their precise work to many hours of intense learning and practice, with additional fidelity gained through simulators.

Purpose. To learn the opinion of medical personnel in Poland regarding the issue of medical simulation learning.

Material and methods. The research was carried out in April 2019, using the method of a diagnostic survey that employed an original questionnaire consisting of nine questions and a questionnaire. The group of 85 respondents comprised of nurses and students of medical faculties.

Results. As many as 64.4% (53 people) of respondents would be interested in participating in medical simulation classes, while only 47.6% (40 people) had the opportunity to be in a medical simulation lab. Unfortunately, in 44.6% (43 people) of cases, access to the medical simulation lab is difficult. In terms of the usefulness of students' classes at the medical simulation laboratories, the responses were contradictory: some consider these classes interesting and very necessary in learning a practical profession, while others argued that learning a profession on a phantom is not a good form of instruction.

Conclusions.

1. More than half of the respondents had not taken with medical simulation classes.
2. According to the surveyed group, medical simulation will help to significantly improve the precision, speed and accuracy of decisions made in work with the patient.
3. Medical simulation is a good method to become well-trained during stressful situations and sudden changes affecting a patient's health.
4. According to the respondents, there is a fear that the medical simulation classes will not prepare students to communicate properly with the patient and will create a barrier among them to perform practical activities in a clinical setting.



MOST WANTED: WOMEN'S KNOWLEDGE OF THE PUERPERIUM - HAS ANYONE HEARD, DOES ANYONE KNOW?

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Purpose. The aim of our study was to examine basic and current information about the puerperium among women.

Materials and Methods. The method employed was evaluation of answers received from an online questionnaire. Our questionnaire collected information on socio-demographic data and health-related issues concerning the puerperium from 3,349 women. The data was analysed using the Excel and Statistica. Data was analysed with a non-parametric statistic, the chi-square test.

Results. In this study population of women with primary, vocational and secondary education 10.15%

(340 women) responded correctly. In the group of women with the Higher Education the correct response was provided by 15.97% (534 women). The research showed that for the study population the main source of knowledge about the puerperium was the Internet; in this group incorrect responses were given by 7.93% (266 women) of respondents, while in the group whose main source of knowledge was medical personnel the result was incorrect for only 2.68% (90 women) of respondents. Among the examined population of women who had given birth in the past, 2.66% (89 women) provided an incorrect response, and incorrect answers were given by 13.53% (453 women) of pregnant women and 18.30% (612

women) of nulliparous women. The average score for puerperium knowledge in the studied population was 61% (16 points) and the dominant data source was still the Internet—44.8% (1,500 women). The variable “birthing in the past” had a statistically significant impact (<0.05) for most (23) questions.

Conclusions. Knowledge of the puerperium among women is still deficient despite the relatively easy access to various sources of information. Knowledge of the postpartum period depends on many factors such as the education, sources of knowledge, age and previous childbirths. The results also indicate that this topic needs to be communicated by gynaecologists and midwives, as reliable sources of information.



ASSESSMENT OF MEDICAL SIMULATION KNOWLEDGE AMONG STUDENTS OF NURSING AND MIDWIFERY

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Purpose. The aim of the study was to evaluate medical simulation knowledge among students of nursing and midwifery.

Material and methods. As part of the research work, data were collected through a diagnostic survey using a survey technique. The author's own questionnaire was used. The research was conducted at the Public Higher Medical Professional School of Opole in April 2019. Respondents were students completing nursing and midwifery undergraduate studies. The study involved 214 people.

Results. The concept of medical simulation had been encountered by 98.6% (n=211) of students.

Among the respondents, 78.5% (n=168) took part in classes using medical simulation techniques. 79.9% (n=171) of respondents did not associate medical simulation only with emergency management. The concept of debriefing was familiar to 56.5% (n=121) of people. According to 95.3% (n=204) of respondents, medical simulation provides objective information about the mistakes made. For 96.7% (n=207) of students, responses indicated that classes using medical simulation techniques should take place before the first contact with the patient. 54.2% (n=116) of the students were in favor of replacing writing their bachelor's thesis with a diploma examination in simulated conditions.

Conclusions. Most of the students had encountered the concept of medical simulation. Students' knowledge of medical simulation was at a satisfactory level, but only slightly more than half of the respondents knew what debriefing was. The vast majority of students consider medical simulation to be a very good didactic method, looking through the prism of communication and professional development, despite the very small number of classes with the use of simulation. The diploma examination in simulated conditions should be considered as an alternative to the written bachelor's thesis.



TROPHIC ULCERATION OF CALVES – A CASE DESCRIPTION

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Purpose. Identification of the patient's care problems with trophic ulceration of calves and development of an individual care plan.

Material and methods. The study was conducted during the period from August 1, 2017 to January 1, 2018 and included a patient with the trophic ulceration of the calves. The individual case method was

used with the nursing process. The material for the work was collected by means of an interview, observation, and analysis of medical documentation.

Results. The patient's care problems are: independent functioning, difficulties in movement, urinary incontinence, constipation, bad mood, eating difficulties, anxiety, discomfort, and risk of wound infection.

Conclusions. Individual research by the author showed that ulceration of the lower limbs is a chronic wound, which is difficult to heal. Early and accurate diagnosis would significantly improve wound healing or even prevent wound occurrence.



DIAGNOSIS OF INTENSITY OF DEPRESSION AMONG ELDERLY PEOPLE LIVING IN AN ELDERLY HOME AND SENIOR MATURE STUDENTS

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Purpose. The aim of the study was to diagnosis the intensity of depression among elderly people living in an elderly home and senior mature students.

Materials and Methods. The research involved 62 seniors studying at the Third Age University in Opole and 99 residents of the elderly home in Skrzynno. The elderly were aged 60 and over, and verbal contact was obtained. The research tool employed was the Short Form of the Geriatric Depression Scale (GDS).

Results. In the group of residents living in the elderly home no depression (0-5 points) was identified in

38.77% of the elderly, in 45.92% a moderate depression (6-10 points) was found and in 15.31% heavy depression (11-15 points). In the group of the senior mature students no depression was revealed in 83.87%, moderate depression in 14.52% and heavy depression in 1.61%. There was a statistically lower risk of depression in the group of senior mature students (3.03 ± 2.8 pkt.) in comparison with the group of residents of the elderly home (6.67 ± 3.6 pkt.). There was a significant correlation between the place of living and the state of depression

($R_s = -0.46$, $p = 0.000$, where the important correlation appears when $p < 0.05$).

Conclusions. An essential difference was found to occur for depression symptoms between people living in elderly homes and living in their own homes—senior mature students. Residents of the elderly homes demonstrated a higher intensity of depression symptoms. The research reveals the necessity for a precise psychological diagnosis among residents of the elderly home and, in the case of confirmation of diagnosis, taking up therapeutic measures.



DYNAMICS OF HEART RHYTHM VARIABILITY IN STUDENTS WITH VARIOUS BLOOD GROUPS

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Purpose. To study the dynamics of cardiac rhythm variability among medical students with different blood groups by ABO and (Rh) systems.

Material and methods. To achieve the goal, 96 medical students aged 20-22 years were examined. Blood groups were determined using “dry” monoclonal reagents for express typing of ABO/Rh “Eldoncard” (Denmark). The balance of autonomous regulation of visceral functions was evaluated according to the variability of the heart rhythm. The examination was made by a Polly-Spectrum.NET (Neuro-soft, Ukraine)

apparatus. The sympato-vagal balance coefficients (LF/HF), stress index (SI), and the initial vegetative tone were determined.

Results. The study results found I (0) type blood group in 29% of the examined students, II (A) in 46%, III (B) in 20% and IV (AB) in 5%. Rh (+) - positive blood was found in 66% of students. In the students with I (0) and III (B) blood groups, the sympathetic aspects of autonomous regulation dominated, which was confirmed by higher values of AMO (36-49%, $p < 0.05$), LF (85%, factor of $\times 1.5$, $p < 0.05$), LF/HF (fac-

tor of $\times 1.3-2.4$ times, $p < 0.05$) and a decrease of HF (35-49 %, $p < 0.05$) in the students with II (A) and IV (AB) blood types. The advantage of the parasympathetic part of the autonomous nervous system in medical students with II (A) and IV (AB) blood groups was confirmed by a significant reduction in the sympathetic-vagal balance of the cardiointervalogram.

Conclusions. Consequently, the examined medical students with I (0) and III (B) groups had sympatheticotonia, and those with II (A) and IV (AB) blood groups had the advantage of vagotonia.



CHANGES OF INTRAGASTRAL PH IN PATIENTS WITH CRANIOCEREBRAL TRAUMA

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Purpose. The incidence of craniocerebral trauma remains constantly high. One of important indicators in such patients is the level of intragastric pH, because a long-term acidic stomach environment in victims with craniocerebral trauma (CCT) creates a favourable background for emergence of stress erosions and ulcers that threaten bleeding. The highest priority for prophylaxis are proton pump inhibitors.

Material and methods. Measurements of intragastric pH in 22 patients with the same type of CCT on the first day after ingestion were made. A monitor system «24h pH monitor g1-1» (Ukraine) was used.

Results. It was established that at the beginning of monitoring, the level of intragastric pH was 2.16 ± 0.11 . This very acidic environment in the stomach potentially threatened not only the destruction of the mucous membrane but also micro-aspirations and the development of pulmonary complications. Continuous measurement of intragastric pH over the next 4 hours showed no statistically significant changes. Therefore, 40 mg pantoprazole (Pangastrol, Sandoz) was injected intravenously, bolus to all patients. After 18 ± 3 min a steady-state increase in intragastric pH, which reached the level of 5.46 ± 0.21 in 86% of patients, was noted. For 81% of victims,

values close to the level of intragastric pH 5.5 were maintained at the end of the first day of the monitoring, which confirmed the adequacy of a preventive dose of pantoprazole 40 mg/day. In terms of maintenance of a normocytic state, we have noted the potentiating effect of intragastric introduction of alkaline mineral water.

Conclusions. Patients with CCT have a high risk of stress injuries to the gastric mucous membrane. Preventive use of pantoprazole and early onset of nutrition can minimize the development of severe complications.



FEATURES OF BLOOD LIPID SPECTRUM IN RATS WITH THYROID HYPOFUNCTION ON THE BACKGROUND OF MICROELEMENTS DEFICIENCY

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Purpose. To study features of blood lipid spectrum in rats with thyroid hypofunction on background of microelements deficiency.

Material and methods. The research was carried out on 20 rats, which were divided into two experimental groups (10 animals): with thyroid hypofunction (TH) on the background of iodine deficiency (1st) and with TH on the background of a combined iodine and copper deficit (2nd). The control group consisted of 10 intact rats. TH was modeled by keeping animals on an iodine-deficient diet for 45 days. Copper deficiency was obtained by adding d-penicillamine to drinking water (100 mg/100 g body weight) from

day 25 to day 45 of the experiment. Thyroid status was evaluated by determination of thyroid stimulating hormone, free triiodothyronine and thyroxine in blood serum. The lipid spectrum of blood was examined by determining the content of total cholesterol (TC), triglycerides (TG), high-density lipoproteins (HDLs), low-density lipoproteins (LDLs) and very-low-density lipoproteins (VLDLs) with the following calculation of atherogenic index (AI).

Results. TH on the background of microelements deficiency led to changes of blood lipid spectrum. In particular, in animals of the 2nd group, an increase in the level of TC of 32.1% ($p_{1-2} < 0.05$) with a simu-

ltaneous decrease in content of HDLs by 41.12% ($p_{1-2} < 0.05$) compared with similar indices in rats with iodine deficiency was observed. The results were confirmed by an increase of AI in rats with microelementosis by 36.68% ($p_{1-2} < 0.05$) compared to data in animals of the 1st group.

Conclusions. Copper deficiency increases the risk of atherosclerotic changes in the vascular wall and the development of tissue ischemia that can potentiate the negative influence of TH, primarily on the functional capacity of the cardiovascular system.



OPINIONS AND KNOWLEDGE OF SENIOR RESIDENTS ON SELECTED GERIATRIC HEALTH PROBLEMS

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Aim. The aim of the study was to obtain information on the opinions and knowledge of seniors on selected geriatric problems.

Material and methods. The study involved 50 senior residents aged from 68 to 84 years. Respondents were looked after by day care centres in Opole. Women constituted 88% of respondents, men 12%. In the study, the method of diagnostic survey was used, in which the questionnaire technique was adopted. Selection of the study sample was purposeful. The empirical material was collected using a questionnaire of our own design. The obtained empirical

results were subjected to statistical analysis in the Statistica 1.3 programme.

Results. Empirical results showed that the highest percentage of senior respondents (59%) indicated that the ageing process starts after 60 years of age. The most common problem occurring in old age, according to the respondents, was incontinence of urine (18.80%), which was considered an embarrassing problem by the respondents. Subsequently, they reported sight impairment (18.80%) and falls and imbalances, 17.29% of respondents. For the treatment of incontinence, the largest group of seniors, 29.03%,

indicated pharmacological treatment. For the subjects, the prevention of falls consisted of mounting handles to the bathtub—13.57%, avoiding sudden movements—20.34% and performing exercises to strengthen muscles—15.82%. Respondents showed a low and medium level of knowledge on the prevention and treatment of selected geriatric problems.

Conclusions. In solving geriatric health problems, it is important to obtain information on the opinions and knowledge of senior residents concerning a given disorder. The results of the study can be used to plan healthcare education by a nurse.



QUALITY OF LIFE OF SENIOR RESIDENTS USING DAY CARE CENTRES

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Introduction. Ageing has an impact of limiting a person's independence in satisfying individual needs, which increases the demand for nursing care in the social and domestic environment.

Aim. The aim of the study was to assess the quality of life of senior residents using day care centres.

Material and methods. The study was conducted among senior residents using the care and support of day care centres in Opole. The study group consisted of 50 people aged from 68 to 84 years. The vast majority of respondents were women (88%), 12% men. In the study, the method of a diagnostic survey and a questionnaire technique were used. The empirical material was collected using a stand-

ardized WHOQOL AGE scale research tool. Data concerning selected social and demographic variables were obtained from a questionnaire of our own design. The selection of the sample for the study was purposeful. The results were subjected to statistical analysis in the Statistica 1.3 programme.

Results. The group of senior residents surveyed assessed their quality of life as a whole at a level of 49.40 points (SD = 8.53) On a scale of satisfaction, the mean value of the quality of life was 56.33 points (SD = 10.24). In the second part of the study tool, on the scale of meeting expectations, respondents rated their quality of life lower, with a mean value of 42.46 (SD = 9.29). Statistical analysis with the Spearman rho test confirmed the relationship between living

alone and participation in classes $R = 0.326$, $p < 0.05$ and between the incidence of diseases and participation in classes $R = 0.327$, $p < 0.05$, the correlation was positive. A negative minor correlation was found between the age of the respondents and the subscale of meeting the expectations $R = -0.220$, $p < 0.05$ and between living alone and the scale of quality of life as a whole $R = -0.308$, $p < 0.05$.

Conclusions. The majority people who use day care centres were lonely and suffered from various medical conditions. In order to provide full care for senior residents, it would be advisable to employ a nurse in a day care centre, which would make it possible to improve their quality of life.



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