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Journal of Biomedical and Clinical Research

Vol. 16, No. 2, Suppl. 1, 2023

MEDICAL UNIVERSITY – PLEVEN, BULGARIA



**TWENTY-FIRST NATIONAL SCIENTIFIC
SESSION FOR STUDENTS AND TEACHERS**

WITH A VISION TO THE FUTURE

**Dedicated to the 75th anniversary of the establishment of the
Medical College at the MU – Plevan**

October 27-28, 2023

Medical College at Medical University – Plevan

ABSTRACTS

Journal of Biomedical and Clinical Research

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***Dear colleagues,
Dear guests, lecturers and students,***

It is my great honour and pleasure to welcome to the Medical University – Pleven all participants in the XXI National Scientific Session for students and lecturers of the Medical College - Pleven under the motto “With a vision towards the future”. We firmly believe that the future belongs to people with a vision. Our efforts are aimed at creating the best possible conditions for the personal development of students through the accumulation of fundamental, key competencies

and abilities for a successful professional career.

The annual National Scientific Session held this year marks an anniversary, with lecturers, students and graduates of the Medical College - Pleven celebrating 75 years since the establishment of the city’s first medical school. It is a great honour and pride for the academic community that today the Medical College in the city of Pleven is an integral part of the structure of the Medical University. It is through the work and dedication of generations of lecturers and administrators, who preserved and continued the traditions of medical education in our country, that today Medical College - Pleven enjoys a well-deserved reputation, recognition and respect. Medical College - Pleven, which is part of the structure of the university, with its highly-qualified academic staff contributes immensely to the fulfilment of the mission to which we have dedicated ourselves – training highly competent, well-learned, qualified specialists in the professional fields of medicine, pharmacy, health and social care. These professional and academic fields require constant development and training to achieve high professional standards on both national and international levels.

The already well-established annual National Scientific Session for students and lecturers is an integral part of the continuous academic pursuit at MU-Pleven, providing a platform for the exchange of valuable ideas, knowledge and experience.

I implore all participants to nurture their academic spirit, optimism and creative energy to achieve both personal and professional success!

**PROF. DOBROMIR DIMITROV, MD, D.M.
RECTOR
MEDICAL UNIVERSITY - PLEVEN**



Participants in the Twenty-first national scientific session for students and lecturers, organized by the Medical College at Medical University – Pleven.

This year, the National Scientific Session is dedicated to the 75th anniversary of the founding of Medical College – Pleven. Medical College – Pleven is the successor to the first medical educational institution in the city which was established in 1948 and trained the first nurses in the region. In the following years, new specialties were successively established: Nursing - paediatric profile, Medical laboratory technician, Rehabilitation specialist, Midwifery, X-ray laboratory technician, Social activities, Assistant pharmacist and

Medical cosmetologist. Since the beginning of 1997, Medical College - Pleven has been part of the structure of the Medical University - Pleven.

During these 75 years, Pleven Medical College has become one of the most respected educational institutions in the country. Thanks to the innovative spirit and drive of the academic leadership, Medical University - Pleven has solidified the standing of the Medical College as an authoritative and attractive educational institution. Our mission is to prepare young and ambitious medical professionals to become the future of healthcare. In these 75 years, a decently long period, more than 11,000 students have graduated from the college.

For the 21st time, students and lecturers from across the country are gathered here at our alma mater to discuss the results of collaborative research by faculty and students, doctoral students, and their supervisors. In this Jubilee year, it is not by chance that our motto is “With a vision for the future”, because those who have a clear vision of what needs to happen reach success faster and easier. Medical College – Pleven’s team has a clear vision of what it aims to achieve, with the clarity of the professional goals being largely due to the ambitious individual aspirations each of us has set for ourselves.

This scientific forum is part of an established tradition over the years for both the lecturers and students at Medical College - Pleven and the other main structural units of Medical University – Pleven. The tradition entails meeting colleagues from the rest country, exchanging experiences and debating the problems and innovations in the various thematic areas.

The purpose of the upcoming Scientific Session is to discuss the current trends in the development of public health, social and health care while looking for innovative approaches and the technologies that would facilitate their application in both theory and practice.

Let me once again welcome you to our city and the Medical College at Medical University – Pleven.

I wish all participants in the session successful and fruitful work, a lot of creative spirit and many professional successes in the future.

PROF. DR. NIKOLAY KOLEV, MD
DIRECTOR OF MC AT MU – PLEVEN

MEDICAL-DIAGNOSTIC ACTIVITIES

GLOMUS COCCYGEUM - ANATOMICAL OVERVIEW. DIAGNOSTIC AND THERAPEUTIC SIGNIFICANS

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Introduction

Glomus body is a microanatomical structure which is most commonly found in the reticular dermis of the distal extremities, notably in the nail bed, fingertip and palm. It is a specialized arteriovenous anastomosis, which is involved in thermal and blood flow regulation. One unusual location where glomus bodies have been identified is the lumbosacral and pericoccygeal region, the so-called glomus coccygeus. In humans, glomus coccygeus was described in 1860 by Luschka. Since the initial identification of this anatomical structure, it has been referred to by various names due to its various supposed functions. It is present at the tip of the coccyx and its location may vary relative to its identification on individual fused caudal vertebrae.

It corresponds to a complex anastomosis between the median sacral artery and vein. Each glomus body consists of several afferent arterial segments branching into pre-glomus arterioles, which continue as anastomoses, opening into the venous part of the circulatory bed. These anastomoses with an irregular lumen, are known as the Sucquet-Hoyer canals. They are surrounded by epithelioid glomus cells, all of which lie within a fibrous stroma containing sympathetic nerve fibers. Glomus cells are thought to be derived from modified smooth muscle cells. These characteristics determine their nutritional function and the above-mentioned thermoregulatory one. Several

subtypes of glomus coccygeum are described on light microscopic preparations: “glomus cell nodule-dominant type”, “intermediate mixed type” (nodular and vascular) and “vascular-dominant type with scattered individual glomic cells”.

This specialized arteriovenous anastomosis is considered as a non-pathological vestigial structure, because the genetic structures making it up rarely show a tendency towards malignant changes such as hyperplastic and neoplastic proliferation. The glomus cell formation is usually larger than its equivalent in the distal extremities. Its prevalence is uncertain. Although no malignant differentiation of the structure is observed, glomus coccygeum often mimics a glomus tumor, the object of attention of pathologists and surgeons. Glomus coccygeum has been also associated with coccygodynia, a painful syndrome affecting the coccygeal region, and causes diagnostic problems to pathologists unfamiliar with this entity.

Key words: *glomus coccygeus, Sucquet-Hoyer canals, glomus tumor, coccygodynia*

EPIDEMIOLOGICAL STRUCTURE OF HOSPITAL PATIENTS WITH LIVER CIRRHOSIS

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Introduction

Increase in the number of cases with alcoholic etiology is probably due to poor socioeconomic living conditions and lack of effective prevention at a younger age. Decrease in the incidence of posthepatic cirrhosis probably related to an effectively developed vaccination program for Hepatitis B and available effective treatment. Cases of liver cirrhosis worldwide show a continuous upward trend. The rising global death rate by 2019 has reached 1.5 million with

2.1 million new cases reported. Globally, cases of Hepatitis B have decreased worldwide, while those of Hepatitis C have shown a tendency to increase, with a pronounced uneven distribution in different regions of the world. An alarming global trend related to the increasing incidence of alcohol-related disease has also been reported, which becomes a major etiological factor for Europe and America.

Objective

To analyze and evaluate the current epidemiological profile of patients with liver cirrhosis, examining their demographic characteristics and their relationship with gender, age and etiology.

Material and methods

Retrospective study covering the period from 2017 to 2021, including a total of 361 cases with newly diagnosed liver cirrhosis, regardless of the etiological factor, hospitalized in the Gastroenterology Clinic at UMBAL Pleven EAD. The results were processed statistically with SPSS 26 and Excel statistics.

Results

A leading male gender, an active age over 40 years of age, alcohol as the dominant etiology and a significant reduction in cases of posthepatic cirrhosis were found.

Conclusion

A significant increase in the number of cases with alcoholic etiology is probably due to poor socioeconomic living conditions and lack of effective prevention at a younger age. Decrease in the incidence of posthepatic cirrhosis probably related to an effectively developed vaccination program for Hepatitis B and available effective treatment for Hepatitis B and C. Relatively high incidence of cases of uncertain etiology and insufficient study of the role of nonalcoholic steatohepatitis in our patients.

Key words: *liver cirrhosis, epidemiology, etiology, age, sex*

DEMOGRAPHIC CHARACTERISTICS OF HOSPITALIZED PATIENTS WITH ALCOHOLIC LIVER CIRRHOSIS

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Introduction

It has been shown that 1.4% of the world's population has it, with a variability of 0.5% to 5% in different countries. Large geographical differences have been found regarding its distribution.

Aim

To study and analyze the demographic structure of patients with alcoholic liver cirrhosis at the time of diagnosis.

Material and methods

A retrospective study of hospital patients with newly diagnosed liver cirrhosis covering the period from 2017 to 2021. The study included a total of 361 patients, and in 247 of them a certain alcoholic etiology of the disease was established. The results were processed statistically with SPSS and Excel statistics.

Results and discussion

Of all examined patients, 247 or 68% were found to have an alcoholic etiology. 80% of the patients examined were male in a ratio of 4:1 to female. The average age of the studied group was 55.69 years, with no significant difference between the two sexes. Dominant involvement of the active age group between 40 and 60, followed by the over 60 group. while maintaining the gender ratio. Only 5.4% of those surveyed were under 40 years of age., and in this group the percentage of females prevails. Low incidence of combined hepatitis B and C etiology with male predominance compared to pure viral etiology, accounting for relatively younger age in women.

Conclusion

Our results confirmed the existing alarming global trend related to the increasing incidence of alcohol-related liver cirrhosis, the result of the lack of effective prevention, as well as the poor socioeconomic living conditions. Affecting mainly the active age, associated with subsequent disability and economic regression.

Key words: *alcohol, cirrhosis, sex, age*

POSSIBILITIES FOR IMAGE GUIDANCE, INTRAFRACTION MOTION MONITORING AND BEAM CONTROL (GATING) IN PROSTATE RADIOTHERAPY AND RADIOSURGERY WITH THE FIRST IN BULGARIA CLARITY 4D NON-INVASIVE ULTRASOUND SYSTEM

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Introduction

Prostate cancer is one of the most common oncological diseases, being the fourth most frequently diagnosed cancer in the world. A primary method for treating prostate cancer is external beam radiotherapy using linear accelerators combined with daily image guidance (Image Guided RadioTherapy – IGRT), which allows for reducing planning target volume margins to 5 – 7 mm and reducing the toxicity compared to non-IGRT treatment with larger margins. It has been shown that the most commonly occurring prostate displacements during the radiation delivery sessions are accounted for by the standard margins used, but for individual patients, the displacements can be in order of magnitude higher and well above the margins used. The intrafractional displacement of the target volume limits the possibilities for further reduction of the predefined planning target volume margins (to e.g. 2 – 3 mm towards the rectum) and, thus, for the reduction of the doses to healthy tissue and the toxicity, which is of particular importance in the context of dose escalation, hypofractionation and prostate radiosurgery (SBRT – Stereotactic Body RadioTherapy). To address this, prostate motion management techniques have been developed and are clinically used, utilizing methods such as: tracking of implanted fiducial markers with stereoscopic X-ray imaging (Kilovoltage Intrafraction Monitoring, KIM), tracking of implanted electromagnetic transponders (EM-T), monitoring with transperineal ultrasound

(TP-US) and, most recently, online MR-cine tracking on MRI-linacs.

Aim

To introduce the role of Clarity 4D in clinical practice.

Intrafraction motion monitoring and beam control (gating) with the Clarity 4D transperineal ultrasound system is a non-invasive approach that provides the necessary level of accuracy and safety, without additional ionizing radiation imaging dose and without the need of invasive markers implantation. The first such system in Bulgaria has been commissioned and is in clinical use at the Heart and Brain Center of Clinical Excellence in Pleven. It allows for clinically significant reduction of the doses to the adjacent critical structures (rectal tissue) and expected toxicity in hypofractionated prostate treatment schemes and prostate SBRT and, furthermore, there are caess in which we could not be able to achieve acceptable dosimetric plan without it.

Conclusion

Although the proven effectivity of the method and recent wider adoption in the clinical practice around the world, its use in Bulgaria is limited due to the lack of adequate reimbursement for hypofractionated and SBRT prostate radiotherapy treatment schemes in the country.

Key words: *prostate cancer, radiotherapy, hypofractionation, intrafraction motion management, transperineal ultrasound*

ROLE AND RESPONSIBILITIES OF THE RADIOTHERAPY TECHNICIANS IN STEREOTACTIC RADIOSURGERY WITH GAMMA KNIFE

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Introduction

Stereotactic radiosurgery is a non-invasive medical procedure, a form of radiotherapy, in which high doses of ionizing radiation, precisely guided with stereotactic method, are applied in small target volumes within the body, aiming surgery-like effect. The word “stereotactic” means applying an unambiguously defined, paired to the patient three-dimensional coordinate system that allows for medical imaging data acquisition in its coordinates and precise targeting of a manipulation, in this case the ionizing radiation beams, within the same coordinate system. Primary malignant tumors, metastases, as well as for some non-oncologic diseases are successfully treated with radiosurgery. It is performed on contemporary linear accelerators with radiosurgery capabilities, as well as on specialized treatment units such as the Gamma Knife, which is accepted as the “gold standard” in cranial radiosurgery.

Aim

Presented are the challenging completely new for the Bulgarian practice technological features and workflow aspects with focus on the specific and important role and responsibilities of the radiotherapy technicians in the whole process. The Gamma Knife is the first ever radiosurgery device, with more than half a century of history of successful clinical application. It was developed specifically for intracranial applications and is used in the treatment of primary malignant tumors (e.g. glioblastoma), metastases (from lung, breast, gastrointestinal, gynecologic, melanoma and other primary malignant tumors), benign tumors (acoustic neuromas, meningiomas, cavernomas, craniopharyngiomas, hemangioblastomas, pituitary gland tumors), arterio-venous and other vascular malformations and functional disorders (e.g. trigeminal neuralgia, essential tremor. These world-class treatment options are now available and reimbursed for the Bulgarian patients after the successful clinical start in January 2021 of the first in Bulgaria Gamma Knife center at the Heart and Brain Center of Clinical Excellence in Pleven.

Conclusion

The system installed and in clinical use in Pleven is of the latest generation – Gamma Knife Icon and adds a number of technological advances and new possible clinical approaches such

as non-invasive immobilization, fractionated radiosurgery, stereotactic CBCT (Cone-Beam Computed Tomography) for stereotactic reference definition, image guidance and plan adaptation to the verified position, intrafraction motion management with real-time motion tracking and gating.

We now have the technical capabilities and the interdisciplinary team of qualified specialists to perform world-class cranial radiosurgery on Gamma Knife Icon in Bulgaria.

Key words: *gamma knife, stereotactic radiosurgery, radiotherapy, radiotherapy technicians.*

NEW UNDERSTANDING OF SARCOPENIA

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Introduction

Sarcopenia is officially recognized as a muscle disease that affects millions of older people. It is often neglected and untreated in mainstream medical practice. The complexity comes from how and which variables should be measured and what the cut-off values are for making the diagnosis.

The main aim of the review is to present the new concepts regarding the etiopathogenesis and to find answers to the existing questions about the diagnosis and therapy of sarcopenia. In most cases, the etiopathogenesis of sarcopenia in adults is multifactorial. The operational definition of sarcopenia includes: decreased muscle strength, muscle quantity or quality, and physical performance. Functional tests, assessment of muscle mass, muscle quality and physical performance are used to diagnose sarcopenia.

Pharmacotherapy is still under development. The biggest emphasis continues to be on physical exercise and nutritious diet. Resistance exercise is considered to be most effective in slowing age-related skeletal muscle loss, with only high-intensity exercise stimulating the molecular pathways that regulate protein synthesis and induce hypertrophy. However, it is not clear whether the application of aerobic exercise alone, without resistance exercise alone, is as effective. Recently, low-intensity blood flow restriction training (LI-BFRT) has gained scientific value as appropriate in the elderly and after musculoskeletal injuries, both to reduce and treat sarcopenia and dynapenia. Local occlusion of veins and arteries in the arteriovenous junction forms a partial hypoxic microenvironment. In these conditions, complex mechanisms are unlocked that cause increased muscle protein synthesis. LI-BFRT is considered a relatively safe technique for most patients.

In conclusion, the sarcopenia is a significant clinical problem that represents an important risk factor for disability and mortality. Although it is associated with aging, adverse muscle changes accumulate throughout a person's life and can appear at an earlier age. In order to prevent adverse consequences, it is necessary to direct the attention of medical practitioners to early detection and treatment of the disease.

Key words: *sarcopenia, elderly, physical exercise, nutrition*

PREGNANCY DIAGNOSED WITH DOWN SYNDROME – MIDWIFERY COMPETENCIES FOR SUPPORT

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Introduction

Down syndrome is one of the most common genetic disorders. Early detection of

chromosomal abnormalities during pregnancy provides opportunities for: treatment of the fetus prenatally or immediately after birth and preparation of parents for the specific care of the newborn with this problem. Support from medical specialists is extremely important for expectant parents. Midwives are key specialists who provide monitoring and care during pregnancy. In a complicated pregnancy, they can provide relevant information, guidance in order to properly understand the problem and support to make the best decision.

The aim of this article is to present midwife's competencies for support in pregnancy with Down syndrome of the fetus.

Material and methods

Available international standards and recommendations, as well as national regulations related to the problem, have been studied.

Results and discussion

Essential competencies for midwifery practice, regulated by ICM and confirmed in national legislations to provide pre-pregnancy care are: determine health status of woman; assess fetal well-being; monitor the progression of pregnancy; promote and support health behaviours that improve well-being; provide anticipatory guidance related to pregnancy, birth, breastfeeding, parenthood, and change in the family; detect, stabilise, manage, and refer women with complicated pregnancies; assist the woman and her family to plan for an appropriate place of birth; provide care to women with unintended or mistimed pregnancy. In order for the communication between midwife and pregnant woman to be successful, professionalism, competence and confidence are necessary. Options for midwifery support are individual meetings to prepare for birth; providing information about specialists who may be needed during or after birth; opportunities for social support, groups and foundations for families with children with Down syndrome in order to integrate the child and the family into community. Psychological support, empathy and understanding on the part of the midwife. It is extremely important parents will be prepared for rearing the newborn taking into account the specific features of Down syndrome - breastfeeding and feeding technique, hygiene care, condition monitoring and risks of complications.

Conclusion

Access to a midwife during pregnancy, the provision of competent support and preparation for expected problems, are significant in preserving the pregnancy, birth and raising another beloved child.

Key words: *pregnancy, Down syndrome, midwife, support*

INHERITED THROMBOPHILIA AND RECURRENT PREGNANCY LOSS – REVIEW OF LITERATURE

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Introduction

Inherited thrombophilia is a genetic condition in which there is increased inclination to forming blood clots. The pathophysiology of most adverse pregnancy outcomes involving disruptions in utero-placental blood flow has long been known. Therefore, thrombophilia represents a key risk factor for pregnancy loss.

Aim

The present review analyses existing literature on the relationship between inherited thrombophilia and recurrent pregnancy loss, and determines the pathophysiology and treatment of the condition, with a focus on the Bulgarian population.

Materials and methods

Inherited thrombophilias are genetic conditions that increase the risk for thromboembolic disease. During pregnancy, the thrombogenic potential of these inherited disorders is enhanced because of the hypercoagulable state produced by normal pregnancy - associated physiologic changes in several coagulation factors. The review of literature adopted systematic, meta-analytic and integrative review research methodologies to achieve the intended objective. The results of the review show that the Factor V (F V) Leiden G1691A is the strongest risk factor

of thrombophilia for recurrent pregnancy loss in women and 4G/5G endothelial plasminogen activator inhibitor 1 gene (Serpine 1, PAI -1) polymorphism increases the risk of pregnancy loss. A higher incidence of recurrent pregnancy loss (RPL) or recurrent early pregnancy loss (REPL) in the initial 6–10 weeks of conception may be seen in homozygous individuals for particular thrombophilic variables. The review further show that inherited thrombophilia triggers structural and nanomechanical abnormalities of the platelets which results into their activation, and women with recurrent pregnancy loss are more likely to have activated platelets resulting from thrombophilic mutations.

Conclusionm

The review concludes that the presence of the thrombotic gene polymorphism is a strong indicator of poor pregnancy outcomes and, recommends that the affected patients should receive specialized follow-up.

Key words: *Thrombophilia, Recurrent Pregnancy Loss (RPL), Genetic Polymorphism, Hypercoagulation.*

CONGENITAL THROMBOPHILIC FACTORS AS A CAUSE OF PREECLAMPSIA AND FETAL GROWTH RETARDATION

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Introduction

Amongst the most dangerous pregnancy-related conditions for the mother and the fetus are preeclampsia and fetal growth retardatio. Given the rising frequency of risk factors that lead to preeclampsia, the condition now affects 5-7% of all pregnancies and is the cause of over 70,000 maternal fatalities and nearly 500,000 infant fatalities worldwide on an annual basis. It is now known that gene polymorphisms play a major

role in the individual predisposition towards high blood pressure, including preeclampsia and the higher risk of thrombosis. We emphasize the importance of D/D polymorphism of the angiotensin-converting enzyme gene and 4G/4G polymorphism of the plasminogen activator inhibitor-1 gene. The presence of these polymorphisms can result in several reproductive failures, such as recurrent fetal losses, preeclampsia, fetal growth restriction, placental abruption, intrauterine fetal demise, and venous embolism in mothers, especially postpartum.

Aim

This study aims to investigate the correlation between the ACE D/D genotype and thrombophilic factors, and their association with preeclampsia and fetal growth restriction. Additionally, it will examine their progression, pregnancy outcomes, and responses to anti-coagulant and anti-platelet treatments.

Material and methods

The research involved a cohort of 180 female patients experiencing reproductive failure. These patients were sourced from diverse medical institutions including the Prime Clinic - Dr. Kirovakovi, KIRM Medical Center, St. Elisaveta" Pleven, and the Maternity Department of UMHAT - Burgas AD. The data collection period spanned from January 1, 2021, to April 1, 2023.

Conclusion

The presence of homozygous PAI-1 4G/4G mutations, and to a lesser extent carriers of FLV and mutations in the prothrombin gene G20210A, in conjunction with the ACE D/D genotype, appears to be associated with severe and treatment-resistant hypertension during pregnancy. This, in turn, leads to chronic and gestational hypertension, early-onset preeclampsia, and intrauterine growth restriction. Notably, even with the early initiation of aspirin prophylaxis, these genetic combinations are linked to "preterm". However, NMH, magnesium, vasodilators, flosaterone prophylaxis, and whey protein has demonstrated some improvement in pregnancy outcomes.

Key words: preeclampsia, thrombophilia, LMH, FGR, aspirin

RADIATION PROTECTION IN PREGNANT WOMEN

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Introduction

According to the regulatory framework in Bulgaria, X-ray examinations for pregnant women are not recommended but not explicitly prohibited. Any pregnant woman may find herself in a situation where an X-ray image, procedure, or nuclear medicine study is necessary. If the radiation exposure is medically justified and unavoidable, it is important to ensure that it is performed while adhering to safety measures. The law obliges healthcare facilities to prominently display warnings near X-ray rooms to inform women about pregnancy and, in the case of radiopharmaceuticals, breastfeeding.

Aim

Presenting modern evidence-based practical approaches to X-ray examinations during pregnancy.

Materials and Methods

A documentary method was used. The following were studied: Law on the health of the Republic of Bulgaria, Ordinance No. 2 on the conditions and procedure for ensuring protection of persons during medical radiation and Ordinance on radiation protection

Results and discussion

To protect the mother is the only way to protect the embryo/foetus. In all cases, medical irradiation of a pregnant woman is performed only after her explicit written informed consent is obtained and documented in the medical records. X-rays are one of the well-known teratogenic factors. The teratogenic effects are somatic effects. They are attributed to direct irradiation of the fetus during its intrauterine development, not to irradiation of the mother. The most critical period is the organogenesis period when the respiratory, cardiovascular, nervous systems, ears, eyes, limbs, and external genitalia are formed. During

this period, radiography of the mother's pelvis and abdomen can be performed only if there is a life-threatening indication, and the procedure cannot be delayed after childbirth. If the embryo/fetus is outside the primary radiation beam, the risk is extremely low (on the order of parts per percent).

Conclusion

For female patients in reproductive age information about pregnancy is necessary in case of irradiation in the pelvic and abdominal region, and if the examination is nuclear medicine-related, information about breastfeeding is also needed. If pregnancy cannot be confirmed (pregnancy test) but cannot be ruled out either, these patients should be protected as if they were pregnant.

The protection of pregnant women, who are laboratory workers, is clearly described in the Regulation on Radiation Protection. They can continue working, but their working conditions should ensure that the equivalent dose received by the foetus until the end of pregnancy will not exceed, under any circumstances, that of an occupationally exposed person (1 mSv).

Key words: *radiation protection, pregnant women, X-ray examinations, radiobiological effects, regulatory documents.*

DOES THE CHILD'S OPINION AND CONSENT MATTER TO BE IMMOBILIZED DURING RADIOLOGICAL EXAMINATION

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Introduction

The decision to use immobilization techniques during radiological examinations in children is often at the discretion of the radiology technician. The factors influencing this decision should consider both image quality and radiation protection, as well as the rights of the child.

Aim

The aim of this report is to clarify the significance of the terms "immobilization," "immobilizing," and "restraint" of a patient during a medical procedure, as well as to emphasize certain legal aspects related to the child's consent that should be considered during pediatric investigations, without compromising the dignity of the child or professional conduct.

Material and methods

A documentary method, observation and personal experience of the authors were used.

Results and discussion

One of the most challenging tasks for a radiology technician is to perform quality diagnostic radiography on a child (especially under 3 years of age) without causing psychological trauma. Common practice involves immobilizing infants, young children, and uncooperative children for examination using immobilization devices or with the assistance of parents and/or personnel. The issue of a child's consent and the use of physical force forms the primary distinction between immobilization and restraint.

Immobilization refers to actions taken with the patient's consent and without excessive physical force, whereas **restraint** involves the use of force without consent.

With the adoption of the United Nations Convention on the Rights of the Child (1989), new international standards and a completely new concept are introduced, viewing the child not only as an object of healthcare but also as a subject with rights. According to the Convention and the Law on Child Protection in the Republic of Bulgaria, children have the right to be informed and participate in decisions related to their health. The competence to make decisions is linked to the child's age and mental development. Bulgarian legislation places several age-related limits on a child's ability to provide informed consent for medical activities.

Conclusion

The application of physical force should be a last resort, following psychological preparation of the child and parental consent; otherwise, it may raise ethical and legal questions and negatively affect the child's and parent's emotional and psychosocial well-being in the long term.

Key words: *consent, children's rights, restraint, pediatric radiography.*

PRACTICAL TRAINING OF RADIOLOGY TECHNICIANS

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Introduction

Student radiology technicians are high school graduates who have chosen their future profession. Their education at the university or other higher education institution aims to provide professional training in the field of diagnostic imaging, nuclear medicine, and radiation therapy. Practical training helps consolidate knowledge and skills and enhances the quality of healthcare. Through it, students gain experience, observe, develop skills and habits in working with patients, solve independent practical tasks, learn how to gain trust, work in teams, and take responsibility for their behavior. They are exposed to the microclimate of various university hospitals and departments, which influence their subsequent choice of employment. All this happens under the continuous guidance and supervision of mentors in the training facilities and the practice supervisor.

Aim

To study the students' opinion about the organization of practical training in Medical College - Pleven.

Material and methods

Documentary, sociological, and statistical methods were used. The study subjects were trainee radiology technicians from the Medical College - Pleven. The focus of the research was the role of practical training in professional preparation. A specially-designed questionnaire for anonymous online surveys was developed, consisting of 13 semi-open and closed questions. A mathematical-statistical analysis was performed on the obtained results, presented graphically.

Results and discussion

The study involved 12 trainees (58% female

and 42% male) specializing in "Radiology Technician" at the Medical College - Pleven. The majority of them (92%) are in the age range of 18-24 years. More than 80% of the respondents expressed satisfaction with the organization of practical training (planning, duration, and location). Most respondents (92%) were satisfied with the conditions and the involvement of mentors in the training facilities. Absences for 80% of the respondents were allowed for respectful reasons. The majority of the respondents considered themselves prepared for successful implementation but expressed a lack of practical training in dental diagnostic imaging (92%). As a downside, respondents mentioned online education during the pandemic. Over 90% of the respondents were satisfied with their specialty choice, and 82% believed that there should be postgraduate specialization for radiology technicians.

Conclusion

The quality and effectiveness of radiology technician training are closely related to the organization and management of practical training. Students from the Medical College - Pleven have a critical self-assessment of their practical skills. Specialization will be an additional prerequisite for the formation of excellent professionals.

Key words: *practical training, radiology technician, study*

STUDY OF THE ATTITUDE OF WORKERS IN INTENSIVE CLINIC AND DEPARTMENTS TO THE IMPLEMENTATION OF WORK TASKS

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Introduction

The main factor for the efficiency of the entire production process in a given organization is the attitude of the personnel to the work activity. The individual employee's attitude to the work performed is determined by external (microclimate, workplace security, working conditions, etc.) and internal (- gender, age, education, work experience) factors. These factors can be examined both through the actual results of the work and through the subjective evaluation of the impact on the behavior of the workers.

Aim

The purpose of the present study is to determine the attitude of workers in intensive care clinics and departments (doctors and health care specialists - HCWs) to the realization of work tasks.

Material and methods

Parts of the results of a survey conducted in 2022 among 194 health professionals working in Anesthesiology and Intensive Care Clinics of public and private sector medical facilities from the six main regions of the Republic of Bulgaria are discussed.

Some demographic indicators were also studied, subject to anonymity and voluntary compliance.

Results and discussion

Analysis of the results found that 76% of respondents were female and 24% were male; 72% are health care specialists, 28% are doctors, with 57% of them working in a public medical facility, and 42% in a private one.

It was found that the performance of the work tasks correlates positively and significantly with the type of medical facility according to ownership ($r=0.3390$; $p=0.000$). Health professionals from private medical facilities show higher levels of satisfaction with the performance of the range of tasks according to their job description ($r=0.3165$; $p=0.000$) and the degree of professional responsibility ($r=0.2964$; $p=0.000$).

There is a significant negative correlation of task performance with age ($r=-0.1546$; $p=0.0032$), education ($r=-0.1656$; $p=0.021$) and work experience ($r=-0.1423$; $p=0.048$).

Gender affects satisfaction with performing a variety of tasks ($r=0.1611$; $p=0.025$) and satisfaction with the range of tasks according to

the job description ($r=0.1526$; $p=0.034$). Men are more satisfied than women.

Conclusion

The evaluation of health professionals for the performance of work tasks is undoubtedly an important aspect for any health organization. It can be seen as a basis for increasing loyalty and commitment to the organization, as well as increasing satisfaction with their work, which will inevitably affect the quality of service and the attitude of health professionals to work in general.

Key words: *microclimate, professional stress, healthcare professionals.*

RELATIONSHIP BETWEEN WORK MICROCLIMATE AND PERCEIVED OCCUPATIONAL STRESS

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Introduction

Socio-economic changes in recent years have affected all spheres of public life. These changes create conditions for the emergence of acute conflict situations of a different nature, a significant increase in stressful conditions that cover all age groups and professions.

Stress is a serious problem of modern society and is closely related to lifestyle and work duties. A number of researchers define it as the “disease of the 21st century”.

The profession of health professionals is associated with emotional and intense interaction with people, which causes mental and physiological reactions in their work. A number of studies place the medical profession in the category of the most stressful professions. Work-related factors that influence the mental and physiological well-being of health professionals

are: work organization, workload, emergency situations, management style, microclimate, etc.

Aim

The purpose of the study is to establish the relationship between the work microclimate and perceived professional stress.

Material and methods

The material discusses part of the results of a survey conducted in 2022 among 194 health professionals working in anesthesiology and intensive care clinics from the six main regions of the Republic of Bulgaria.

Some demographic indicators have also been analyzed, subject to anonymity and voluntariness.

Results and discussion

Analysis of the results found that 76% (147) were female and 24% (47) were male. 72% of them are healthcare professionals and 28% are doctors. Most of the surveyed people, 57%, work in public medical facilities and 42% in private ones.

It was found that the levels of professional stress positively and significantly correlate with the work microclimate ($r=0.3457$; $p=0.000$), the assessment of colleagues ($r=0.6205$; $p=0.000$), of the immediate supervisor ($r=0.3219$; $p=0.000$), the way in which the career development of employees is evaluated ($r=0.7180$; $p=0.000$) and the attitude of managers towards employees ($r=0.7131$; $p=0.000$).

Conclusion

Based on this, we can conclude that a good microclimate, fair assessment of colleagues, impartial behavior of the immediate supervisor and proper assessment of career development, as well as good attitude of supervisors will minimize professional stress.

Key words: *microclimate, professional stress, healthcare professionals.*

THE PLACE OF CONVENTIONAL KILOVOLTAGE X-RAY THERAPY IN CONTEMPORARY RADIO THERAPY

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Introduction

X-rays have been first utilized therapeutically in 1896, less than one year after the discovery of “a new kind of rays” by Röntgen. Since these first days of radiotherapy there have been many advances but for many years superficial and orthovoltage X-rays have been the main ionizing radiation source in external beam radiotherapy. X-ray units have remained common radiotherapy equipment even with the widespread introduction of Co-60 teletherapy and then the linear accelerators and advanced technologies for planning and delivering highly conformal and precise dose distributions such as intensity modulated radiation therapy, image-guided radiotherapy, gating techniques, adaptive radiotherapy, etc.

Aim

Even though the standard technique has changed little in decades and lacks many of the hallmarks of modern radiotherapy, superficial, orthovoltage and combined units have been further developed to comply with the contemporary radiotherapy standards, including better online parameter constancy control systems, integration with record and verify systems, computerized commissioning and planning, etc. Kilovoltage X-rays are valued for their steep dose fall-off with depth in tissue and lack of surface buildup region where target volumes could be easily underdosed with the modern MV techniques. Even though kilovoltage beams are not the only with these characteristics (linac electron beams also demonstrate such), still, they are preferred when available, due to the simplicity, ease of use, lack of difficult logistics and additional preparation steps (time, costs), ease of access and patient comfort, compared to the ever-busier linac vaults and the need for complex individual planning, individual blocks production, etc. Importantly, it should be noted that kilovoltage X-rays can also give 3–4 times higher dose to bone compared to soft tissue, which is not always accounted for dosimetrically, but is a main reason for the application of this modality in the treatment of non-oncological skeletal diseases and bone metastasis palliation. Surface X-rays are widely and successfully used for various skin

cancers and some non-malignant dermatological conditions. In the recent years, so called “electronic brachytherapy” , which is (simply said) intraoperative, intracavitary, interstitial or contact brachytherapy with miniature x-ray sources, has been gaining momentum.

Conculsion

Kilovoltage X-ray therapy definitely has its place in the modern radiotherapy world, not just for the proven clinical indications and the renewed interest, but also as important key modality for developing strong foundations in the clinical training in the field.

Key words: *radiotherapy, orthovoltage therapy, superficial x-ray therapy, x-rays*

SOCIAL AND PHARMACEUTICAL ACTIVITIES

THE NEEDS OF PEOPLE WITH DISABILITIES - A CRUCIAL POINT IN SOCIAL WORK

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Introduction

The social needs of people with disabilities stay in the foundation of the dialectic of social activities for this group of persons. This is because their study determines the nature, structure and volume of social care needed. The topicality of the issues needs no further justification. Such a justification was not necessary in the past, but now, as an object of social policy, it is increasingly leaving the narrow circle of specialists and is being realised by the general public. The profound changes that have taken place in recent years in the world in general and in our country in particular place a specific emphasis on the social needs of people with disabilities. These cannot be considered in isolation from the social interests of this group of persons.

Aim

Recognizing the difficulty in studying social needs as they are very individual, this paper attempts to examine in a general theoretical perspective the needs of persons with disabilities through the prism of the formation of social interests.

Material and methods

The Need as a category has different meanings - economic, social, psychological, philosophical. This determines its universality in the study of the material world. Nevertheless, it is always associated with the concretization of notions of the subject of action, and therefore the bearer of needs. Such can be any biological organism, any human individual, a naturally established society of people, social strata, a social group within a given totality.

Results and discussion

This conclusion can also be adapted to the study of the needs of people with disabilities, whose actions to satisfy them are expressed through a broad system of organizational forms, structures and events carried out in society. The needs of people with disabilities are difficult to identify and define independently. They are a basic property that arises in the implementation of social risks, indicating a preference and a selective attitude of people who are temporarily or permanently incapacitated. The condition of the organism itself gives rise to certain needs which have their own specificity and definition. People with disabilities thus become the subject of the need.

Conclusion

In this report, the essential characteristics of the social needs of people with disabilities are defined by type. The relationship between the needs of people with disabilities and their actual satisfaction through consumption is examined.

Key words: *social need, people with disabilities*

MEDICOSOCIAL PROBLEMS OF PEOPLE WITH DISORDERED LOCOMOTION

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Introduction

The life of people with lower limb disabilities is a complex phenomenon, accompanied by numerous medical and social problems, which is why its study requires an interdisciplinary approach.

Aim

Determining the specifics of the medico-social problems in persons with walking disorders to improve their social functioning.

Material and methods

A standardized questionnaire was developed to determine the significance of the limitations, structured in five main questions and the corresponding possible activities related to them. On a voluntary basis, a survey was conducted among 91 students from the Medical University - Pleven.

Results and discussion

The results are reported as a percentage of the number of answers received compared to the number of respondents. The sum of the obtained results from the first to the third question exceeds 100%, since respondents are allowed to give more than one answer.

As the most significant limitation in the motor activity of persons with impaired gait is defined "overcoming steps" (81.32%), followed by "walking outside home" (65.93%) and difficulties with "carrying a load" (61.54%).

When performing daily activities, the most significant are the patients' difficulties in "dressing and putting on shoes" (84.62%). For "maintaining order and hygiene in home" and "maintaining personal hygiene" the respondents set values of 68.13% and 67.03%.

Within the framework of the performance of usual social activities by the persons with impaired locomotion, the surveyed students indicated "visiting public institutions" as the most significant difficulty (90.11%). They may encounter difficulties in "visiting cultural events" (72.53%) and "activity interests" (68.13%). The respondents did not indicate significant difficulties for patients in their communication with family members, friends and relatives.

A significant part of the respondents (52.74%) have an opinion that persons with impaired locomotion can use transport "with aids and a companion". The possibility of these persons "independently using transport without aids" is not reported by the students (0%).

According to them, persons with impaired locomotion are worried about the fact that they "spend more time" in carrying out their daily activities (52.74%).

Conclusion

In patients with impaired locomotion as a result of trauma or disease of the lower limbs are observed significant medico-social problems related to limited motor activity, difficulties in performing activities of daily life and manifestations related to anxiety states, which affects their quality of life.

Key words: *movement limitations, daily activities, social skills, anxiety, quality of life.*

THE ROLE OF INTEGRATED CARE IN AN AGING POPULATION

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Introduction

The publications related to the problems of the medico-social needs of the population in a global aspect, and more specifically in the countries of the European Union, present a significant diversity of understandings, priority emphases of research, analyzes and recommendations.

Aim

This report aims to present the role of integrated health and social care in the context of compounding health care challenges due to the deepening socio-economic, demographic, environmental and health crises that pose increasingly serious threats to an aging population.

Material and method

Data, trends and summaries from World Health Organization statistics, the EU Strategy for Global Health, the WHO Global Strategy for Integrated Care and the World Report on Aging and Health were examined. Analyzes, opinions, and recommendations of leading researchers on integrated care for the aging population are explored.

Results and discussion

It is generally agreed that integrated care is of great importance in improving the quality of health and social services, especially among the aging population. An important emphasis among the opinions for a more large-scale and effective application of integrated care are the barriers and risks in this direction, which hinder the ambition and strategies to improve the health systems and the provision of better quality health and social services.

Conclusion

The realization of the urgent goals and tasks for the provision of integrated social and health care will contribute to the improvement of health systems, to the improved quality and efficiency of care and to the increased well-being of societies.

Key words: *health systems, integrated health and social care, quality of care.*

ABUSE OF ELDERLY PEOPLE - SOCIAL AND HEALTH PROBLEMS

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Introduction

The demographic trends of population aging related not only to serious biological changes in the elderly, but also in the other dimensions of their health – the social and psychological dimensions. This applies even more strongly to aging people, who require appropriate professional care, supporting their self-esteem, dignity and expectations for more understanding and support. Against the background of these expectations, however, there are very negative phenomena and trends formulated as elder abuse.

Aim

This report aims to reveal the results of studies on elder abuse, as well as the possibilities to overcome such attitudes and manifestations.

Material and method

The analysis of the importance and opportunities for improving the quality of life of older people is based on data from research, analysis and strategies of global and regional organizations to provide opportunities for healthy aging and to address the increasing violence against older people.

Results and discussion

Among the problems related to the abuse of the elderly, a significant number of challenges have emerged affecting this violence both in the home environment and in society, especially in specialized medical and social centers. Research points out as essential factors for the abuse of aging people the exacerbation of interpersonal relations as result of the deepening socio-economic inequality, the problems in the health systems in the conditions of the existing crises especially during the COVID-pandemic. Important factor also is the lack of institutional responsibility to ensure of the necessary training, qualification and fair material incentives for social workers and health professionals working in health care, in specialized centers or homes for the elderly.

The UN Decade of Healthy Aging 2021-2030 has highlighted the need to combat ageism and violence and successfully develop integrated and long-term care. In this direction, the role of the WHO in increasing the efficiency of the health systems in all countries is significant - the improvement of global health related to overcoming the existing challenges of violence against the elderly.

Key words: *healthy aging, elder abuse, ageism*

THE ROLE OF SUPERVISION FOR SOCIAL SERVICES TEAMS REGARDING PERSONS WITH INTELLECTUAL DISABILITIES

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Introduction

Employees providing activities in social services for people with intellectual disabilities and mental health problems are largely at risk of professional burnout and challenges in terms of adequately responding and coping with different situations and crises in users. Supervision, both group and individual, is aimed at direct support in the professional activity of social services teams. This support can be in different directions: methodological, emotional, educational, an opportunity for the employee in a confidential setting to reflect on his work and the meaning he sees in it.

Aim

A study of the role of group and individual supervision conducted among the staff of three Social Rehabilitation and Integration Centres for people with intellectual disabilities and mental health problems.

Materials and methods

A survey with a semi-standardized card containing 12 questions.

Results and discussion

With the teams of three Centers for Social Rehabilitation and Integration for persons with intellectual disabilities and mental disorders, a group supervision with all staff members and then an individual supervision with each of the team members were conducted. After the individual supervision was completed, each supervisee completed a questionnaire, with a special section containing questions about the role of group and individual supervision. The respondents were 20 social services staff who directly work and interact with service users. The analysis of the obtained results shows that, first of all, for 65% of those who received group

supervision, its role consists in the opportunity to discuss problems in case work with the supervisor, who can see objectively and impartially the facts of the case and the commitment of the presenting professional(s). Second (55%) are the opinions that through group supervision communication within the team is improved. Half (50%) of the respondents indicated that group supervision leads to a reduction in work tensions and helps to resolve conflicts within the team.

With regard to the role of individual supervision, the results show that for a significant proportion (70%) of respondents the opportunity to discuss problems, difficulties, hesitations they have in their work on a particular case is the leading one. Next, 60% of respondents attributed importance to providing emotional support during individual supervision and the important role it plays during the session - in overcoming tension, creating a trusting relationship and feeling understood. Logically consistent is the third place, where 50% of respondents reported the role of individual supervision as an opportunity to share in an environment of safety and confidentiality as well as to reduce tension at work.

Conclusion

Conducting supervision with the teams of social services for persons with intellectual disabilities and mental disorders has an important role, which is expressed in several directions: employees to be guided and assisted in their activities, to feel understanding and emotional support, to receive competent opinions, to enrich their professional skills and qualifications in order to preserve and enrich personal potential and achieve higher quality in work.

Key words: social service, team, intellectual disabilities, supervision.

THE NEED TO PROVIDE SOCIAL SERVICES FOR THE ELDERLY AND PEOPLE WITH DISABILITIES IN SMALL SETTLEMENTS

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Introduction

Bulgaria is at the forefront among the EU countries in terms of population ageing, with forecasts predicting that by 2060 the share of people aged over 65 will reach 32.7%. As people age, the proportion of people with chronic diseases and permanent disabilities increases, with around one third of older people residing in rural areas. They usually live alone and have serious difficulties in carrying out activities of daily living. The need for support for these categories of persons is a prerequisite for the provision of social services in a home environment in order to improve the quality of life of people in small settlements.

Aim

A survey of the opinions of the elderly, the aged and people with disabilities from a small settlement regarding the need to use social services.

Materials and methods

The survey method used was a questionnaire survey with 15 open and closed questions.

Results and discussion

In April 2023 a survey was conducted in Orehovitsa village, Dolna Mitropolia municipality, Pleven district. 34 persons were interviewed, elderly and disabled people. Almost half (47.06%) were living alone. All interviewed persons indicated the presence of a disease, regardless of whether they were certified by a commission for expert examination of working capacity. Two-thirds of respondents indicated that they use an assistive device to perform activities of daily living. A significant proportion (60%) of respondents have a need for a social service, and analysis of the results shows that respondents prefer services that are provided in the user's home. The highest proportion of respondents (47.04%) would use the Personal Assistant service. This result is logical, taking into account the results regarding functional abilities to perform personal activities - 70.6% need help from another person. Taking into account the result regarding the possibilities of performing household activities - 79,42% cannot manage independently, one can explain the desire to use the services of: home social patronage -

44,10% of respondents, home assistant indicated 35,28% and 29,40% of respondents would use the service of Social assistant.

Conclusion

The challenges in the planning and provision of social services for the elderly and people with disabilities are significant: services need to be sufficient, diverse, territorial and responsive to the complex needs of those in need.

Key words: *elderly, old people, persons with disabilities, social services.*

THE NEED FOR ORGANISATIONAL ERGONOMICS IN THE HOME ENVIRONMENT OF PEOPLE WITH DISABILITIES

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Introduction

Long-term care intend to combine medical and social services for people who need help with basic activities of daily living because of physical or mental disabilities.

Assistance from an aide includes: self-care, movement and motor skills, changing and maintaining body position, performing activities of daily living and household activities, and communication.

The discipline that focuses on the interrelationships between the person and other elements of the system that can apply theory and principles, optimizing the well-being of the person is ergonomics. It is oriented towards the system as a whole, encompassing all aspects of human activity, and promotes an approach that takes into account many factors - physical, social, environmental and others that may be identified as significant.

Caring for a person with self-care difficulties requires physical activity on the part of the assistant. This is an element of physical ergonomics concerning working posture, weight

work, repetitiveness of movements, etc.

The ergonomic aspect in the design of the room in which a patient is cared for is important, as the environment plays a role in the health of both the professional and the cared for.

Aim

To perform a study in the provision of care in the home from the point of view of the environment.

Materials and methods

Elaborated questionnaire with 17 closed questions.

Results and discussion

The results presented cover two main areas of enquiry - does the environment influence care according to carers and will care improve if the environment changes.

Respondents felt that adapting the care environment for people with self-care difficulties was crucial, it was a previously usual environment and not ready to 'meet the needs of a patient'. They have not received any recommendations from a specialist, which they feel is important and would comply with as they feel it is the right thing to do. All respondents found there was a link between the care environment and the quality of provision. Almost all assistants felt that there were activities that they could not carry out due to inaccessibility from the environment. The results obtained from this study will be used to develop structured questionnaires, through them to complement and validate the results obtained.

Conclusion

Despite the limited scope of the study, the results indicate that the study has practical implications for home care and warrants further research in the area of physical ergonomics at work in nursing homes.

Key words: ergonomics, home care, people with disabilities

THE NEED FOR SUBSTITUTE CARE FOR PERSONS WITH INTELLECTUAL DISABILITIES

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Introduction

In addition to the regulated assistant support, the Social Services Act introduces substitute care as a short-term service. It provides support in case the persons who usually take care of the disabled person cannot provide it. Studies carried out in the country point to the need for this type of service for people with intellectual disabilities, on the one hand to meet the care needs of the person and on the other hand to allow the carer to have the opportunity for rest.

Aim

Survey of the opinions of persons who provide care for persons with intellectual disabilities in a home environment regarding their need to use Substitute Care.

Materials and methods

Elaborated questionnaire with 14 questions.

Results and discussion

The results of the present survey show that 7 out of 10 caregivers of a person with intellectual disabilities understand respite care as a support for the family; Half seek support from the family and 1/3 turn to professionals at the Day Center for Adults with Disabilities when there is a problem; 2/3 would use respite care every day, most often using the time for rest; 6 out of 10 people believe that the regulated period of 30 days a year is not enough, almost all agree to pay There is good practice in substitute care provision, with the USA and the UK offering substitute care aimed at families caring for their disabled members. The provision is short-term and aims to temporarily relieve the carer. By scheduling short-term breaks, they create conditions to prevent the person (developmentally delayed individuals and adults with intellectual disabilities) from being permanently institutionalized, thereby creating conditions for rest and recreation for family members. Another positive aspect of respite care is that it is not just done by someone, but by a volunteer with experience in the field or a professional. Substitution care can be carried out in the person's own home or in a special

environment .

Conclusion

Recognising the role and status of family carers of people with intellectual disabilities is a step towards recognising these people as partners in the provision of care. The provision of specialised support, counselling and substitute care would help carers cope with the stress of caring responsibilities and improve not only their own lives but also the lives of the person they care for.

Key words: *substitute care, disabled people, home care*

SEXUAL AND REPRODUCTIVE BEHAVIOR OF MINOR AND JUVENILE MOTHERS

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Introduction

The significance and timeliness of the problem in our country is determined by the fact that repeated births by minors are associated with a decrease in educational achievements and increased dependence on state support.

According to some authors investigating this issue, repeated or second early pregnancy is observed in 35% of minor and juvenile mothers within 2 years of the first birth.

Aim

Study of sexual and reproductive behaviour among minor and juvenile mothers, users of the Center for Public Support - Pleven, and Dolna Mitropolia.

Materials and Methods

The study is conducted through a standardized questionnaire containing 19 questions.

Results and discussion

The opinion on the issue involved has been examined among twenty minor mothers. The average age of respondents is 16 years and 4 months, 65% of whom are of Roma origin. More than half (55%) live in a village where access to

specific medical services is restricted.

Not a small proportion (55%) of the mothers had had intimate contact with a man at the age of 15, ¼ were under the age of 14. Half (50%) of the respondents started their first intimate relationship at the age of 15, and one fifth at the age of 14, that is, the first intimate contact coincides with the time of the first intimate cohabitation, which is a prerequisite for subsequent early births.

A significant proportion (65%) of respondents do not know what “family planning” is, and according to ¼ it is expressed only in planning the number of children, but not when to be born. An equal share of the respondents (45%) declare that in their co-existence “their intimate partner has the main responsibility for preventing unwanted pregnancy” and that “unplanned pregnancy is the responsibility of both partners”. According to 60% of the minor mothers, one family should have two children, 50% of the respondents would like to have two children, only ¼ indicate three children. The results show that the reproductive ideal and reproductive attitudes of minor mothers almost overlaps with that of the juvenile mothers. The current study shows a tendency to change the reproductive behaviour of the Roma ethnicity, which means that this applies only to the respondents and not to all Roma.

The average age at which the respondents gave birth to their first child was 15 years and 2 months, the lowest being 13 years. Interestingly, 50% of fathers are also minors and 10% are juvenile. Most of the minor mothers (60%) had not planned their first pregnancy, but 75% of them in a second unplanned pregnancy would have given birth to the child.

Conclusion

Professional guide lines for working with underage mothers should be focused on preventing a second early pregnancy. It is necessary to establish programs for the prevention of re-pregnancy, which focus on the definition and maintenance of the educational objectives of mothers and on providing motivation for delaying the second pregnancy.

Key words: *juvenile, minors, mothers, reproductive behaviour, repeated early pregnancy.*

FORMED SKILLS FOR INDEPENDENT LIVING BY USERS OF SOCIAL SERVICES - COMPARATIVE ANALYSIS

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Introduction

The Convention on the rights of persons with disabilities introduces the Regulation on independent living as an inalienable right, regardless of the type of disability. For people with intellectual difficulties, the formation of skills for self-dealing with various activities of everyday life is a long and difficult process, which starts in the family, goes through the school and continues in social services.

The activities of the social services teams for persons with intellectual disabilities are aimed at mastering the skills for independent living by users.

Aim

Study of the formed skills for self-sufficient and independent living in users of two social services in the city Pleven.

Materials and Methods

The study was conducted through a standardized questionnaire containing 19 questions.

Results and discussion

The opinion on the issue was examined among thirty persons with disabilities, in equal numbers, users of social services in the Day center for adult persons with disabilities (DCAPD) and in the Center for Social Rehabilitation and Integration (CSRI), who live in a family environment.

The gender distribution in both services is similar: there is a higher proportion of men than women. The average age of respondents was 32 years and 8 months in the DCAPD and in the CSRI it was 33 years and 6 months. The largest share of all respondents use the services from 5 to 10 years. The data thus presented are comparable for the objectivity of the study.

In terms of self-coping skills, the results show that only 26,68% of users master simple and often repetitive activities such as household chores.

The development of personal hygiene skills begins in childhood, regardless of the disease or condition, which may explain that almost half (46,69%) of DCAPD users are coping with these activities. It can be assumed that the low share of respondents (20%) in the CSRI in terms of hygiene habits has a connection with the family environment or the type and extent of the disability.

Similar results are found in both services, related to computer use (33,35%) and Internet search (26,68%). Despite the presence of disabilities, the proportion of users with skills formed by this group is high compared to other skills mastered, which can be explained by the fact that modern technical means are accessible, illustrated and easily handled by people with intellectual difficulties.

The formed skills for communicating with relatives and people close to the family (40%) and making contacts with strangers (26,68%) have equal share in the users in both services.

In the DCAPD in terms of self-organization and inclusion in leisure activities, only 13,34% deal without problems, while in the CSRI there are twice as many – 26,68%. It can be assumed that this difference is due to greater autonomy of the persons delegated by the family and specialists in the social service.

Conclusion

People with intellectual disabilities face unique challenges when it comes to their inclusion in public life. The role of social services in this process is to help developing the potential of each person so that they can most closely relate to the life of society.

Key words: social services, intellectual disabilities, formed skills, independent living.

ANTI-OBESITY EFFECT OF SELECTED MONOTERPENES – A REVIEW

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Introduction

Obesity has become a global problem nowadays. It is linked to the development of chronic diseases such as diabetes, hypertension, and skeletal-muscular disabilities. Monoterpenes are members of the terpenoids class which is large and diverse group of plant compounds. Monoterpenes are mainly found in the form of essential oils and possess analgesic, antipruritic, antimicrobial and anti-inflammatory effects. Moreover, they are used for food preservation and in the cosmetic industry.

Aim

The review is focused on the anti-obesity effect of selected monoterpenes.

Materials and methods

Pubmed, Google Scholar and Scopus were used as web-based database for the review.

Results and discussion

Monoterpenes affect a variety of structures and signaling pathways through which they favor weight loss. Limonene activates adenosine monophosphate activated protein kinase (AMPK) signaling pathway and stimulates lipolysis. Tymol decreases visceral fat accumulation and lowers the lipids as well as inhibits pancreatic lipase. Citral suppresses PI3K/AKT, PPAR γ , TNF- α , IL-6 in a dose-dependent manner. Cytochrome p450 19A1 aromatase enzyme is considered as a possible target of eucalyptol. Digestive enzymes can be inhibited by 1,8-cineole. Lipid profile can be maintained by anethole. Paeoniflorin is able to ameliorate TNF α -induced adipocyte dysfunction. Iridoids decrease adipocytes hypertrophy. Auraptene enhances liver lipolysis. Fibroblast growth factor 1, bone morphogenic protein and galanin-mediated signaling are suppressed by carvacrol.

Conclusion

Monoterpenes can be considered as anti-obesity substances. Applied with conventional obesity therapy, they can boost the results.

Key words: *monoterpenes, obesity, limonen, tymol, anethole*

EFFECTS OF TRIBULUS TERRESTRIS ON THE HORMONAL LEVELS AND SEXUAL FUNCTION

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Introduction

Tribulus terrestris L. (TT) is an annual plant used from ancient times in the traditional medicine of southeastern Europe, China, India and Pakistan. It was applied to energize the body and to stimulate and improve sexual function. The use of plant products derived from TT continues to be widespread nowadays.

Aim

The main goal is to improve sports results, health, sexual desire and performance.

Materials and methods

The current medical data is still insufficient to support or deny the use of TT to achieve such goals.

Results and discussion

Many bioactive phytochemicals such as saponins and flavonoids have been isolated from the plant's fruits, leaves and roots. These chemicals may be responsible, alone or in combination for the various pharmacological activities. Traditionally, steroid saponins are considered the leading carriers of the biological activity in TT. The plant extracts used to produce pharmaceutical products have been standardized based on the percentage of the main component of the saponin fraction - protodioscin. The initial assumption was that the effects of TT are due to the metabolic conversion of the saponins and increased production of endogenous sex hormones. Unfortunately, further studies have failed to confirm this hypothesis. Regarding the aphrodisiac effects, the experiments conducted in recent years have discovered mechanisms of action based on an improvement of endothelial function and potentiation of nitric oxide effects on the vessels' smooth muscle cells. It is also possible that the increased sexual desire is due to

central nervous system mechanisms.

Conclusion

The accumulation of recent data requires the development of new concepts and experimental models in order to test the possible mechanisms of action of TT.

Key words: *Tribulus terrestris*, *Traditional use*, *Phytochemicals*, *Pharmacological effects*

IMPACT OF POLYPHENOLS ON COGNITION AND THE OPIOID SYSTEM

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Introduction

Medicinal plants and plant-derived molecules with diverse biological activity have a growing role in health promotion.

Aim

The aim of the present study is to systematize the available literature data on the influence of polyphenols contained in plant extracts or their specific representatives on cognitive function and the opioid system.

Materials and methods

The regular consumption of dietary polyphenols has direct beneficial effects on the health by stimulating the cardiovascular and brain functions. Dietary polyphenols are secondary products from plant metabolism, synthesized with protective purposes. The currently identified polyphenols make up one of the largest and most diverse chemical groups. Based on their chemical structure, several classes of polyphenols can be considered, of which flavonoids have the largest share. Since some of the best natural antioxidants belong to the group of polyphenols, these molecules have been studied intensively for the treatment of many diseases.

Results and discussion

Research has shown that supplementation with foods rich in polyphenols can slow down the

progression of neurodegenerative conditions such as Parkinson's disease and Alzheimer's. In addition, food rich in flavanols and anthocyanins can significantly improve all aspects of memory and cognitive function. The mechanisms of action of some polyphenols include modulation of cellular signaling pathways by interaction with receptors binding specific neurotransmitters. Such receptors are those for the endogenous opioid peptides. Some of the most effective analgesics, the opioids, also bind the opioid receptors. The therapy of pain may include opioid analgesics whose chronic use is associated with the development of tolerance and troublesome side effects such as addiction and respiratory depression. In this context, the modern medicine is aiming to identify new non-opioid molecules of plant origin with potential therapeutic benefit for the management of pain and opioid dependence and tolerance.

Conclusion

Scientific research has shown that extracts from *Hypericum perforatum* have activity towards the opioid receptors, which might explain their antinociceptive and anti-inflammatory properties. It has also been found that alcohol dependence in animals can be successfully alleviated by the same mechanism. In the form of pure substances, the flavonoids quercetin and catechin reduced in a dose-dependent manner the withdrawal behaviors in animals after chronic administration of opioids. The administration of quercetin also successfully alleviated tumor pain, which was possibly due to interaction with the opioid receptors.

Key words: *polyphenols*, *opioid*, *pain*, *tolerance*, *addiction*.

DOSAGE FORMS WITH MODIFIED RELEASE: ADVANTAGES, DISADVANTAGES AND SOME PROBLEMS ASSOCIATED WITH THEM

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Introduction

By modifying the dosage forms, the disadvantages of classical ones, such as rapid release of the active substance, large differences in minimum and maximum plasma concentrations, accumulation of high concentrations at the site of administration, undesirable side effects could be avoided.

Modified-release dosage forms include sustained-release and controlled-release forms. There are technological possibilities to prolong the action of medicinal substances.

Not all medicinal substances meet the criteria for producing modified dosage forms, such as those with long plasma half-lives, for cyclic administration, sleep medications, etc.

The requirements for medicinal substances to be included in modified dosage forms are: 1) **physicochemical** - small molecular mass, very good solubility over a wide pH range, high partition coefficient, absorption mechanism (passive diffusion, uniform absorption throughout the gastrointestinal tract), release not be affected by pH and enzymes; 2) **pharmacokinetic** - biological half-life not longer than eight hours, dose-independent total clearance, large volume of distribution, absolute bioavailability not less than 75%, absorption rate higher than release rate.

Modified release dosage forms are of different types depending on the site of administration, technology of preparation, and the mechanism of release of the active substance.

Aim

Research the correct use of dosage forms with modified release and problems with their incorrect dosage.

Materials and Methods

Documentary method - literary sources and direct observations in the work.

Results and discussion

Exceeding the risk of the benefit when using some dosage forms with modified release and the need for their correct dosage is proven.

Conclusion

Dosage forms with modified release are a very convenient dosage form with a good therapeutic response. Used correctly, it can improve the

patient's quality of life and be as harmless as possible

Key words: *dosage forms, modified release, risks, controlled, plasma concentration.*

PRESCRIBING AND USE OF EXTEMPORANEOUS MEDICINAL FORMS ON THE TERRITORY OF THE CITY PLEVEN AND TRENDS IN THEIR DEVELOPMENT

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Introduction

The dosage forms prepared in pharmacies under specific prescription for a specific patient are called extemporaneous (from Latin *ex tempore* - in time, on demand). They are the essence of the pharmaceutical profession. Such forms have been prepared since antiquity and are the basis of industrially prepared pharmaceutical forms and uniform formulations.

Pharmacists in pharmacies registered to prepare pharmacopoeial and magisterial prescriptions may prepare these on pharmacopoeial prescriptions from a physician (where the formula is published in the Pharmacopoeia); magisterial prescriptions in which the physician prescribes the ingredients and their quantity and the pharmacist performs it technologically; or on a prescription with an established formulation, usually not in the Pharmacopoeia but has been prepared for decades.

Few pharmacies prepare dosage forms. Those prepared by magisterial prescription have not lost their therapeutic significance. These forms have retained and proved their therapeutic significance. Something that has proved itself in practice is not being obliterated but enriched. This is a basic but perhaps forgotten pharmacological principle.

Dosage forms that are currently not produced industrially, proven formulations, those with off-label prescription, pediatric forms, especially for life-sustaining therapy in infants and children - are also prepared.

Aim

The present study aims to find out the opinions and attitudes of pharmacists, patients and physicians towards magisterial and pharmacopoeial dosage forms in the city of Pleven and the district.

Materials and Methods

A direct anonymous survey was conducted to investigate the opinions of pharmacists, patients and physicians in Pleven city and Pleven district.

Results and discussion

Most pharmacists stated that the forms prepared in the pharmacies are necessary from a medical point of view but their prices are inadequate. With very few exceptions, the patients surveyed were satisfied with therapy with extemporaneous forms; very few had not used any and had no opinion. Most felt that these forms were affordable, and, to some extent, available being prepared in pharmacies.

Most of the physicians were from a variety of specialties and had prescribed extemporaneous dosage forms. They believed such forms should not be abandoned.

Conclusion

Individualized approach is a necessary and proven method for successful treatment. Preparing the formulations and introducing new developments in technology at a pharmacy level need to be improved.

Key words: *extemporaneous dosage forms, study, Pleven, prescriptions, individualized therapy*

ESSENTIAL OILS USE IN AROMATHERAPY AND ALTERNATIVE MEDICINE

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Introduction

Essential oils are called "the vital blood of plants". They circulate within the plants' tissues and pass through the cell walls transferring nutrients and discarding the waste products. The oils are a possibility to balance the energy within the organism. In case our body is out of balance and fights either with disease or dysfunction, these oils serve to recover the order and balance in the different body systems. Plants are far more complex than most people consider. The plants are live organisms that produce energy using sun light. Despite having no wisdom they possess their own "intelligence". Plants represent not only roots, leaves and stems but they apply a complex communication system both between them and with the environment. Since ancient times the essential oils are acknowledged for their medicinal value and they are considered quite interesting and powerful natural plant products. They are still of primary importance in the contemporary world. Essential oils have fragrance and are volatile compounds (as they evaporate when exposed to heat unlike the non-volatile oils) and are found in only 10% of plant sector. The plants store them in fragile secretive structures as glands, secretory hairs, secretory channels, secretory chambers or resin channels. For thousands of years essential oils have been used as perfumes, food and drinks fragrances or for healing of body and mind. The findings in Mesopotamia, China, India, Persia and ancient Egypt demonstrate their application for great number of treatments through different methods. For instance, the population in ancient Egypt extracted oils through infusion. Later on, the Greeks and Romans used distillation thus attaching additional value to the aromatic plants. The spreading of Islamic civilization led to even more elaborate extraction methods. During the Renaissance, the used.

Aim

The objective of the study is to evaluate the safe and effective use of essential oils used in everyday life.

Areas of application: reflexology and massage, healing touch therapy, pregnancy and baby care, skin and body care, home cleaning and

detoxification, and natural pet care.

Materials and Methods

A thorough survey of the available literature was conducted. The most common essential oils and the mode of their use and application are described and analyzed.

Results and discussion

In the cosmetic and food industries, the use of essential oils is an integral part of production, as they can play different roles. Therefore, the economic importance of essential oils is undeniable. In this regard, it is imperative to preserve the world's natural, diverse flora and to support its protection, in order to preserve this inexhaustible source of multi-purpose molecules.

Conclusion

In summary, it can be said that they find applications - both in many medicines and in aromatherapy mixes. They provide health (both physically, internally and externally, and mentally) from plants in a natural way. Essential oils are generally considered safe to inhale or to apply to the skin if combined with a base oil. They should not be eaten. However, there is a lack of evidence to support many of the health assertions associated with them, and their effectiveness is often exaggerated.

Key words: *essential oils, usage, lavender, lemon.*

FOOD SUPPLEMENTS AND PHYTOPREPARATIONS, USED FOR ANXIETY

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Introduction

Anxiety has emerged as a significant and topical problem in today's rapidly changing world, which has led to our modern day being defined as "the century of anxiety." A number of authors divide anxiety into normal and pathological ones

and look for a solution to overcome it.

However, in the hectic and stressful everyday life, most people choose phytopreparations and dietary supplements with sedative effect, due to the fact that they are available, do not require a doctor's prescription and suggest a minimal risk of occurrence of addictions and adverse reactions.

Aim

The objective of this study is to determine the frequency of anxiety disorders and the use of dietary supplements and phytopreparations with sedative effect, as well as to establish the competence of patients regarding phytopreparations proper use.

Materials and methods

The following methods have been used to implement the research objective: *documentary, sociological, survey and statistical method.*

Results and discussion

The survey results showed that a large percentage of the 37 patients - participants in the survey had problems with stress and anxiety and fell into this condition more than once a month due to factors related to workplace, family environment, hectic daily life, etc. It has been observed that this affects more and more young people, mostly women aged 19 to 31 years. In an attempt to overcome this problem, there is a frequent use of dietary supplements and phytopreparations with sedative effect, for the choice of which most of the respondents trust a pharmacist or a doctor, but not a small part consult acquaintances, the Internet or refer to advertised products, which cannot guarantee the effectiveness and safety of the drug.

Conclusion

Anxiety is a leading problem in today's daily life. Increased levels of stress, anxiety and unhealthy lifestyle lead to frequent use of sedative-acting supplements. The survey found that some of the patients were consulted by a specialist, but the rest were not well informed about the rational use and the risks that lead to improper intake of sedative products. Therefore, it is recommended to consult a doctor or pharmacist who is familiar with the current therapy of the patient and has knowledge in the field of pharmacodynamics of medicinal products in order to avoid side effects and adverse consequences.

Key words: *Anxiety, stress, dietary supplements, phytopreparations, sedative effect.*

VARIA

REHABILITATION PROGRAM FOR CONTRACTURE IN THE KNEE JOINT AS A RESULT OF OPERATIVE TREATMENT OF PERIPHERAL ARTERIAL DISEASE (clinical case)

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Introduction

Peripheral arterial disease covers a group of diseases leading to progressive peripheral blood circulation disorder and thrombosis is defined as one of the main complications of this condition. In the presence of severe symptoms that are not affected by conservative treatment, it is necessary to surgically place a bypass in the affected area.

The aim of the present study is to follow and report the functional recovery of the knee joint in a patient after a series of surgical interventions due to peripheral arterial disease (thrombosis of a. femoralis superficialis and a. iliaca externa).

Material and methods

It concerns a 66-year-old man with contracture of the right knee joint, which was result of three operative interventions during 4 months due to vascular problems of the right lower limb. Two bypasses were performed, followed by transmetatarsal amputation of the 5th toe of the right lower extremity. A series of postoperative rehabilitation periods were carried out with an appropriate complex physiotherapy program, including kinesitherapy, cryotherapy, electrotherapy (PLFMF and IFT).

Results

When aortofemoral and femoropopliteal bypass was placed, there was postoperative edema of the entire lower limb, more evident in the area of the knee joint (3 cm). At the beginning of the recovery period, hypotrophy of the thigh (1 cm) and lower leg (2 cm) muscles was observed, and the contracture in the knee joint was S: 0° – 30°

– 70°. At the end of the observed rehabilitation process, the range of motion in the knee joint was S: 0° – 10° – 90°, and hypotrophy decreased by 0.5 cm at the thigh and 1 cm at the lower leg.

Conclusion

In our case, the patient did not fully recover until the end of observation period (9 months). He was left with a deficit of 10° in knee joint extension and incomplete flexion (90°), which does not allow walking without an aid, especially over longer distances. The analysis of the obtained results proves that the series of operative interventions in attempt to PAD treatment requires a longer duration of a complex rehabilitation program for the functional restoration of the knee joint, which is a condition for walking without the need for aids.

Key words: arterial bypass, knee contracture, physiotherapy, forearm crutches.

INOVATIONS IN PHYSIOTHERAPY – HIGH-INTENSITY MAGNETIC THERAPY

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Introduction

Physiotherapy plays an important role in the rehabilitation of patients after injuries, operations and in the treatment of various diseases. With the development of technology in medicine, new innovative apparatus methods are emerging that offer effectiveness and advantages for patients and the health system. This method is high-intensity magnetic therapy (HIMT).

HIMT is a method that uses high-force magnetic fields to improve recovery processes in a patient's tissues and muscles, which is painless and non-invasive. In these devices, the magnetic induction is above 1 Tesla

People of working age often suffer from musculoskeletal disorders. Neck and low back pain are the most common symptoms.

Aim

To determine the effectiveness of high-intensity magnetic therapy with the SALUS TALENT PRO - REMED system in acute back pain.

Materials and methods

The study was conducted at Physiomed Clinic – Pleven.

For the period from June 2019 to September 2021, the study covered 98 patients with acute back pain - 43 women and 55 men.

For its implementation we used a device SALUS TALENT PRO – REMED

To assess the effect of treatment, we used a questionnaire to perform activities of daily life at the beginning and end of procedures and a visual analog scale (VAS) for the degree of pain .

Results and discussion

After completion of HIMT in 80 patients (82%) there was a significant reduction in pain by 4-5 units of SAC, in 16 (16%) - some improvement by 2-3 units in SAC, and in 2 (2%) patients without response. Accordingly, there was also a substantial improvement in the performance of activities of everyday life according to the questionnaire used.

Conclusion

Magnetic stimulation is a successful therapy for acute back pain. It is a patient-friendly, non-invasive method of pain treatment, with better tolerance than traditional pain-relieving procedures. No side effects were reported.

Key words: *physiotherapy, high-intensity magnetic therapy, back pain.*

KINESITHERAPY FOR AMPUTATIONS

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Introduction

Amputation of a limb is a life-changing operation

for the patient, which leads to changes in his physical and psychological state. Most patients who require amputations have significant comorbidities, and amputation carries significant risk. Most lower limb amputations are performed to treat peripheral arterial disease and its complications. After amputation, it is important to create a healed, pain-free stump suitable for placement of a prosthesis.

Objective

This study aims to review the kinesitherapeutic program applied after limb amputations.

Material and methods

The following databases were studied: PubMed, GoogleScholar, ReseargeGate. The search keywords are: amputation, kinesitherapy, rehabilitation.

Discussion

Rehabilitation in patients after amputation aims to improve the general functional status of the patient. Failure to follow the rehabilitator’s recommendations and the incorrect position of the limb after amputation can lead to joint contracture, which is difficult to correct and can cause difficulties in prosthetics. The contracture tendencies after amputations are as follows: in case of below-knee amputations – flexion in the knee joint; in amputations above the knee-flexion-abduction-external rotator in the hip joint; in case of amputation of the forearm – flexion contracture in the elbow joint; in case of amputation at the level of the armpit – flexion-adductor-internal rotator contracture in the shoulder joint. After upper extremity amputations, contractures can be easily prevented by performing joint range of motion exercises as soon as pain subsides, regardless of amputation level. In case of lower limb amputation, in order for patients to walk again, they need a prosthesis, which requires a lot of energy. Therefore, it is important that the patient maintains a good physical shape in the pre-prosthetic period. Prosthetics aim to improve patients’ mobility, independence, safety and self-care. Kinesitherapy in the pre-prosthetic period improves blood flow, strengthens muscles, improves range of motion. The main exercises are aimed at improving balance, strengthening muscles, facilitating self-control of the amputated area, training in performing activities of daily life. After the stump is shaped and the patient’s prosthesis is fitted, long-term goals and objectives focus on maintaining the fit

of the prosthesis and optimizing physical fitness.

Conclusion

Rehabilitation is essential for the rapid recovery of a patient with an amputation that completely changes their life and that of their families. Cooperation between all members of the rehabilitation team, including a psychologist, is a condition for ensuring an optimal result for improving the quality of life of a patient with amputation.

Key words: *amputations, rehabilitation, kinesitherapy.*

KINESITHERAPY FOR ADHESIVE CAPSULITIS

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Introduction

The shoulder is a complex joint that is involved in most activities of daily living. Adhesive capsulitis is a condition that causes limitation of movement in the shoulder joint. The condition was first clinically recognized as "periarthritis scapula-humerae". Altered dynamic control is a significant contributing factor to shoulder dysfunction. Limiting the range of motion in the joint and pain is a serious health problem for the patient. Adhesive capsulitis is the leading cause of shoulder joint pain in middle-aged and elderly people. The exact underlying cause of adhesive capsulitis is unknown, but the non-dominant hand and women are considered to be more affected. The patient experiences sharp pain on movement and constant pain at rest, mostly at night. The range of motion is limited, most significantly when performing flexion, abduction, internal

and external rotation.

Objective

This study aims to review the different kinesitherapeutic methods used in patients with adhesive capsulitis.

Material and methods

The studies were done in the following databases: PubMed, Science Direct, GoogleScholar, ReseargeGate. Search keywords: frozen shoulder, adhesive capsulitis, physical therapy, rehabilitation, kinesitherapy, manual therapy, mobilization, exercise.

Discussion

The movements of the shoulder complex represent a dynamic relationship between many muscles, ligaments and bones. Static and dynamic stabilizers allow the shoulder a large range of motion. The exact method of treatment of adhesive capsulitis is still not fully understood. Corticosteroid injection, taking painkillers, combining an appropriate physiotherapy and kinesitherapy program are considered to have a good therapeutic effect.

Physical therapy and kinesitherapy are usually used to prevent the progression of adhesive capsulitis symptoms. Kinesitherapy uses joint mobilizations, stretching exercises, PNF techniques, elastic resistance exercises. Physiotherapy procedures include: ultrasound, transcutaneous electrical nerve stimulation and short-wave diathermy. Combined treatment with yogasana, kinesitherapy, and physical therapy has been found to be effective in reducing pain, improving range of motion, and reducing functional impairment. Elastic resistance exercises also have a positive effect in patients with adhesive capsulitis. They improve coordination, strength and endurance of the affected limb. Essential to achieving good results is the patient's motivation and active and conscious attitude during the recovery period.

Conclusion

If adhesive capsulitis is left untreated, the condition progresses and limits the performance of daily activities, which lowers the quality of life. It is difficult to draw a conclusion about the best kinesitherapeutic and physiotherapeutic methods for the treatment of adhesive capsulitis. In the early stage, electrotherapy has priority, and in the later stages, exercises and techniques are used to improve the range of motion.

Key words: adhesive capsulitis, frozen shoulder, kinesitherapy, physical therapy.

KINESITHERAPY FOR LIGAMENTARY INJURIES IN THE ANKLE JOINT AREA

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Introduction

The ankle is one of the most frequently injured joints. Sprains of the ankle joint are one of the most common injuries. Lateral ankle injuries usually involve excessive inversion and internal rotation with or without plantar flexion. The anterior talofibular ligament has the lowest load tolerance and is the most frequently injured. In more severe joint trauma, the calcaneofibular ligament, anterior inferior tibiofibular ligament, posterior inferior tibiofibular ligament, or even the deltoid ligament may also be affected. Re-injury of the ligaments is very common, and after such injuries chronic pain develops due to ankle instability, osteoarthritis, osteochondral lesions, and the risk of re-injury. Treatment after an ankle sprain includes: immobilization, rest, cryotherapy, compression, and repositioning of the affected limb. Patients receive physical therapy and kinesitherapy, emphasizing neuromuscular and proprioceptive exercises, joint mobilization to reduce pain, and increase joint range of motion.

Objective

This study aims to review the different kinesitherapeutic methods applied to patients with ligamentous injuries in the area of the ankle joint.

Material and methods

The following databases were searched: PubMed, Science Direct, GoogleScholar, ReseargeGate.

Discussion

Recurrent sprains and chronic instability of the ankle joint can be successfully treated conservatively with kinesitherapy and physical therapy. Usually, in the first 48-72 hours after an ankle sprain, cryotherapy, compression of the affected limb, and treatment with position (drainage) are applied. Early rehabilitation is essential for the rapid recovery of patients. Isometric and isotonic exercises are included to strengthen the muscles. Strengthening weak muscles is essential for rapid recovery and is a preventative measure against re-injury. Selecting the appropriate manual therapy technique or combination of techniques can be critical to achieving optimal results in patients with musculoskeletal disorders. Proprioception plays an important role in neuromuscular control and is considered one of the input components of the somatosensory system. In clinical practice, it is recommended to use kinesio tape to prevent collateral injuries in the ankle joint.

Conclusion

Rehabilitation after ligament injuries in the ankle joint area should include more exercises for proprioception and balance, exercises to strengthen the limb. Restoring the full range of dorsiflexion is important to minimize the risk of re-injury and quickly restore full functional abilities.

Key words: ligamentous injuries, ankle joint, kinesitherapy, physical therapy.

A SIGHT AT ANOTONYMS RELATED TO ONCOLOGICAL TERMINOLOGY

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Introduction

The antonyms which are used in the oncological terminology give greater expressiveness of this terminology, because the antonymy is a linguistic phenomenon which is characterized with this semantic opposition. It expresses the semantic relation of the lexical items which are

opposite in meaning. So unification of the words antonyms is based on their opposition of their meanings, because the antonyms are a language reflection of the most essential differences and opposition of the things, the phenomena, the recognition and the concepts of the world around us. They are a means of expressing the antithesis or contrast of terms that contain the comparison of logically opposite concepts or ideas. The contrastive semantic relations are expressed most often with special morphemes for sign reporting.

The aim of the article is to present the definition, characterization and grouping of antonyms in oncology; the sign, qualities and properties of antonyms in oncological terminology; the relationship of antonymy with synonymy and polysemy of terms in oncology.

Materials and methods

The materials used on the topic are theoretical sources - textbooks and oncology guidelines. The methods of this article are a study of the scientific literature on this topic - and an examination (extraction) of the examples on it.

Results

The sight on this terminology helps the process of learning it, describes its connection with the synonyms and the ambiguity of the terms. All these things make the process of learning it more interesting and pleasant. That is why the antonymy finds wide application in the oncological terminology for denoting singular objects. They differ by only one differential feature which is called oppositional nominative sign. On the basis of the opposites they are denoted by the positions and the directions in space and the dimensions of the oncological objects. They are expressed with prefix by means of antonymous prefixes. The antonymy also develops when naming anatomical objects based on the oppositely directed actions they perform. Also they are used in the oncological terminology because they give it greater expressiveness. That is why they are a means of expressing the antithesis or contrast of terms, which contain the comparison of logically opposite concepts of ideas. And the usage of well selected antonyms achieves brighter rendering of the opposite phenomena of oncology. The most important is that the antonyms are intertwining subjectively and objectively.

In conclusion the antonymy is universal for the human thinking and the developed languages lexical-semantic micro system with significant cognitive and aesthetic function.

Key words: *antonyms, terminology, oncology, terms, semantic links, synonyms, ambiguity.*

MODELS FOR INNOVATIVE INTERPRETATION OF LATIN CURRICULUM FOR MEDICAL PURPOSES, USED IN ON-LINE AND IN-PERSON TEACHING

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Introduction

The present text represents a new teaching model of Medical Latin by mapping grammatical curriculum. The compilation of materials shown takes part of a work book which represents materials and exercises by interpretation of the content in the program focused on visual materials. The maps and schemes could be used for explaining teaching content and for testing with practical tasks on the acquired knowledge of material. Graphic representations of rules and their use in practical exercises is a step to a new issue of a textbook with innovative interpretation of the content relying more on illustrative presentation of material than descriptive development. The text describes some aspects of specific usage in Latin language thought to students in the Medical University.

Aim

The field of education is focused on the first-year students of Medicine and Dental Medicine studding their Latin curriculum through the medium of Bulgarian and English.

Materials and methods

The subject is centered on specific terminology destined to medics and professional communication in the context of medical disciplines. The content is divided into clinical and anatomical nomenclatures, whereas

the Greek roots and terms are a dominant part of the curriculum. Writing diagnoses in Latin is an essential part of their preparation where the grammatical points is more important and needed.

Mastering the Latin content is a linguistic approach to bring in the student to derivations in medical terminology.

Results and discussion

Grammatical orientation in teaching methods of students is basic and primary from didactic perspective but the specific methods of mastering this content require some new approaches for adopting and facilitating the process of memorizing and understanding.

Conclusion

This work is trying to suggest some possible ways to improve the learning process of specific content in anatomical terminology.

Key words: *schema, Latin language, Study content, rules, grammar.*

PLAGIARISM IN THE CONTEXT OF ONLINE LANGUAGE MODELS AND AI-GENERATED TEXTS BEING INTRODUCED TO THE CREATIVE AND RESEARCH SPHERES A STATISTICAL ANALYSIS BASED ON THE RESULTS OF AN ANONYMOUS SURVEY AND TRANSCRIPTS OF INQUIRIES AND INTERVIEWS

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Introduction

Language models are AI systems that have been around since the early 2000s. Through

statistical techniques in the early years of their development and the contemporary, cutting-edge neural networks, language models aim to understand, emulate and generate human language. They are now used for text generation, translation and conversation with some uses being potentially revolutionary while others treading the fine line between dubious morality and outright frightening or illegal practices.

Aim

This paper aims to introduce and analyze the results of a 2023 anonymous survey on language models and their use for work, study and leisure among 242 first- and second-year *Medicine, Pharmacy, Midwife, Nurse, Protection and Control of Public Health and Social Activities in Healthcare* students at MU-Pleven and 76 *English Philology* (second-, third- and fourth-year), *Applied Linguistics* (first-, second-, third- and fourth-year) and *Bulgarian and English (teacher qualification program)* (third-year) students at *St. Cyril and St. Methodius UVT*. Specific focus is put on the effects language models have on plagiarism in academia.

Materials and methods

The analysis of the data gathered from the anonymous survey was conducted by lecturers at both institutions and supplemented by research data and report (for the November 2022 – January 2023 period) by media monitoring and analysis expert *A Data Pro*. The questions in the survey center around online language models and their proliferation and uses among students at both higher learning institutions, focusing on potential misuse. In-person interviews were conducted among a targeted group by two *Medicine* students at MU-Pleven.

Results

About half (51%) of the surveyed students admit to having resorted to plagiarism at some point in their academic endeavors, yet most (59%) consider such acts immoral. Most of the surveyed (67%) admit not being familiar with online language models with only a small minority (16%) having ever used one. While many of those who have used AI-based tools (62%) are skeptical of their impact on their professional life, most (84%) are willing to keep using them. Most surveyed (75%) approve of the future integration of AI-based technology in academia.

Conclusion

All collected survey and interview data points to an imminent surge in the proliferation and application of AI-based language models in academia, medical texts and education in particular. However, particular attention must be devoted not only to their use as an emerging learning aid but also as a slippery slope to plagiarism and faux competence.

Key words: *online language models, AI-generated text, plagiarism.*

THE SPECIAL EDUCATION OF NORWAY

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Introduction

The report presents special education in Norway and the educational structure, which is similar to that of Sweden. It analyses the country's special education policy and also briefly presents administration and special provision. Emphasis is placed on special groups of students, according to the country's existing educational programmes.

Aim

A study and analysis of special education in Norway.

Materials and methods

A documentary method was used. Research and analysis of normative documents, literary Internet sources on the problem under consideration was carried out.

Results

In Norway, special schools are almost closed or there is one of each type, which has been reformed into a national diagnostic center. On average, about 3,600 students study in special schools, and 16 000 are integrated. There are no special kindergartens in the country, which guarantees full integration at this age and level. A team of specialists performs the diagnostic assessment and the written consent of the parent is required

for all activities that will be carried out with their child. If necessary, the parents again participate in the development of the individual curriculum according to which the child will be educated.

Conclusion

After-school care for students with special educational needs receive professional training in general and special colleges, and the education is completely free. In conclusion, it is important to note that Norway in world practice is known for great successes and achievements in the field of teaching deaf-blind students.

Key words: *special education, Norway, special education needs, students.*

THE SPECIAL EDUCATION OF IRELAND

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Introduction

The report provides a brief overview of special education in a small country like Ireland, but a prosperous Western European country. The first special schools arose in the country in the 19th century as schools for deaf and blind children.

Aim

A study and analysis of special education in Ireland.

Materials and methods

A documentary method was used. Research and analysis of normative documents, literary Internet sources on the problem under consideration was carried out.

Results

Integrated education is developing extremely strongly in the country and students with neurosomatic diseases are being successfully integrated. Special assistants are provided for them and are appointed by the Ministry of Social Welfare and Transport. The care allocated to a child is two and a half hours per week. Early intervention services work well in Ireland and the first attempt to integrate children with special

needs was made way back in 1968. The concern for students with multiple disabilities and also for children with autism and the National Autism Association, founded in 1967, is extremely important.

Conclusion

On the basis of all that has been said so far, and as a result of the review of the scientific literature, without claiming to be exhaustive, it can be concluded that in Ireland, work placement services provide exceptional opportunities for children, students and young people to gain equal access to quality services. We should note that special education in the country is completely free and is largely financed by the state.

Key words: *special education, Ireland, special education needs, students.*

METHODOLOGICAL APPROACH FOR FORMATION AND DEVELOPMENT OF READING LITERACY IN STUDENTS AT 1ST - 4TH GRADES

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Introduction

The article presents the results of a pedagogical research conducted with students from the primary stage of education. Object – the education in Bulgarian language and literature in the 1st - 4th grades.

Aims – to create, justify and approve a methodological tools for formation and development of students' reading literacy. The need to change the methodical approach of teachers and persistent work for the development of students' cognitive processes, as an important prerequisite for the formation and development of reading literacy, is emphasized.

Materials and methods

An experimental pedagogical study was conducted with 4th grade students, divided into two groups – control and experimental.

The changes in the students' achievements are monitored before and after testing the constructed methodological tools. Applied diagnostic tool - reading comprehension test.

Results

The comparative analysis of the results of the Pre test and Post test confirm the effectiveness of the proposed methodical approach. A significant increase in the results of the students of the experimental group is observed at the end of the research.

Conclusion

A methodical approach, including persistent work for the development of students' cognitive processes, contributes to the development of reading literacy.

Key words: *reading literacy, students, primary stage of education, research, cognitive processes.*

ASSERTIVENESS AND SELF-ESTEEM

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Introduction

The need for good communication between people is becoming more and more relevant, and for it to be successful, the participants need to be assertive and show assertive behavior.

Aim

This report examines some key characteristics of assertiveness and the need to create effective models for its development from early school age.

Materials and methods

For the successful realization of the aim, the present study addresses the research question in a theoretical aspect. On the basis of a literature review, an adequate identification of the problem is carried out, which leads to more possibilities for the analysis of assertiveness and its manifestations in human behavior.

Results and discussion

In the dissertation work titled “A Model for Transforming Aggressive Behavior into Assertive Behavior through Storytelling by Primary School Students (Grades 3-4),” the thesis posits that manifestations of assertive behavior are largely influenced by self-esteem, which is an active factor in determining one’s actions and behavior. In the process of developing consciousness, self-awareness is also formed; by becoming aware of their social environment, individuals come to understand themselves. In the modern world, the need for good communication between people is becoming more and more relevant, and for it to be successful, it is necessary for the participants to have assertiveness and show assertive behavior. Assertiveness is one of the important social skills in the context of emotional intelligence and constructive communication skills when asserting one’s own position. It is a skill that requires sufficient information, time and practice to be mastered and applied in all spheres of life by the modern person. This is also one of the main tasks of pedagogical research with the aim of creating a working and effective model for the transformation of aggressive behavior into assertive behavior.

Conclusion

Good practices from the activity of the Personal Development Center in the school where the study was conducted are indicated. They are aimed at forming a full-fledged child’s personality, with an adequate evaluation system, which is the basis of assertive behavior.

Key words: *pedagogical model, assertive, self-esteem, self-awareness, primary students.*

ACHIEVEMENT OF THE STUDENTS OF THE SPECIALTY “MANAGEMENT OF HEALTH CARE” IN PROFILING DISCIPLINES FOR THE PERIOD

2017-2023

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Introduction

The pandemic of COVID-19 and the imposition of measures to limit the spread of the virus necessitated a change in the organization of training from a face-to-face to a distance form. Effectiveness of teaching and limitation of interpersonal interaction between lecturers and students were faced with great challenges, especially for students in medical universities.

Aim

To analyse the influence of the online form of education on the exam average of the students of the specialty “Health care management” in profiling disciplines after the completion of the course.

Material and methods

In July 2023, a comparative analysis was made of the average semester success of students studying in the specialty “Management of health care”, “bachelor” and “master” degree in the disciplines “Management of health care” and “Methodology of training in practice in specialties from the professional field of health care”. For the purposes of the study, two periods were examined (before and during the COVID-19 pandemic).

Results

For the first period, the exams for both disciplines were held face-to-face. In the discipline “Management of health care”, the final grade was the arithmetic mean of the defence of a health project and a didactically programmed control. In the second period (2020-2023), both parts of the exam were conducted online. There was an increase in the exam average, which can be explained by the students’ preference to take tests and a lower level of stress, due to the absence of direct contact with the teacher. In the discipline “Methodology of training in practice in the specialties of the professional field of health care”, the exam was also realized in two parts - defence of methodological development and oral exam. In the second period, both parts of the exam were conducted online. There was also a convincing increase in the exam average, but only for bachelors, while for masters the trend is fluctuating.

Conclusion

Online learning and testing are preferred by students, which positively affects their success. Further research is needed on what factors account for the better results and whether they reflect actual knowledge and skills gained.

Key words: *health care management, bachelors, masters, achievements, online education*

THE MODERN ROLE AND PLACE OF OPHTHALMIC NURSE IN THE MULTIDISCIPLINARY TEAM IN EYE PATIENT CARE

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Introduction

Eye health care encompasses a wide range of nursing competencies contributing to a unique professional role. An ophthalmic nurse can independently or in a team with a doctor, provide complex care for all aspects of ocular health. She can successfully solve existing and potential eye health-related problems through promotional and educational care, providing a safe living environment, conducting scientific research, participating in the management of the health care system and the formation of health policy.

Aim

The main purpose of eye health care is to protect and improve ocular health, to prevent eye diseases and adverse health consequences, to provide support and help the person to cope independently.

Materials and methods

To achieve this goal, it is necessary to provide highly educated and qualified ophthalmic nurses. The nursing profession is a regulated profession of public importance. Modern ophthalmic health care is presented in its breadth and multifacetedness. To the traditional aspects

of care, current aspects such as lifelong learning, managing care and teams, ensuring a safe environment and improving the population's access to ophthalmic health care have been added.

Results and discussion

The exercise of the professional activity by the nurse is regulated by legal and by-laws for professional qualification, legal capacity and membership in a state-recognized professional organization. The nurse provides quality and complex care by applying scientifically based methods and approaches in all structures of the health system. One of the main activities is eye health promotion, prevention of ocular diseases, training and scientific research. The requirements for ophthalmic nurses in exercising their professional activity are constantly being updated.

Conclusion

Nowadays, the following are added to the classic requirements: comprehensiveness and breadth of knowledge about health; application of modern knowledge and scientific evidence; clinical thinking and critical analysis of activities and results of their application for human health; care management; assuming responsibility for professional actions and risk management; intervention for active communication; effective team interaction, realizing one's own and respecting the roles of others in the team; striving for autonomy within the competences; striving for personal and professional development; creative and innovative management of resources and teams.

Key words: *ophthalmic nurse, multidisciplinary team, eye health.*

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2. Presentation of manuscript

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Title (first) page

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Acknowledgements. Authors should identify financial support for research, including information on grants received. Technical help, critical reviews of the manuscript and financial or other sponsorship should be acknowledged.

Second page

Summary. A concise and factual summary is required (not more than 200 words). The abstract should briefly state the purpose of research, principal results and major conclusions. References should therefore be avoided, but if essential, they are to be cited in full. Abbreviations should be avoided, but if essential they must be defined at their first mention in the abstract itself.

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Third page

Title, names of authors and summary in Bulgarian should be given for online version of the journal.

Next pages

Text should carry the following obligatory sections:

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Materials/Patients and Methods. Provide sufficient detail to allow the work to be reproduced. Methods already published should be indicated by a reference: only relevant modifications should be described.

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Discussion. This should explore validity and significance of the results from the work, and results considered in the context of results in other trials reported in the literature.

Conclusions.

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Standard journal article Provide names of all authors when there are six or fewer, if more - list the first six authors followed by et al.

Halpern SD, Ubel PA, Caplan AL. Solid-organ transplantation in HIV-infected patients. *N Engl J Med*. 2002;347(4):284-7.

Issue with supplement

Glauser TA. Integrating clinical trial data into clinical practice. *Neurology*. 2002;58(12 Suppl 7):S6-12.

Issue with no volume

Banit DM, Kaufer H, Hartford JM. Intraoperative frozen section analysis in revision total joint arthroplasty. *Clin Orthop*. 2002;(401):230-8.

Author(s) and editor(s)

Breedlove GK, Schorfheide AM. Adolescent pregnancy. 2nd ed. Wiczorek RR, editor. White Plains (NY): March of Dimes Education Services; 2001.

Chapter in a book

Meltzer PS, Kallioniemi A, Trent JM. Chromosome alterations in human solid tumors. In: Vogelstein B, Kinzler KW, editors. *The genetic basis of human cancer*. New York: McGraw-Hill; 2002. p. 93-113.

Journal article on the Internet

Aboud S. Quality improvement initiative in nursing homes: the ANA acts in an advisory role. *Am J Nurs* [serial on the Internet]. 2002 Jun [cited 2002 Aug 12];102(6):[about 3 p.]. Available from: <http://www.nursingworld.org/AJN/2002/june/Wawatch.htm>

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