Macedonian Medical Master of Science (MSc) Theses Defended in 2007

Faculty of Medicine, University “Ss Kiril and Metodij”, Skopje, Republic of Macedonia

Key words:
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Eleonora Adamovska. Research for the epidemiological factors for the appearance of endometrial cancer in the municipality of Bitola [MSc thesis]. Skopje, Republic of Macedonia: Institute of Epidemiology and Biostatistics with Medical Informatics, Faculty of Medicine, University “Ss Kiril and Metodij”; 2007.

The aim of the research is to determine the risk factors for the appearance of endometrial cancer in the municipality of Bitola. The research has been made at retrospective and case-control study. The examine group consists of 60 patients confirmed with pathohistological verified endometrial cancer and an equal number of women without malignant diseases have been examined. The increased risk of the appearance of the illness is calculated in steps of priority and by intervals of loyalty whereas the risk factor is defined by the statistical importance of the examined variables. The age group of 60 to 64 is mostly present within the examined group of women (35%). According to the place of residence, the urban area is more protected than that of the rural one (OR=0.33, 95%CI 0.12-0.85). Women with primary education have a significantly higher risk of receiving endometrial cancer compared to those with secondary education (OR=4.21 95%CI 1.45-12.51) and those with a higher education (OR=5.61, 95%CI 1.71-20.01). The higher education is protective factor (ExpB=0.151 95% CI 0.046-0.492). Women housewives compared to women farmers have an insignificant higher risk of 1.23 (95%CI 0.30-4.71). The risk of housewives is significantly higher when compared to women laborers (OR=4.02, 95%CI 1.29-12.75) and women working in service organizations (OR=6.14, 95%CI 2.00-19.24). Women who are married have an insignificant higher risk compared to those who are widows or divorced (OR=1.69, 95%CI 0.74-3.90). Macedonian women have a higher risk of 1.52 (95%CI 0.17-18.84) compared to those...
of other nationalities (Albanian and Turkish). Contraception with coitus interruptus and condom is a risk factor (ExpB=5.983 95% CI 1.279-27.997). Obesity is the bigger risk factor for the endometrial carcinoma (ExpB=15.982 95% CI 2.867-89.092). The age of menopause after 51 year is also a risk factor ((ExpB=4.347 95% CI 1.44-13.118).

**Key words:** Endometrial cancer, age, education, contraception, obesity.


Mentor: Assoc. Prof. Dr. Beti Zafirova.

Nenad Atanasov. Comparative radiological-ultrasonographic analyze of the bone during surgical elongation [MSc thesis]. Skopje, Republic of Macedonia: Clinic for Orthopedic Surgery, Faculty of Medicine, University “Ss Kiril and Metodij”; 2007.

In the introduction of this study, attention has been paid on some historical aspects of external fixation of extremities, as well as of ultrasonography in evaluation of new bone formation. Some morphological and structural aspects of bone tissue have been explored. The method of stress of tension (MST) has been analyzed with regard to its clinical application. However, morphologic, radiological and ultrasonographic aspects of new bone formation have not been set aside, as well.

The purpose of this study is a clinical observation and analysis of biologic response of bone during the process of lengthening using the method of stress of tension (MST). Radiological and ultrasonographic examinations have been used for that purpose.

The clinical material is consisted of 52 bones that underwent a corticotomy in 32 segments of 31 patients, surgically treated on the Clinic for orthopedic surgery in Skopje. Analysis has been made in 4 different stages of lengthening process, using unified radiographic and ultrasonographic parameters. Main criteria included morphologic, structural aspects and aspects of density of new bone produced in the lengthening process.

Results showed high statistical correlation between the results of two methods in regard to dynamics of all the indicators of new bone throughout the lengthening process. Nevertheless, statistical significance has been confirmed in some differences in performing of certain elements of new bone formation, such as indicators differing in size, shape and bone density.

Both methods used in this study are complementary in presenting the biologic response of bone and surrounding tissues on the artificial stress of tension. Results of simultaneous use of these methods have a significant influence on exact planning of dynamics of surgical lengthening of segments and whole extremities.

**Key words:** Not available.


Mentor: Prof. Dr. Blagoj Mishev.

Vasilcho Spirov. Double contrast technique in roentgenologic examination of the colon in hypotonia [MSc thesis]. Skopje, Republic of Macedonia: Institute of Radiology, Faculty of Medicine, University “Ss Kiril and Metodij”; 2007.

The emphasis in radiology in the last decades has been on quality control and showing greater detail, and is achieved in gastro-intestinal radiology by the use of double contrast techniques, where drugs are essential for high quality examinations. The safety of glucagon, freedom from side-effects, rapidity of action and reliability has resulted in its widespread acceptance. The major disadvantage of glucagon is that it must be given by intravenous injection, and there is also the theoretical possibility of allergic reactions. The purpose of this study was to make an attempt to check the value of the routinely used modified double contrast barium enema examination by the means of smooth muscle relaxant drugs in radiodiagnosis of the bowel. 650 double contrast barium-enema studies with the Wellin modification were performed with or without glucagon, to compare its effect on diagnostic quality. This incidental sample of patients, in a way already selected, was used to create two separate homologous groups of 30 patients each. The results were tested by Kolmogorov – Smirnov two sample tests which are sensitive to differences in the general shapes of the distributions in the two samples. Thus, the alternative hypothesis was confirmed, meaning that the findings depend on the modification of the used double contrast technique supported by spasmolytic. Other authors also report their experience with glucagon in the barium-enema examination. At present the average practicing radiologists is able to manage his gastro-intestinal examinations more effectively with the help of this spasmolytic. It’s my impression that while pharmaco-radiology of the gastrointestinal tract is gaining wider acceptance its full potential has as yet not been realized.

**Key words:** Double contrast barium-enema examination; glucagon; bowel.
Ivica Smokovski. Comparison of the UKPDS and Framingham models for the evaluation of absolute risk for coronary heart disease in diabetes mellitus 2 and their clinical implications [MSc thesis]. Skopje, Republic of Macedonia: University Clinic for Cardiology, Faculty of Medicine, University “SS Kiril and Metodij”; 2007.

No abstract available.

Keywords: Not available.

Mentor: Not available.


The uncoupling of bone formation and resorption with a negative remodeling balance leads to generalized bone loss in rheumatoid arthritis (RA). The pathogenesis of this altered bone metabolism is multifactorial. Osteoporosis is most pronounced in steroid-treated patients, in postmenopausal women, in elderly patients and in patients with active RA. This four factors determine subpopulation of patients with seriously increased risk of osteoporosis and consequent vertebral and non vertebral bone fracture, including the fracture of the hip.

The present study has been undertaken to evaluate the influence of inflammatory activity and corticosteroid (CS) therapy on bone turnover in postmenopausal women with RA.

This study was undertaken in Clinic of Rheumatology, University Clinical Center Skopje. We investigated 185 postmenopausal women which were not treated with bisphosphonates and/or hormone replacement therapy. The patient with RA (n=119) have been divided into two groups according to disease activity: 65 patients with RA (age 60.8 +/- 10.0 yr. disease duration 7.2 +/- 6.1 yr.) and 54 patients who were not active (age 61.5 +/- 9.5 yr. disease duration 12.3 +/- 6.2 yr.). The control group consisted of 66 patients with mild osteoarthritis of the fingers (Heberden nodes).

According to the corticosteroid therapy RA patients were divided into four subgroups: 34 patients with active RA on CS therapy, 31 patients with active RA without CS therapy, 22 patients with non active RA on CS therapy and 32 patients with non active RA without CS therapy. Additionally, some biochemical markers of bone turnover have been determined. Serum-osteocalcin (OC), urinal-N-terminal telopeptide of type I collagen (NTx) and serum-C-terminal telopeptide of type I collagen (CTX) were determined with electrochemiluminescence immunoassay (ECLIHA). Serum-bone alkaline phosphatase (BALP), and serum-calcium-alb (s-Ca-alb) and serum-phosphate (PO4) were determined with spectrophotometric method. Fifty seven (47, 9%) patients were receiving CS at a mean dose of 5.75 +/- 2.59 mg/day. Cumulative CS dose was mean 11806.29 +/- 13781.40 mg. The most common DMARD was methotrexate used by 47 (39, 5%) patients. There was no correlation between all investigated markers of bone metabolism with age, disease duration and menopausal duration of the RA patients. Serum OC and BALP are significantly lower in patients with active RA compared with patients with non active RA and controls. There was no correlation between OC and parameters of disease activity (ESR, CRP and HAQ). There were significant differences in the levels of OC and BALP in patients with active and patients with non active RA, according to CS therapy. The lowest levels of OC and BALP are registered in corticosteroid-treated patients with active RA. In patients with active RA concentrations of u-NTx were significantly higher compared to patients with non active RA and controls. Serum CTx was also significantly higher in patients with active RA compared to patients with non active RA and controls. The difference of the levels of u-NTx and s-CTx between patients with RA and controls were significant. Serum Ca-alb and PO4 were significantly higher in patients with active RA compared to patients with non active RA and controls. All investigated markers of bone resorption were positively correlated to parameters of inflammation. There is no difference between levels of all markers of bone resorption in patients with active RA as well in patients with non active RA according to CS therapy.

This study showed that disease activity and CS-therapy influence on bone metabolism in postmenopausal women with RA. The inflammation correlates with increased bone resorption which is not followed by increasing of bone formation. On the contrary, bone formation is suppressed which proves that bone resorption is dominant factor for bone loss in active RA. Small doses of CS can suppress bone formation without influencing on bone resorption. Daily dose of
CS is negatively correlated to markers of bone formations while cumulative CS-dose has no influence on bone turnover. Rheumatologists could take in consideration that corticosteroid-treated postmenopausal women with active RA may require an antiresorptive agent when starting prednisone.

**Key words:** rheumatoid arthritis, bone turnover, bone formation, bone resorption, biochemical markers of bone turnover, disease activity, corticosteroid treatment.

**Defended:** June 27, 2007

**Mentor:** Prof. Dr. Mane Grlichkov.

Izabela Filov. Phorenec- psychiatric -psychological evaluation of paranoid condition in perpetrators of criminal act. [MSc thesis]. *Skopje, Republic of Macedonia: Faculty of Medicine, University “Ss Kiril and Metodij”; 2007.*

**Introduction.** The connection between psychiatric disorders and aggressive behavior, especially homicides, as extreme shape of human aggression, is confirmed with many surveys. It is assessed that 82% of the causes for violent behavior are paranoid states and which is with risk of aggressive manifestation, including homicides.

**Materila and metods.** The purpose of the investigation is to analyze psychopathological, psychological and social characteristics of subgroups of patients, which have been diagnosed as paranoid states and which is with risk of aggressive manifestation, including homicides. Material and methods: The investigation was conducted in the Psychiatric Hospital-Demir Hisar and the Community Mental Health Centre-Prilep. Experimental and control group has 50 patients. In the first group, the patients were homicide perpetrators, and in the second group, they were not perpetrators of any criminal act. Both groups were submitted to BPRS (Brief Psychiatric Rating Scale), scale constructed for evaluation of the severity of the psychiatric symptoms, LOBI (List of Basic Information), Paranoid Scale, Scale of Aggression, MMPI and Forensic Questionnaire.

**Conclusions.** Investigation shows increased values of the most of the variables of the experimental group, compared with the same variables of the control group.

**Discussion.** The specific psychopathological variables, which are connected with committing homicide, are: anxiety, hostility, grandiosity, aggression, uncooperativeness and excitement. The psychologi-
The aim of this work is to affirm if there is any digression in the growth and psychomotor development at the institutionalized children comparing co-evals who live with their biological families and which areas of development are involved the most.

In retro-perspective prospective, case control study 131 infants at the age of 1-12 months are involved, who stayed in the Infant Home in Bitola during the year 2005. The children are divided according their age in three subgroups: 53 infants at the age of 3 months are part of the first subgroup, 39 infants at the age of 3-6 months are in the second subgroup and 39 infants at the age of 6-12 belong to the third subgroup. The age of infants coincide with the duration of their stay at the Home. The control group is consisted of the same number of infants who live with their biological families, selected by random attending their regular check ups in the Children counseling Service at the Health Center in Bitola. The children are divided in three subgroups according their age and sex, similar as in the control group. The criteria for being part of the group were: age, sex, apgar>7, birth weight > 2500, birth length > 48 cm. and gestational age > 37 g.n. The analyzed parameters are: anthropometrical (weights, length/height) and psychomotor development. The psychomotor development was judged according the Griffith’s scale and the children were judged in the following areas: locomotion, adaptation, hearing/speaking, motor development and total achievements. According to the achieved results the mental age and developmental coefficient of each child were calculated.

The result showed significant statistical difference between the researched and control group concerning the values of anthropometrical parameters (p<0, 01). The stagnancy of development of the institutionalized children was established from the achieved values for psychomotor development in all areas, especially in the area of motor development, adaptation and speaking. The difference in the values are highly statistically significant (p<0, 01). The mental age of the infants researched group of didn’t correspond to the chronological age. The coefficient of development is diminished during their stay in the Institution, the stagnancy is more vivid with the duration of their stay in the Institution. All efforts need to be turn towards the prevention of children accommodation in Institutions, their reintegration and resocialization. Adoption or a family is an alternative for taking care of such children.

**Key words:** Not available.
Cancer register of the RM does not meet the international standards.

Targeting the improvement in functioning of the whole system of the Cancer register in the RM, several changes were proposed and draft form was proposed: Entry form for MN in accordance to the international standards. In accordance to the updated IT and the international experiences, using scientific methodology, the following groups of recommendations are presented: Enactment preparations; Improvement in data collection; Data entry in the data base of the Cancer register of the RM; Processing and analysis of the exit data/information from the basis of the Cancer register of the RM; Publication and access to the data base of the Cancer register of the RM; Data processing for MN on regional level; Establishment/incorporation of inpatient cancer register; Establishment of better international cooperation; Intensifying interdisciplinary professional and scientific-research work related to cancer; Recommendations to achieve comparability of the data in the Cancer register of the RM, in accordance to the standards of the scientific publication “Cancer incidence in Five continents”.

**Key words:** cancer register, malignant neoplasm.

**Defended:** July 10, 2007.

**Mentor:** Not available.

Rada Grubovic. Analysis of the factors which influence on the decision to donate blood [MSc thesis]. Skopje, Republic of Macedonia: Institute of Transfuziology, Faculty of Medicine, University “Ss Kiril and Metodij”; 2007.

**Introduction.** Contemporary health care in one country can not be imagined without sufficient blood supply. A well functioning blood service is dependent on people who are willing to come forward and give blood as a gift in those in need. This prerequisite brings a deeply human aspect to the blood service, but also leaves it dependant to the fluctuations of people’s donation behavior.

**Aim.** The aim of this study is to analyze the factors which influence the decision to donate blood, in order to understand better the blood donation process, to improve the efficiency of blood collection, safety of blood and to increase the number and diversity of blood donors, and this way to contribute to better development of blood donation in Republic Macedonia.

**Material and methods.** This is prospective study performed in NITM-Skopje and with mobile teams of NITM in 2005 and 2006. 1000 blood donors and 1000 non-donors fulfill the questionnaire, which was consist of questions about their socio-demographic characteristics, information and knowledge for blood donation, as well as, for their attitudes, believes, motivations and misperceptions for donation of blood.

**Results.** Blood donors are average 32 years old, mostly men (74.6%), Macedonians (88.2%), with high school education (58.6%), mostly employed (44.4%) and youth (38.2%). Both, the donors and non-donors think that are well informed (75%) and show sufficient knowledge at the quiz. There are a lot of misperceptions, especially about the risk of blood donation, risk from infection for donors and recipients (50%), as well as, misperceptions that blood is selling (35%). They are motivated by their wish to help the ones that need blood (82.4%), offered benefit (32.2%) and awareness that one day everybody can be potential recipient of blood in certain life period. Fear of infection (29.6%), fear of needle (22.4%) and rumors that blood is selling (14%) have negative effects on them.

Non-donors said that they would be donated blood if there is a need for a sick family member (49.6%) and to help others/solidarity (48.4%). The most of donors and non-donors heard for the first time for blood donation in the school, and they wish to be invited for donation with an open call (36.8%), mostly. There a lot of blood donors in their close environment and in the family. The most of them donate blood as voluntary blood donors (72.8%), regular donors are 21.6%, familiar are 11.8% and by invitation donate blood 8.6%. Albanians (35.5%) and unemployed often donate blood as familiar donors; therefore their motives for blood donation are different.

The most often frequency of donation is on every 3 (26.6%) and 6 (26.0%) months, and they wish for donation of blood in the future is also every 3 (37.2%) and 6 (35.8%) months.

**Conclusion.** In order to increase blood supply, we should target the specific target groups, starting from the earliest age, through proper information and education.

**Keywords:** blood donors, motivation, blood donation.

**Defended:** September 26, 2007.

**Mentor:** Not available.

Elizabeta Smilevska Sivevska. Behavioral examinations of goal behavior of animals with experimentally induced epilepsy [MSc thesis].
Learning is increased probability to perform a certain action in given situation as a result of adequate experience. Observation of learning in experimental animals takes place in mazes, where the ability of the animal, to find the way to a certain goal is examined. Kindling model of epilepsy is an epileptic behavior of the animal which is induced with special treatment. This treatment leads to epileptic attacks.

The goal of this research was to set the model of experimentally induced epilepsy (kindling model), to determine the parameters of the behavioral examinations and to examine the goal behavior in labyrinth paradigm in the examined group. As experimental animals, 250 Wistar rats were used, 14 to 23 days old with body weight of 20-35 grams. Two methods were established: a method of getting the kindling model (subject) and a computer driven labyrinth paradigm employing double T-maize. For getting the kindling model caffeine was used, administered intraperitoneally, diluted in physiological solution in different doses. Analyzed parameters in the goal behavior in the labyrinth paradigm were: time from the beginning till the end, time of first decision, time of second decision, number of mistakes, number of alarms and number of electroshocks.

Most of the experimental animals (80%) gave the maximal answer of activity on 10 mg/kg BW caffeine and this was determined as a subconvulsive dose for chronic treatment. Best kindling model was obtained with chronic intraperitoneal administration of caffeine following the procedure: 5 days subconvulsive dose of 10 mg/kg BW caffeine, 2 days without treatment, and the eight day administration of 100 mg/kg BW caffeine, when the cramps occur (visible manifestation of epileptic attacks).

Behavioral examinations have shown that between the third and the fifth day the animals present specific parameters, characteristic for the kindling model of epilepsy. The examination of the goal behavior of the animals on the labyrinth paradigm showed that the rats treated with the most efficacious procedure for experimentally induced epilepsy, presented process of learning, considering most of the parameters. The examination of the goal behavior in animal kindling model of epilepsy induced with caffeine can be a model for examination of cognitive capabilities of patients with epilepsy and evaluation of the treatment with antiepileptic therapy.

Key words: Cognitive, learning, kindling model, behavioral, caffeine

Defended: September 26, 2007

Mentor: Not available.

Dubravka Antova. The meaning of IgA anti dsDNA antibodies in clinical expression and activity of Systemic lupus erythematosus [MSc thesis]. Skopje, Republic of Macedonia: Clinic of Reumatology, Faculty of Medicine, University “Ss Kiril and Metodij”; 2007.

Systemic lupus erythematosus (SLE) is a chronic, autoimmune disease of unknown etiology. It can affect all organs and multiple organ systems resulting in variable clinical manifestations, different course and prognosis. The principle future of autoimmune diseases is presence of a large number/vast of auto antibodies. As specific SLE auto antibodies are considered those that react with native, double-stranded DNA (dsDNA). Antibodies to DNA (anti dsDNA) are AHA subpopulation of particular importance for establishing the diagnosis and managing patients with systemic lupus erythematosus (SLE). These antibodies are present in the active phase of SLE, especially IgG isotype. The role of the other isotypes of immunoglobulins from anti ds DNA at, mainly IgA isotype, have induced large research interest. Conducted studies have already portrayed the importance of IgA isotype of anti dsDNA at as a diagnostic and prognostic marker in defining subpopulations in patients with different SLE clinical manifestations. Therefore, these antibodies are an interesting motive for numerous investigations.

The aim of this paper was to determine the potential of IgA class antibodies against dsDNA in monitoring the activity of the disease and certain clinical manifestations in SLE patients.

Sixty patients with systemic lupus erythematosus (SLE) were included in this paper. Control group consisted of 30 selected sera from healthy volunteers. Quantitative determination of IgA anti-dsDNA antibodies was done by using ready commercial ELISA sets.

The test of sensitivity have shown positive IgA anti dsDNA at in 57% of the patients. The test of specificity revealed native IgA anti dsDNA antibodies in 91% of the healthy subjects, which was in agreement with other studies. The serum level of IgA anti dsDNA at correlated with the activity of the disease. The level of IgA anti dsDNA antibodies in the subpopulation of patients with vasculitis, arthritis, and particularly with
nephritis, increased with the activity of disease. There was a significant positive correlation between serum levels of IgA anti dsDNA at and IgG anti dsDNA.

It could be concluded that IgA anti dsDNA at is a useful parameter in screening SLE patients, which in combination with IgG anti dsDNA antibodies can be used for routine monitoring of SLE patients.

**Key words:** Systemic lupus erythematosus, Lupus, Anti-dsDNA antibodies-IgA.

**Defended:** October 26, 2007.

**Mentor:** Not available.

Lazo Pendovski. Morphologic study for blood vessels and pelvio-caliceal system in pig kidneys [MSc thesis]. Skopje, Republic of Macedonia: Institute of Anatomy, Faculty of Medicine, University “Ss Kiril and Metodij”; 2007.

The aim of the study was to establish a valid experimental model of pig kidney that can be used in experimental works in human medicine. Our material consisted of 236 pig kidneys taken from adult pigs from two breeds (mixed breed landras/jorksir and mixed breed dalland), slaughtered at age 5.5 months and weighing of mean 95 kg. The kidneys were morphometrically evaluated considering their weight, length, cranial and caudal poles width and thickness. Intrarenal anatomy (collecting system and blood vessels) was studied on three-dimensional silicone S10 corrosion endocast and on plastinated kidneys. Also, 30 human renal angiograms were analyzed. The data was statistically evaluated and the findings of pig’s kidney anatomy were comparing with previous published findings in humans.

The both breeds considering the morphometric measurements were similar with those in humans. The pelvicaliceal system morphology in pig kidneys was define, as the number of minor calyces per collecting system and its drainage into kidney collecting system. The caudal pole spatial anatomy in pig collecting system (infidibular length, infidibular width and infidibulopelvic angle) showed dimensions with those published findings in human. Based of the intrarenal distribution of renal artery, the renal segments in pig kidney were identified, marked and named. As in humans, the venous system in pig’s kidney was not segmented because there were anastomoses between venous branches arranged in three different longitudinal levels. The renal artery in human kidney give arise to posterior branch into anterior branch on with apical, upper, middle, and lower segmental arter-ies arise.

From anatomic views, despite some differences pointed in the study, we establish many similarities between the pig and human kidney morphology. The resemblance in their morphometry measurements, collecting system anatomy as in distribution of intrarenal blood vessels, conduce to conclusion that the pig kidneys are the best animal models that could be used in the field of experimental human medicine.

**Key words:** Kidney, pig, morphometry, collecting system, renal arteries and veins, model, education

**Defended:** October 30, 2007.

**Mentor:** Not available.

Ljubinka Damjanovska Rajcevska. Diagnostic value of anti-cyclic citrulinated peptides antibodies in reumathoid arthritis [MSc thesis]. Skopje, Republic of Macedonia: Faculty of Medicine, University “Ss Kiril and Metodij”; 2007.

No abstract available.

**Key words:** Not available.

**Defended:** October 31, 2007.

**Mentor:** Not available.

Silvana Markoska-Simoska. Neurofeedback in judgment and treatment in attention-deficit/hyperactivity disorder in children [MSc thesis]. Skopje, Republic of Macedonia: Clinic for Childrens Diseases, Faculty of Medicine, University “Ss Kiril and Metodij”; 2007.

Attention-Deficit/Hyperactivity Disorder (AD/HD) is a behavioral disorder defined by inattention, with or without hyperactivity, and/or impulsivity. The estimated prevalence of ADHD is 7% to 10% in boys and 3% in girls aged four to 11 years. Diagnosis is complicated by the fact that none of the core symptoms are exclusive to AD/HD and the majority of AD/HD patients suffer from at least one additional psychiatric disorder. AD/HD was originally thought to be limited to children and adolescents. However it is now recognized that in the majority of cases, AD/HD persists into the adult years. The methodology of AD/HD ethiology is difficult to research (Barkley, 1990). The most researchers suggest on multifactorial ethilogy, which includes the neurobiology as an important factor. It is widespread accepted that AD/HD can be due to chemical imbalance in the brain, genetically abnormalities, exposure to toxins in pregnancy and childhood, complications
during pregnancy, like oxygen deprivation, low birth weight, and low omega-3 Fatty acids (Elia, Ambrosini & Rapoport, 1999). Anyhow, additional studies have found that the central symptoms of AD/HD are associated with metabolic (Zametkin & Rapoport, 1987), circulatory (Amen, Paldi & Thisted, 1993) and electrophysiological abnormalities (Chabot, Merkin, Wood, Davenport & Serfontein, 1996; Chabot & Serfontein, 1996; Mann et al., 1992).

Stimulant drugs have been the treatment of choice for AD/HD for more than three decades. The use of neurofeedback (EEG biofeedback) to treat AD/HD dates from the 1970s (Lubar & Shouse, 1976). Nevertheless, it was not until the 1990s that neurofeedback became widely available as an alternative to stimulant drugs.

Fifty children (14 females and 36 males), with average age of 11.11±4.51 years, diagnosed as AD/HD, have been treated with 40 neurofeedback sessions, two times weekly during 50 minutes each session. The aim of the neurofeedback treatment was decreasing of the amplitude of slow brain activity (theta 4-8 Hz) and increasing of fast brain activity (beta 16-20 Hz). For the children with impulsivity and hyperactivity, increasing of sensorimotor brain activity (SMR 12-16Hz) was also administered. The medicamentous therapy was excluded. Before and after neurofeedback treatment the following examinations were performed: VITIM (Vechsler test for intelligence for the Macedonian population), VCPT (Visual Continuous Performance Task), Conner’s questionnaire for parents and teachers, EEG evaluation of the theta/beta ratio and the “brain-rate” parameter.

Significant improvements of AD/HD symptoms (p<0.001) for inattention, impulsivity and variability of the reaction time on VCPT test were obtained. The total IQ score has been improved for 9 points. Also, the lower value for theta/beta ratio and higher values for “brain-rate” parameter were received. These data are very meaningful because gave the verification of the results obtained in the previous studies. Even there was no control group because of ethical reasons; the received results are consistent with the previously published investigations from this field. Additional important contribution of this paper is detailed description of the methodology (taking in consideration that our team is unique in Macedonia who applies neurofeedback, and that there is no workbooks in Macedonian language on this subject).

The described research is a part of the International project “Electric neuronal oscillations and cognition” (2005-2009), EU COST, Brussels, in which the candidate is the member of Working Group “Diagnostics and treatment”, while the mentor is national coordinator.

Key words: Not available.


Mentor: Prof. Dr. Nada Pop-Jordanova.

Beti Gjurkova. Evaluation of biochemical and organizational approach of neonatal screening for congenital hypotireoidism. [MSc thesis]. Skopje, Republic of Macedonia: University Children Hospital, Faculty of Medicine, University “Ss Kiril and Metodij”; 2007.

Thyroid hormone is essential for the growth and maturation of many target tissues, including the brain and the skeleton. The term ‘congenital hypothyroidism’ (CH) is used to classify any case of hypothyroidism present at birth. Unrecognized CH leads to mental retardation. Neonatal screening and thyroid therapy started within 2 weeks of age can normalize cognitive development.

Neonatal screening using a blood spot from the heel of newborn during the 2nd-5th day after birth and determination of thyroid stimulation hormone (TSH) level by fluoroimmunoassay (DELFIA method) is commonly used approach for timely detection of congenital hypothyroidism.

Material represents results of neonatal screening for CH from a dry drop of blood from the heel of newborn children during the period April 2002-December 2004. The newborn children were born in the following hospitals: Clinic for Gynecology and Obstetrics – Clinical Center Skopje, Hospital of Gynecology and Obstetrics ‘Chair’, ‘Mala Bogorodica’ Hospital and hospitals in Bitola and Prilep. The drop of blood from the heel of newborns is taken between the second and fifth day of birth, however not earlier than 48 hours after birth. Standardized filter paper (Schleicher & Schull 903) adjoined with a specially created computer paper from containing data of newborn children is used for this purpose. The DELFIA Neonatal hTSH (human TSH) assay is a solid phase, two-site fluoroimmunometric assay based on the direct sandwich technique in which two monoclonal antibodies (derived from mice) are directed against two separate antigenic determinants on the hTSH molecule. The cut-off value in our laboratory is 15 mU/L.

The coverage, timelines of programme indicators (age at sampling, recall and treatment initiation, timing of specimen delivery and laboratory results),
and indicators for screening efficacy (recall rate, sensitivity, specificity and positive predictive value) are analyzed. The established method is deemed as highly sensitive and specific. In our study, ten children with CH are detected or an incidence rate of 1: 2.778 is calculated. Therapy with levothyroxine has been started before the 15th day of life for all detected cases. The organization model functions well and provides coverage of 90% of newborns.

**Key words:** Congenital hypothyroidism, DELFIA method, neonatal TSH screening.

**Defended:** November 11, 2007.

**Mentor:** Not available.

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Viktorija Prodanovska Stojcevska. Prevalence of HBsAg, anti HCV and anti HIV antibodies in blood donors from Bitola, Veles, Strumica and Prilep [MSc thesis]. **Skopje, Republic of Macedonia: Institute of Transfusiology, Clinical Hospital-Bitola, Center of Transfusiology-Bitola, Faculty of Medicine, University “Ss Kiril and Metodij”; 2007.**

**Introduction.** Hepatitis B, C and HIV/AIDS are a significant social and health problem in the world and in our country as well. In Macedonia it is mandatory to test each blood unit with markers for TTI (transfusion-transmitted infections) as for: HBsAg, anti-HCV antibodies, anti HIV antibody and antibodies for Treponema Pallidum.

**Aim.** To determine the prevalence of HBsAg, anti-HCV antibody, anti-HIV antibodies with the voluntary blood donors in Bitola, Veles, Prilep and Strumica within the period of 2000-2006; to determine certain epidemiological characteristics of the donors with positive finds and the values of the presence of the examined parameters; to compare them with the registered positive cases of the same viral markers at the certain healthcare institutions.

**Material and Methods.** The paper is presented as retrospective-prospective study. All the blood donors controlled at the transfusion ward were being, considered during the retrospective analysis within the municipalities of Bitola, Veles, Prilep and Strumica within the period of 2000-2006; to determine certain epidemiological characteristics of the donors with positive finds and the values of the presence of the examined parameters; to compare them with the registered positive cases of the same viral markers at the certain healthcare institutions.

**Results.** As of the examination period in the above-mentioned municipalities the total prevalence for HBsAg positive donors in 0.63%, for anti-HCV positive antibodies is 0.2% and none for the anti-HIV positive antibodies. In Bitola municipality the prevalence of HBsAg positive donors is registered as 0.5%, Veles 0.8%, Prilep 0.4% and Strumica 1.0%. The prevalence of anti HCV positive antibodies is registered as: Bitola,0.3%, Veles 0.2%, Prilep 0.2% and Strumica 0.1%. According to the gender 66.1% from HBsAg positive donors and 68.3% of the anti-HCV donors are males. In the period between 2000-2006 year 81.8% are HBsAg positive donors and 82.7% anti-HCV are urban residents. According the age groups 264 (61.6%) HBsAg positive donors are between the age 25-44, 85 blood donors (61.2%) anti HCV are between 25-44 years old. The received data for HBsAg positive and anti-HCV positive donors in the municipalities of Bitola, Prilep, Strumica and Veles do not correlate with the officially registered HBsAg positive and anti-HCV positive individuals done at the healthcare departments.

**Key words:** Prevalence, HBsAg, anti-HCV antibodies, anti-HIV antibodies, blood donors.

**Defended:** November 12, 2007.

**Mentor:** Sc. assoc. Dr. Milenka Blagoevska.

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Mileva Rozeta. Epidemiological study for use of herbal medicinal products in Skopje [MSc thesis]. **Skopje, Republic of Macedonia: Faculty of Medicine, University “Ss Kiril and Metodij”; 2007.**

**World data show trend of increasing use of herbal medicinal products by the patients. Several authors describe the demographic characteristics of users of these products in order to get the profile of “typical consumer” of these products. Since herbal products may cause unwanted effects and may interact with concomitant patient’s medication, the communication between doctors and patients is of essential importance.**

**Objective.** To determine the prevalence of herbal use among patients from the city of Skopje and to describe the profile of “typical consumer” of these products. To determine the source of information that patients use to gain information for herbal products and to determine if there is a correlation between number of prescribed medicines and the use of these products.

**Design.** analytical, cross-sectional study

**Methods.** 363 patients aged over 18 were interviewed for use of herbal medicinal products at their visits to their general practitioner, in several ambula-
tory stations in Skopje. A special questionnaire was prepared for collecting data from the interviews.

**Results.** From all interviewed individuals, 52, 89% claimed using herbal medicinal products. There was no significant correlation neither between gender nor marital status of the individuals with the use of herbal products. Anyway, university educated individuals and those employed used these products significantly more frequently. Most common sources of information for the herbal remedies were friends and relatives followed by the magazines. These products were most commonly purchased in pharmacies. Considering use of herbal products, communication between doctors and patients is at a low level.

**Key words:** Herbal, products, Skopje.

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**Mentor:** Assoc. Prof. Dr. Beti Zafirova-Ivanovska.

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**Viktor Isjanovski. The role of some risk factors in ethiopathogenesis of schizophrenia [MSc thesis]. Skopje, Republic of Macedonia: Psychiatric Hospital, Faculty of Medicine, University “Ss Kiril and Metodij”; 2007.**

Schizophrenia is one of the most complex of all mental health disorders. There is no known single cause responsible for schizophrenia. However, it is likely that many factors—genetic, behavioral, and environmental—play a role in the development of this mental health condition. Schizophrenia is considered to be multifactorially inherited. Multifactorial inheritance means that many factors are involved. However, at least 2 groups of risk factors, genetic and perinatal, are widely thought to exist. Risk factors for schizophrenia include a family history of schizophrenia, older paternal age, prenatal exposure to famine, and prenatal exposure to pathogens such as influenza, prenatal exposure to mental stress, Rh incompatibility, pregnancy and delivery complications, and childhood infections of the central nervous system, and cannabis use during adolescence.

Stressful life events such as separation or divorce from a spouse, perceived or real abandonment by parents, broken relationship with a significant other, rehospitalization or discharge, change in therapists, or loss of a job have been found to precede depression and suicide in schizophrenic patients. A genetic factor probably does exist because the risk of schizophrenia is elevated in biological relatives of patients who are schizophrenic but not in adopted relatives. The risk of schizophrenia in first degree relatives of people with schizophrenia is 10%. If both parents are schizophrenic, the risk of schizophrenia in their child is 40%. Concordance for schizophrenia is about 10% for dizygotic twins and 40-50% for monozygotic twins. Schizophrenia affects men and women equally; symptoms in men begin earlier than in women. In most cases, schizophrenia first appears in men during their late teens or early. In women, schizophrenia often first appears during their 20s or early 30s. Still, less than 15% of individuals with schizophrenia are fully employed. Relatively few are independent. The risk of schizophrenia worldwide is 5% to 8% higher for those born during winter or spring, when colds and viruses are more prevalent. The risk is higher for people who are born in cities than in country. The risk for schizophrenia is also greater in large families in which there are short intervals between siblings (two or fewer years). There is an association between schizophrenia and problems surrounding birth: prolonged labor, bleeding during pregnancy and a short gestation period and low birth weight. No cultural or geographic group is immune, although the course of the disease seems to be more severe in developed than in developing countries. The disease occur twice as often in unmarried and divorced people as in married or widowed individuals. Furthermore, people with schizophrenia are eight times more likely to be in the lowest socioeconomic groups. Nevertheless, low income and poverty increases the risk for delayed diagnosis and treatment, poverty may also increase exposure to biologic factors (infections) or social stressors that could trigger the illness in susceptible people. Malnutrition is the mother during the first trimester of pregnancy has been associated with later schizophrenia in the child. The older a father is when a child is born, the greater the risk is for schizophrenia in his offspring. A large majority of people with schizophrenia abuse nicotine, alcohol, and other substances.

**Key words:** Schizophrenia, risk factors, etiopatology.

**Defended:** November 14, 2007.

**Mentor:** Prof. Dr. Gjorgji Chadlovski.