Material and Methods. Spinal trauma was created by free fall of 50 g weight on T8–10 segments. Epobel was administered 5000 iu/0.5 ml by iv route 1 hour after the trauma. Ionising radiation was applied at 60 and 200 cGy doses 2 hour after the trauma.

Results and Discussion. The results were evaluated by locomotor tests, ultrastructural tissue analysis, Tunel apoptosis test, ependymal stem cell identification, gliosis scores, proliferation analysis, enolase and S100 beta analysis methods.

Conclusions. Combination of eritropoetin with low dose raidation is beneficial for protection from secondary effects of spinal cord trauma.

THE ASSESSMENT OF THE GROWTH PROCESSES OF LATVIAN PRESCHOOL CHILDREN IN COMPARISON WITH WHO GROWTH STANDARDS

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Key words: *children, physical activity, body mass index (BMI), WHO Growth Standards*

Background. Due to worldwide growing problem of overweight and obesity the World Health Organization (WHO) has recently issued recommendations and guidelines for regular collection of data on weight, height and waist and hip circumference in children.

Aim. The aim of the research is to determine body composition of Latvian children in the last decade and to compare most important anthropometric characteristics of the Latvian children with the WHO Growth Standards 2007.

Material and Methods. Research was made using anthropometrical and questionnaire methods (about their lifestyle) trying to conclude if the increase of the excessive body mass and adiposity in Latvian preschool and a youngest grade schoolchildren is similar to one in other countries in the world, because the risk of health problem development increases in proportion with the body mass index enlargement or decrease. Total of 1235 healthy children were surveyed from all regions and different socio-economic groups.

Results and Discussion. After loosing the independence in year 1940 and especially in the post war period, the ethnic situation in Latvia has had major changes — due to emigration the amount of Latvian, and other nationality inhabitants in the country significantly decreased. This also includes a high number of multi national marriages, majority of them between Russians and Latvians. The correlation between BMI and fatness in children is influenced by age, sex, pubertal status and ethnicity. Since 2007 WHO growth reference charts was prevalent distributed, but child growth depends from geographic area and social and economic conditionals.

Conclusions. Comparing Latvian schoolchildren BMI values with the WHO Growth Standards, we can see that BMI percentiles values are significantly different. The WHO growth standards do not reflect the phenotypic range of the Latvian preschool and school children and we recommend using the Latvian growth curves (1998) to evaluate the growth processes of the Latvian children.

ULTRASONIC DOPPLEROGRAPHY APPLICATION FOR THE EVALUATION OF THE ARTERIAL PALMAR ARCHES FORMATION TYPES

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Key words: *ultrasound dopplerography of the upper limbs arteries, palmar arcs, radial artery, ulnar artery*

Aim. The study is devoted to the blood flow analysis in the basins of the radial and ulnar arteries and the evaluation of the prevalence of the palmar arcs formation types.

Material and Methods. The research was performed on a dispensary basis using the technique of ultrasound dopplerography supplemented with a functional Alain probe on the Samsung Medison R7 and Aloka SSD 3500 devices. 50 patients of both sexes aged from 32 to 85 years (mean age of 51 years) were examined. Data analysis was processed with Microsoft Excel 2007 software.

Results and Discussion. It was found that the average diameter of the radial and ulnar arteries in the total sample remains constant and is practically equal for the both radial artery — 1.77 mm (minimum diameter 1.3 mm, maximum — 2.7 mm) and ulnar — 1.78 mm (minimum diameter 1.4 mm, maximum — 2.9 mm). Peak blood flow rates obtained with pulsed wave doppler ultrasonography were also characterized for both arteries with a small difference, in the radial artery — 31.16 cm/sec (minimum speed is 5.6 cm/sec, maximum — 62.4 cm/sec), in the ulnar — 34.45 cm/sec. (minimum speed is 5.2 cm/sec, maximum — 77.55 cm/sec). The median for the both arteries estimation was also not significantly different: for the radial artery — 31 cm/sec, for the ulnar artery — 33.8 cm/sec.

When the Allen test was performed, it was found that in 50% of cases the pronounced blood supply of the palmar arcs from the ulnar arteries basin was observed, in 18% of cases it was registered in the radial arteries, and in 32% as a result of the measurement there was no significant change in the blood flow parameters or the result was doubtful.

Conclusions. As a result of observation, the dominant role of the ulnar artery in the formation of arte-

rial palmar arches of the hand was confirmed. A clinically significant group of patients with a high risk of complications in cases of exclusion from the active bloodstream of the radial artery has been identified.

COMPETENCY-BASED EDUCATIONAL APPROACH FOR FORMATION OF ANATOMICAL COMPETENCY IN HIGH MEDICAL SCHOOL

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Key words: *human anatomy, anatomical competency, competency-based education*

Basic disciplines in the foundation of higher medical education and the initial stages of training at the university, each in themselves play an important role in the creation of a certain knowledge base on the structural organization of the human body. The sequence of the studying of disciplines is the basis of the system of mastering medical knowledge in general, but its effectiveness without additional integration tools is rather low. Often the effectiveness is reduced because of the lack of a real continuity of the learning process of the departments of the morphological cycle. The competency-based approach, currently being developed in many advanced medical schools, can become the basis for effective integration. The aim of the study is to demonstrate the possibility and necessity of implementing the basic practical skill of a student of higher medical school — anatomical competency at different stages of studying human anatomy, from descriptive anatomy to surgical practice. The basic idea of implementing a competency-based approach in mastering the structural organization of the human body from the descriptive anatomy of a human on a corpse to surgical manipulations on a living human is the creation of a certain set of practical skills for searching, determining and manipulating with the anatomical structures of the human body and the criteria for their assimilation which correspond to certain of levels of anatomical competency. It is assumed that, ehere are three levels of realization of anatomical competency of a specialist — mental — descriptive, model, virtual — digital, with the possibility of digital manipulation and real, with the ability to search, determine and manipulate a living human. These levels can be effectively and consistently implemented at the stage of studying descriptive human anatomy, topographic anatomy and clinical anatomy. Each phase should include the practical skills and knowledge of the previous stage, should have clear evaluation criteria. Consistently integrated on the basis of certain regulates curricula of disciplines at each level will ensure a real continuity and effectiveness of the formation of anatomical competency of the doctor for subsequent practical activities.

THE EXPERIMENTAL EVALUATION OF THE TRANSGENERATIONAL EFFECT OF THE SYNESTROL ON THE MORPHOLOGY OF TESTICLES

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Key words: *testes, spermatogenic epithelium, synestrol, transgenerational effect*

Background. Prenatal exposure of various doses of estrogens and estrogen-like substances has a modulating effect on the morphogenesis of reproductive system organs, fertility and reproductive behavior of male offspring. However, the dose-dependent effects of this effect differ and the data from the various studies often contradict each other.

Aim. The aim of this study was an experimental evaluation of postnatal structural and functional changes in the testicle parenchyma in the offspring of laboratory mice exposed during intrauterine period of the germinating of testes by the influence of injection of synestrol to their mothers.

Material and Methods. The studies were carried out on pregnant females of laboratory mice weighing 23–25 g, divided into control and experimental groups. Pregnant females mice of the experimental group were administered by a subtoxic dose of 40 μg of synestrol per animal intramuscularly at stage E11.5. In the obtained male progeny, testicles were isolated on the 90th day of postnatal life and morphometric parameters of the spermatogenic epithelium were examined in them.

Results and Discussion. As a result of the study, it was established that after the prenatal exposure of the synestrol, no significant differences in morphometric parameters were observed in the preparations of the testicles of experimental and control animals. There were no differences in the average area of cells of the spermatogenic epithelium, the number of cells per unit of the area, the total area of the spermatogenic epithelium, the area of the cytoplasm, and the nuclear-cytoplasmic ratio of the cells.

Conclusions. Thus, high doses of synestrol during the testes germinating period in laboratory mice do not cause a transgenic prenatal effect on the structural and functional indices of spermatogenic epithelium in postnatal ontogenesis.