МІНІСТЕРСТВО ОХОРОНИ ЗДОРОВ'Я УКРАЇНИ
БУКОВИНСЬКИЙ ДЕРЖАВНИЙ МЕДИЧНИЙ УНІВЕРСИТЕТ»

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Конференція внесена до Реєстру заходів безперервного професійного розвитку, які проводитимуться у 2023 році №5500074

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Materials and methods. The complex of morphological and morphometric methods studied the renal structure of 30 mature albino male rats weighing 180-200 g which were kept in vivarium conditions under stable temperature and air humidity with free access to water and food. Animals were divided into 2 groups. The 1st group – control (n-15), and the 2nd group – experimental (n-15) that during 14 days received 200 mg/kg aluminium chloride and 50 mg/kg lead chloride on 1% starch suspension intragastrically. On the 14th day of the experiment, animals were exposed to an hour immobilizing stress. The next stage of the experiment was euthanasia of animals under narcosis and the following renal extraction. Kidneys were fixed in 10% solution of neutral formalin, dehydrated in ethyl alcohol of an increasing concentration and poured into paraffin. Microtomic cuts of 5-8 mkm were stained with hematoxylin-eosin. Morphometric methods of examination were conducted by means of ocular micrometer and histometric methods.

Figures were calculated statistically, the difference between comparing values was determined by t Student criteria.

Results. The analysis of morphometric indices of the kidney has found enlargement of the cortical substance thickness (240 ± 4,21 against 160 ± 2,5 mkm in control) and medullar substance (128 ± 1,2 against 96 ± 1,6 mkm in control). Experimental animals presented an increased size of the nephron bodies (117 ± 10,25 × 104 ± 11,8 mkm against 81,25 ± 5,15 × 81,25 ± 4,75 mkm in control) at the expense of volume enlargement both vascular glomerulus (91 ± 2,5 × 104 ± 4,5 mkm against 65 ± 0,6 × 65 ± 0,93 mkm in control) and filtrating sphitting (22,75 ± 1,23 against 6,5 ± 0,3 mkm in control). The nephron canaliculi also undergo some changes: the diameter of a proximal portion and Henle's loops enlarge 2,5 times, a distal portion enlarges moderately. Epitheliocytes of the proximal and distal nephron portions were marked by large hydropic changes and ballooning dystrophy. The cytoplasm contains small and single large vacuoles, and a number of epitheliocytes contain paranuclear vacuoles which makes the cell bigger (16,25 ± 0,66 against 6,5 ± 0,59 mkm in control). Some epitheliocytes of the proximal and distal canaliculi demonstrate local morphological changes accompanied by dystrophic cellular lesions.

Conclusion. A combined influence of aluminium and lead salts and immobilizing stress results in morphofunctional and dystrophic changes of the renal tissue with the occurrence of hydropic and ballooning dystrophy in the epithelicytes of the nephron canaliculi which is accompanied by stasis and sludge with a sharp hyperemia and lymphectasy, stromal and perivasal edema, small foci of diapedesic hemorrhages.

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HISTOLOGICAL ESTABLISHMENT OF HYOID BONE IN HUMAN EMBRYOS AND PREFETUSES

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Introduction. The hyoid is a sesamoid bone located in the anterior triangle of the neck. It is a crucial component of the tendo-muscular system that works within orofacial and laryngeal areas. Since hyoid bone is involved in a list of essential activities like articulation and swallowing, anatomical variations and congenital malformations of the hyoid apparatus may impair even a wider range of vital functions.

The aim of the study. Therefore, the aim of this study was to investigate features of prenatal establishment of the hyoid bone in human embryos and prefetuses.

Material and methods. To reach the aim of the research we have used histological material of human embryos (9-13,5 mm of parieto-coccygeal length (PCL)) and prefetuses (14,0-80,0 mm of PCL) during prenatal human ontogenesis. Material was obtained from Chernivtsi Regional Pathologists Bureau on the basis of bilateral agreement with the Department of Histology, Cytology and Embryology, as well as from the archive collection of histological slides of the Department. We have used classical methods of morphological investigation: microscopy under the control of a binocular microscope, morpho- and anthropometry, accompanied by consecutive photographing.

Results. The initiative steps for hyoid cell mass establishment belong to the pharyngeal apparatus, the third and second arches respectively. Second, or the hyoid arch, is the source of development for the lesser horns of bone; third arch – for the larger horns and inferior part of the body. In 10,0 mm of PCL human fetuses the hyoid precursor is seen as dense, homogenous mesenchymal condensation straight beneath the precursor of the tongue. An early precursor of the hyoid bone is represented by a distal part of the Reichner's cartilage.This rudiment is seen as a pre-cartilaginous mass of cells with a pale, abundant cytoplasm, which means that in 13,5 mm of PLC human prefetus hyoid bone is at a stage of pre-chondrification. In 20,0 and 50,0 mm of PCL human prefetuses, lateral edges of the hyoid body are somewhat rounded and thickened. Hyoid at this stage of prenatal development has moved to the chondrificational phase. Chondrification is initiated in the anterior portions of the body – cytoplasm of these cells becomes more eosinophilic, as well as the extracellular matrix. Extracellular space increases in volume, making cells of body of the hyoid bone move along with directions of tissue enlargement. The lesser and the greater horns are found in a close interposition one to another. It is important to mention that between these masses of cells that form the larger horns and the body of the hyoid itself one can observe a distinctive bordering line, separating these two anatomical portions of bone. The bordering line is represented by tightly packed undifferentiated cells. In studied material of prefetal period no signs of ossification have been found. In 20,0 mm of PLC human prefetus hyoid bone has a bilobular appearance, surrounded on both sides by branches of hypoglossal nerve.

Conclusions. An early precursor of the hyoid is found as a derivative of the pharyngeal apparatus in the middle of the embryological period of human prenatal development. Separation of the mesenchymal precursor mass into body and horn part is seen at the end of the embryological period, separated by a bordering zone. Chondrification of the hyoid bone is initiated at the beginning of prefetal period.

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MICRO- AND ULTRAMICROSCOPIC CHARACTERISTICS OF FIBROUS CONNECTIVE TISSUE WITHIN THE LEAFLETS OF THE ATRIA-VENTRICULAR VALVES OF THE HUMAN HEART

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Introduction. The normal functioning of the heart valve depends on the complex interaction of all its structural components. Morphological and functional changes of just one of the components of the valve complex lead to a disorder of the closing function of the valve and the pumping function of the heart. Cardiovascular diseases of various genesis arise as a result of different morphological and functional changes due to the action of different negative factors during a human life. Today, the growth of cardiovascular diseases increases the needs of clinical medicine for a more detailed understanding of structural and functional transformations on the level of a tissue or a cell of the heart valves. In addition, the grate knowledge within this area of medicine would provide a qualified treatment. In conclusion, it will be possible to save the human life.

The aim of the study. The purpose of this investigation was to study and to determine the morphological characteristics of the fibrous connective tissue within the leaflets of the atria-ventricular valves of the human hear tin the norm.

Material and methods. The study was performed on 29 hearts of adults using light and electron microscopy. Hearts of adults were obtained from autopsy cases. Biological materials were formalin-fixed, paraffin-embedded, and stained with hematoxylin and eosin. Slinchenko method was used for identifying elastic and collagen fibers in the fibrous connective tissue or muscle cells in the heart valve leaflets. An electron microscope EMV-100 LM was used for the ultramicroscopic investigation of the leaflets of the human heart valves. Semi-thin sections, 1-2 μm thick, were stained twice with solution A and solution B. The solution A included two dyes: methylene blue and azure, and solution B – fuchsin.