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

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of the heart depends, first of all, on the mutually coordinated work of its structural components, a deviation in the structure of which leads to a violation of the hemodynamic processes of the heart. Also, to identify the structural changes that occur with heart pathology, data on its normal morphological structure are necessary.

The aim of the study was to examine the microscopic structure of the papillary muscles of the left ventricle of the human heart.

Material and methods. Material for the study were the papillary muscles of the left ventricles of 15 hearts of people who died from non-cardiac pathology. The methods of light microscopy and the immunohistochemical method were used for the morphological study.

Results. Studies performed using the microscopic method showed that the papillary muscles are lined externally with a single layer of endotheliocytes. The presence of endothelial cells was also confirmed by an immunohistochemical investigation, which showed a positive reaction for CD 34. Endothelial cells formed connections in the form of a chain. The brown color that accompanied the positive reaction corresponded either to the contours of the cells or their only weakly labeled nuclei. The subendothelial layer is formed by loose fibrous connective tissue with elastic and collagen fibers and cells of the fibroblastic row located in it. Contractile cardiomyocytes formed the basis of papillary muscles. Upon microscopic examination, cardiomyocytes had an elongated cylindrical shape, were connected to each other with the help of intercalated discs, anastomosed and formed a three-dimensional network. Centrally located bundles of cardiomyocytes in the thickness of the papillary muscles mainly had a transverse direction, and the longitudinal muscle bundles were located on the periphery of the papillary muscles and headed towards the apex, and in the apex, gradually approaching each other, arc-likely connected or formed an acute angle. They continued to the base of the chordae tendineae for a short distance. In the apical parts of the papillary muscles, in the places where the chordae tendineae depart from them, bundles of collagen fibers were also found, which alternated with the muscle bundles and formed the basis of the chordae tendineae. Bundles of cardiomyocytes separated by layers of loose fibrous connective tissue, in which blood vessels of the microcirculatory bed passed. The immunohistochemical study showed the highest expression of the Anti-Human Smooth Muscle Actin marker in the muscular tunics of blood vessels located among the cells of the striated cardiac muscle tissue or in the subendothelial layer. Besides, among contractile cardyomyocytes identified the elements of the conduction system of the heart. In sections of the papillary muscles, an immunohistochemical study revealed a positive level of expression of the Anti-Human Collagen IV marker, which is explained by the presence of type IV collagen in the basement membranes of the sarcolemma, which surrounded cardiomyocytes. The basement membrane covering the surface of the cardiomyocyte is a fibrillar-supporting complex of complex lipids, proteoglycans and type IV collagen. It comes into direct contact with the intercellular space, capillary walls and collagen fibers.

Conclusions. Thus, further in-depth study of the morphology of the structural components of the internal relief of the human heart ventricles will improve methods for diagnosing malformations and heart diseases and understanding the mechanisms of complications. It will also allow the use of these data in cardiology and cardiac surgery in the development of a complex of therapeutic and preventive methods to prevent possible hemodynamic disorders, as well as in reconstructive heart surgery.

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FUNDAMENTAL MODEL FOR THE CLASSIFICATION OF TOPOGRAPHY OF THE HUMAN MANDIBULAR CANAL WITH BONE ATROPHY CAUSED BY LOSS OF THE MASTICATORY TEETH

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Introduction. When teeth are lost, not only the collar part of the jaw undergo pronounced pathological changes, but also the neurovascular roots of the same name with reflection on the central neurovascular bundle in the mandibular canal, which should provide nutrition and innervation of its toothless segments, and is also an ethio-pathogenetic factor of irreversible bone atrophy (Liu M, Sun Y, Zhang Q, 2018; Oshurko AP, Oliinyk IYu, Kuzniak NB, 2021).

The aim of the study. Therefore, the purpose of this study is to develop a classification, in which the topography of the main mandibular canal is chosen as a fundamental basis determined during research using available radiological methods in clinical practice.

Material and methods. We analyzed 136 digital CT scans of toothless distal segments of atrophied bone tissue of the lower jaw, equally on the left and right sides, in male and female Ukrainians aged 25 to 75 years; 68 CT scans were included in the study. The material was divided according to age into four groups for each side, namely: the first group (I) – 25-45 years, n= 14; the second group (II) – 46-60 years, n=20; the third group (III) 61-75, n=17; the fourth group (IV) – 25-75 years, n=17, persons with preserved dentition (control group).

Results. By grouping the average values (M) in the studied areas of the left and right sides, in particular, in the projection of 3.6, 3.7, 4.6, 4.7 tooth, the average (MM) morphometric values were obtained using a simple mathematical calculation, which characterizes the laying of the canal in the toothless distal segments of atrophied bone tissue of the lower jaw. So, in the first group of the study, the distance from the ridge of the mandibular base (RMB) to the mandibular canal (MC) is 7.2 mm, from the buccal ridge (BR) to the MC – 4.8 mm, the distance from the lingual ridge (LR) to the MC – 2.9 mm. In the second group of the study, RMB = 8.0 mm, BR = 5.3 mm, and LR = 3.3 mm regarding MC. In the third group of the study, RMB = 8.1 mm, BR = 5.3 MM, and LR = 3.3 mm relative to MC. Values of the first group of the study (people aged 25-45 years) significantly differ in their morphological features with a topographic representation of the mandibular canal in toothless dentition defects complicated by bone atrophy from the second and third groups. So, we referred them to the first class. There are no differences in the MM values of the second (people aged 46-60 years) and the third (61-75 years) groups, which is a positive and refutation-fundamental basis for constructing the classification. Therefore, we have combined the values of the second and third groups, referring them to the second class.

Conclusion. Systematized analysis, summarized as a simple and understandable classification of the topography of the human mandibular canal, with bone atrophy caused by the loss of the masticatory teeth, provides an opportunity for prognosis regarding diagnosis and clinical suggestion in choosing rehabilitation methods (Kawai T, Sato I, Asaumi R, Yosue T, 2018; Tan WY, Ng JZL, Ajit Bapat R, Vijaykumar Chaubal T, Kishor Kanneppedy S, 2021), with the immediate restoration of the lost function of the dentition, fixation of screw periosteal splints, during osteosynthesis or other reconstructive operations (Iliescu VI, Cismaş SC, Truţă RI, Gherghiţă OR, Nimigean VR, 2021), forensic medical examination, etc.

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MORPHOLOGICAL CHANGES IN THE STRUCTURAL ELEMENTS OF THE KIDNEYS UNDER THE COMBINED INFLUENCE OF ALUMINUM AND LEAD SALTS AGAINST THE BACKGROUND OF STRESS

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Introduction. Aluminum and lead significantly affect functions of human organs and systems, rank first in toxicity, and can damage kidneys. Taking into account the results of our studies, seeding rats with doses of these toxic metals significantly alters functional state of kidneys. In particular, loss of electrolytes, disturbance of acid-excretory function, which is mainly due to the damage of proximal parts of nephrons with subsequent development of decompensated systemic acidosis and a large deficiency of buffer bases in blood due to a significant reduction of sodium-dependent regeneration of a bicarbonate buffer.

Objectives of our research was to determine the influence of aluminium and lead salts in combination with immobilizing stress on the renal morphology.