МІНІСТЕРСТВО ОХОРОНИ ЗДОРОВ’Я УКРАЇНИ
БУКОВИНСЬКИЙ ДЕРЖАВНИЙ МЕДИЧНИЙ УНІВЕРСИТЕТ»

М А Т Е Р І А Л И

105-ї підсумкової науково-практичної конференції
з міжнародною участю
професорсько-викладацького персоналу
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Матеріали підсумкової 105-ї науково-практичної конференції з міжнародною участю професорсько-викладацького персоналу Буковинського державного медичного університету, присвяченої 80-річчю БДМУ (м. Чернівці, 05, 07, 12 лютого 2024 р.) – Чернівці: Медуніверситет, 2024. – 477 с. іл.

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У збірнику представлені матеріали 105-ї підсумкової науково-практичної конференції з міжнародною участю професорсько-викладацького персоналу Буковинського державного медичного університету, присвяченої 80-річчю БДМУ (м. Чернівці, 05, 07, 12 лютого 2024 р.) із стилістикою та орфографією у авторській редакції. Публікації присвячені актуальним проблемам фундаментальної, теоретичної та клінічної медицини.

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Results. During the microscopic examination of the structures of the lower leg in human fetuses of 5-6 months, features of the structure and location of adipose tissue were revealed. In 5-month-old human fetuses, the adipose tissue of the upper third of the lower leg is represented by single cells, which are mainly localized around blood vessels and nerves. It is notable that in fetuses of this age, the most adipocytes were found at the level of the lower third of the leg, which formed flat plaque-like clusters of uni- and multilocular cells, and in most cases were localized near blood vessels. Such clusters of adipocytes are clearly separated from neighboring structures by loose connective tissue. The percentage of multilocular adipocytes is 85.3±0.92% (confidence interval 70.8-94.4% at p=0.05). In 6-month-old fetuses, the subcutaneous tissue of the lower leg has the appearance of elongated flat plaque-like clusters located in one row. Adipose tissue is well vascularized and clearly separated from neighboring structures. Multilocular adipocytes prevail quantitatively, 93±0.12% (confidence interval 88.7-96.0%, p=0.05).

Conclusions. Subcutaneous adipose tissue in human fetuses of 5-6 months is heterogeneous and is represented by uni- and multilocular cells. During the fetal stage, the number and proportion of types of fat cells changes. In 5-month-old human fetuses, adipocytes are located singly, with a predominance in the lower third of the lower leg; in 6-month-old fetuses, they already form elongated clusters.

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STRUCTURAL EXAMINATION OF THE PAPILLARY MUSCLES OF THE LEFT VENTRICLE OF THE HUMAN HEART AT THE SUBMICROSCOPIC LEVEL

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Introduction. Cardiovascular diseases are a significant cause of mortality in Ukraine and worldwide. According to the estimates in 2019, 17.9 million people died from cardiovascular diseases, accounting for 32% of all deaths worldwide. Early detection of cardiovascular diseases is important to initiate treatment as early as possible. Therefore, in-depth research into the structural components of the heart to identify the causes and understand the pathogenic mechanisms of cardiovascular diseases remains relevant.

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

Material and methods. The material for the study were papillary muscles of the left ventricles of 20 human hearts. Light and electron microscopy methods were used.

Results. In electron microscopic examination, papillary muscles were externally lined with endothelium, underneath which a subendothelial layer of loose fibrous connective tissue was localized. The basis of the papillary muscles consisted of striated cardiac muscle tissue. Contractile cardiomyocytes within the papillary muscles had an elongated cylindrical shape and connected to each other through intercalated discs, forming functional fibers that anastomosed and formed a three-dimensional network. Most contractile cardiomyocytes had one or two nuclei, located centrally along the cell. Nucleus of the cardiomyocyte was filled with electron-transparent nucleoplasm, the main content of which was chromatin. Heterochromatin appeared as compact electron-dense masses, primarily located under the nuclear envelope and around nucleoli. Euchromatin predominated in the nuclei of cardiomyocytes and filled the entire inner nuclear space as a weakly contrasted network. In contractile cardiomyocytes, specialized organelles, myofibrils, were clearly visible, penetrating the cell from one pole to another, firmly anchored in the plasmolemma, often anastomosing. The sarcomeres of contractile cardiomyocytes were arranged in such way that their Z-lines were parallel not only within one but also in adjacent contractile cardiomyocytes. The Z-lines of adjacent myofibrils were connected to each other, and on the periphery of the cells with the sarcolemma and elements of the collagen framework. Due to the characteristic structure of myofibrils, cardiac muscle tissue appeared striated under ultra-microscopic examination. Along the cardiac fiber, dark anisotropic A-bands with a constant length alternated with light isotropic I-bands, which were reduced in shortened cardiomyocytes. M-lines and Z-lines were clearly visible in the myofibrils of contractile cardiomyocytes. The myofibrillar zone occupied a significant portion of the intracellular space of contractile cardiomyocytes, including myofibrils, mitochondria, elements of the sarcotubular system, cytogranules, and sometimes other organelles. Mitochondria were located between myofibrils, usually 1-2 per sarcomere, beneath the sarcoplasm, around the nucleus, but sometimes an increase in the number of mitochondria was observed. Bundles of cardiomyocytes separated by layers of loose fibrous connective tissue, in which blood vessels of the microcirculatory bed passed. In electron microscopic examination, microcirculatory blood vessels were found between cardiomyocytes, represented by capillaries of the somatic type. The wall of somatic-type capillaries was formed by flattened endothelial cells lying on the basal membrane. The basal membrane was continuous and did not contain fenestrae or pores. Pericytes were found on the outside. Formed blood elements were found in the lumen of the capillaries.

Conclusions. Continuing the study of the morphology of the papillary muscles of the valvular apparatus of the heart will improve methods for diagnosing malformations and heart diseases and understanding the mechanisms of complications. Moreover, it will contribute to the development of new surgical and pharmacological methods of treating heart diseases and increase the effectiveness of providing medical care to patients with heart diseases.

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PLASMA RICH IN GROWTH FACTORS (PRGF) IN TARGETED REGENERATION OF MANDIBULAR BONE TISSUE

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Introduction. The biological activity of the mesoconcentrate in different fractional compositions is prioritized in the PRGF technique, which is based on two fundamental principles: - plasma rich platelets (PRP), whose functionality regulates the main processes of tissue regeneration; - fibrin matrix as a temporary graft with functional cell organization and control over the dynamics of growth factor release present in the mesoconcentrate, which ensures reliable potential for graft biocompatibility.

The aim of the study. To conduct a differential analysis of the fractional distribution of mesoconcentrate products according to their purpose.

Material and research methods. To study the diameter (Ø) of the formed fibrin fibers, density (number of occurrences in 10 μm^2) in the PRGF fractions F1 and F2 of the mesoconcentrate products, namely, isolating membranes (M) and obturating blocks (B), we used the method of morphological study of objects using a stream of electrons, which, under the influence of high voltage, passed through thin films, allowing us to study the structure of these objects at the macromolecular and subcellular levels - transmission electron microscopy**.**

Research results. A significant difference is characterized by the concentration in the fractional distribution of PRGF (F1, F2) obtained according to these methods of plasma, which is a key feature in their selection and clinical application during augmentation for the treatment of acquired bone atrophy of the mandible caused by the loss of the masticatory group of teeth (Figure).

The obtained statistical results of the *median* (Me) *and interquartile range* (IQR), where **F1-M** = 0.196 (0.176; 0.286) compared to **F1-B =** 0.344 (0.325; 0.394); **F2-M** = 0.180 (0.168; 0.214) - **F2-B** = 0.254 (0.202; 0.338) provide a proper forecast for their intended use.