The lower wall of the maxillary sinus is formed by the alveolar process of the upper jaw. Depending on the pneumatization, its bottom was at different levels relative to the lower wall of the nasal cavity. With medium pneumatization on 6 preparations (24%), the sinus fundus was at the same level with the lower wall of the nose. On 15 preparations (60%) its bottom was below the lower wall of the nose, and on 5 preparations (20%) it was above the bottom of the nasal cavity.

On the preparations, when the bottom of the sinus was lower, the apexes of the second small molar and the first large molar adjoined it. In 2 preparations (8%), the anterior wall ended at the level of the first small molar, and in three preparations (12%) it extended to the third large molar.

S100A9 PROTEIN AS A MARKER OF HEPATIC NECROINFLAMMATORY PROCESSES UNDER LONG-TERM INHIBITION OF LUTEINIZING HORMONE SYNTHESIS

M. V. Rud, Ye. V. Stetsuk, O. V. Vikhova

Poltava State Medical University

Poltava, Ukraine

This study is a part of the research project "Experimental morphological study of the effect of cryopreserved preparations of umbilical cord blood and embryofetoplacental complex, diferelin, ethanol and 1% methacrylic acid on the morphofunctional state in a number of internal organs", state registry No. 0119U102925.

Damage-associated molecular patterns (DAMPs), or alarmins, are a number of molecules, released by stressed cells undergoing microbial infection or sterile injury, that act as danger signals to promote and exacerbate the inflammatory response. Under inflammatory conditions, S100A8 and S100A9 alarmins are released and form a stable heterodimer called “calprotectin”. These proteins make up approximately 45% of the cytoplasmic proteins in neutrophils.

Hepatic macrophages are crucial in maintaining liver homeostasis and in the pathogenesis of acute or chronic liver injury. They are composed of functionally distinct cellular subpopulations, which can exhibit a wide range of polarization states in vitro and in vivo in response to environmental signals. It is important to note that these characteristics are not static. Currently, there is interest in the effect of androgens and their receptors on various liver cells and the development of liver pathology.

The study aimed to investigate the quantitative and qualitative changes in hepatic immunocompetent cells induced by luteinising hormone synthesis inhibition in male rats following tryptorelin acetate administration. Additionally, the study aimed to explore expression of S100A8/S100A9 in the liver tissue.

The study involved 30 sexually mature white male rats. The control group was given saline. Group I received subcutaneous injections of tryptorelin acetate, while Group II received tryptorelin acetate combined with quercetin three times a week.

To detect S100A9 through immunohistochemical studies, we first deparaffinised the liver sections and then demasked the antigens. This procedure aims to restore the original protein structure, which can be achieved through the use of enzymes (trypsin) or a microwave oven.

Throughout the observation period, there was a gradual increase in calgranulin B expression in Groups I and II. It is initially contained within the cytoplasm, but as the inflammatory processes expand, it is also present in the surrounding fluid. In the final stages of the experiment, the protein was found in the spaces of Disse along with the exudate. Neutrophils in a state of degranulation located between the hepatocytes resemble spindle cells. They also permeate the fluid in the spaces between the beams. Kupffer cells are likely to express calgranulin A and can be visualised.

Further studies are planned to investigate the relationship between the level of S100A9 protein expression and subpopulations of macrophages with

pro-inflammatory or anti-inflammatory features at different stages of the experiment.

THE ELECTROPHYSIOLOGICAL ASSESSMENT OF FUNCTIONAL MATURITY OF HUMAN-INDUCED PLURIPOTENT STEM CELLS DERIVED CARDIOMYOCYTES

Anastasiia Shelest, Aidas Alaburda

Vilnius University, Vilnius, Lithuania

Human induced pluripotent stem cells derived cardiomyocytes (hiPSCs-CM) opened new possibilities for using these cells as an unlimited source of cardiomyocytes for heart regenerative medicine [1]. The challenge of obtaining fully differentiated and functional cardiomyocytes highlights the need to develop not only differentiation protocols but also techniques for maturity assessment. It is known that the electrophysiological properties of mature cardiomyocytes differ from hiPSCs differentiated into CMs [2]. In this regard, electrophysiological properties could be attractive tools for the assessment of functional maturity. This study aimed to assess the sensitivity of the electrophysiological evaluation method for the maturity of non-fully mature hiPSC-CMs.

This investigation involved obtaining intracellular recordings of hiPSC-CMs using the whole-cell configuration in the current clamp mode. The maximum rate of action potential (AP) depolarization, the lowest potential between APs, the amplitude of AP (APA), the duration of AP at 50% repolarization (APD50), and capacitance were analyzed and compared with parameters of mature cardiomyocytes from the current literature. APA and APD50 were similar to those of mature cardiomyocytes, while the maximum rate of AP depolarization and capacitance were significantly lower compared to mature cardiomyocytes, indicating not full maturity of tested samples.