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STAGES OF HEART DEVELOPMENT IN HUMAN EMBRYOGENESIS

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The relevance: The cardiovascular system is one of the key ones in ensuring the vital activity of the organism, as it is responsible for the transport of oxygen, nutrients and hormones, as well as for the excretion of metabolic products. Understanding the mechanisms of embryonic heart formation is important for the early diagnosis and prevention of congenital anomalies, which remain one of the leading causes of mortality worldwide. This makes the study of both normal and pathological heart development relevant.

The aim of this study: A detailed consideration of the main stages of normal human heart development in prenatal ontogenesis with an emphasis on its formation and differentiation in the early stages, namely: features of the formation of the heart and its structures at different stages of embryonic development, the time limits of the beginning and completion of heart formation, analysis of the mechanisms of formation of cardiac septa and valves.

Materials and Methods: Theoretical: analysis of scientific and methodological literature. Practical: own morphological studies of embryos at different stages of development.

Results and conclusions: It has been established that: the laying of the heart begins in the middle of the third week of embryonic development and is completed at the end of the eighth week. During this period, the following changes occur:

- Middle of the third week (3-4 mm TCD): On the transverse section of the embryo, paired rudiments of endocardial tubes surrounded by myoepicardial plates are already visible, forming the rudiments of the heart membranes (endocardium, myocardium, epicardium).

- End of the third - beginning of the fourth week (5-8 mm TCD): As a result of lateral folding of the embryo, the endocardial tubes converge and merge, forming a primary single-chamber tubular heart with membranes. Already at this stage, the

rudiments of important parts of the heart, such as the venous sinus, atrium, ventricle and arterial trunk, can be distinguished.

- Mid and late fourth week (8-9 mm TCD): The heart begins to curve, forming an S-shaped cardiac loop. At this stage, the primary interatrial septum is laid, dividing the atria into right and left, but their connection is maintained through a wide opening.

- Fifth week (10-14 mm TCD): The S-shaped shape of the heart continues to increase. At this point, the heart's compartments differentiate: atria, ventricles, and sinus venosus. The secondary interatrial septum begins to form, and the sinus venosus shifts to the right, forming venous valves (Tybesian and Eustachian), which prevent backflow of blood.

- Sixth week (15-18 mm TCD): The fusion of the primary and secondary interatrial septa is completed, forming the interatrial septum with an oval window (foramen ovale), which allows blood to pass between the atria. At this stage, the formation of the interventricular septum, which divides the ventricles into right and left, also continues.

- Seventh week (19-21 mm TCD): The heart is finally divided into four chambers: the right and left atrium, the right and left ventricle. The formation of the valves is completed: the semilunar, located between the ventricles and the vessels, and the cusps, between the atria and ventricles.

- Eighth week (22-24 mm TCD): The heart becomes a full-fledged four-chamber organ with clearly defined atria and ventricles, separated by the interatrial and interventricular septa. The chambers of the heart are connected through mature valves, and the arterial trunk divides into the pulmonary trunk and the aorta.

The main stages of normal heart development in the prenatal period are highlighted, which are crucial for the formation of a full-fledged cardiovascular system and are an important basis for the prevention and early diagnosis of heart pathologies.

ПРАКТИЧНА РОБОТА В СИСТЕМІ ПІДГОТОВКИ СТУДЕНТІВ НА МОРФОЛОГІЧНИХ КАФЕДРАХ

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Клінічна анатомія та оперативна хірургія була і залишається на межі між блоком медичних загальноосвітніх предметів та спеціалізованих клінічних дисциплін. Традиції викладання клінічної анатомії та оперативної хірургії складалися десятиліттями, проте в сучасних умовах вони потребують деякої