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Матеріали підсумкової 106-ї науково-практичної конференції з міжнародною участю професорсько-викладацького колективу Буковинського державного медичного університету (м. Чернівці, 03, 05, 10 лютого 2025 р.) – Чернівці: Медуніверситет, 2025. – 450 с. іл.

У збірнику представлені матеріали 106-ї науково-практичної конференції з міжнародною участю професорсько-викладацького колективу Буковинського державного медичного університету (м. Чернівці, 03, 05, 10 лютого 2025 р.) зі стилістикою та орфографією у авторській редакції. Публікації присвячені актуальним проблемам фундаментальної, теоретичної та клінічної медицини.

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STANDARDIZATION OF THE STAGING OF THE ONTOGENESIS OF HUMANS AND SOME MAMMALS

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Introduction. Modern research in such fields as regenerative medicine, bioengineering and xenotransplantation requires deepening of knowledge of comparative embryology, histology, anatomy, etc. Standardization of research and their adequate comparison among themselves is a necessary condition for the possibility of integrating the results into the development of new branches of science.

The aim the study. The methodology of embryo development staging uses the segmentation of ontogenesis into successive stages, which are represented by temporal clusters with certain morphological transformations. Standardization in comparative morphology using segmentation into clusters of stages can be complicated by polymorphism and interspecific ontogenetic features. Analyzing morphological studies, scientists note the variability of embryonic features for each stage. Therefore, in the publications, you can find inconsistency of morphometric indicators for each stage.

Materials and Methods. In modern studies of human ontogenesis, the results of morphometric indicators of R. O'Rahilly and F. Müller according to the Carnegie scale are more often used. The Carnegie classification uses the length of the embryo to determine age. In recent years, thanks to technological progress, the determination of the Carnegie stage of embryo development by such a morphometric indicator as the length of the embryo has become more accurate. However, when using clinical methods of antenatal diagnosis, there is no consensus about the parameters that have the greatest probability and allow to clearly determine the stage of the embryos. The generally accepted morphometric indicator is the parietal-coccygeal distance. It is determined not only in classic anthropometric studies but also measured during sonoembryological research.

Results. Gestational age is important for ontogeny staging and is one of the most accessible pieces of information in morphological studies of mammalian embryo development. It should be noted that only the embryonic age cannot be a significant indicator, since there may be individual morphometric differences in the length of the embryo and the development of structures between the embryos of the same gestational age. Determining the correspondence of the external and internal features of the stages is more important for comparative morphology, as it is possible to carry out the study's interpolation on the same stages of different species of mammals. The Carnegie stages, the description of which was updated by O'Rahilly and Müller in 2010, are generally recognized reference points in the methodology of human embryology studies. In relation to the comparison with staging according to Carnegie with other mammals, relevant studies were conducted: Theiler (1972); Hamburger and Hamilton (1992); Cretekos et al. (2005); Nolte et al. (2009). Hill (2016), Vejlsted et al. described the embryonic development of the domestic pig according to the Carnegie stages in a comparative aspect. (2006) and Hassoun et al. (2009). Currently, most scientists recommend using the data from R. O'Rahilly's 2010 edition for Carnegie staging.

Conclusions. In comparative morphological studies of the ontogeny of humans and mammals, the Carnegie scale can be used for standardization. When determining the embryonic age, there may be "statistical outliers", which are due to individual morphometric differences in the length of the embryo and the development of the structures of embryos of the same gestational age. Determining the correspondence of the external and internal features of the stages is more important for comparative morphology since it is possible to carry out the study's interpolation on the same stages of different species of mammals. Studying the collections of embryos that already exist with the help of modern methods provides an opportunity to study the process of ontogenesis in depth. Sonoembryology, as a method of antenatal ultrasound studies in combination with classical methods of morphology, can improve antenatal diagnosis at the stages of embryogenesis.