

месяца. Развитие тимуса белой крысы в пренатальном онтогенезе характеризуется двумя периодами ускоренного роста – на 16–17-е и 21-е сутки. Периоды ускоренного роста артерий и вен тимуса человека и белой крысы соотносятся с динамикой развития органа.

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## **PECULIARITIES OF VARIANT ANATOMY OF THE MANDIBLE IN HUMAN FETUSES**

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**Introduction.** Exploration of sources, examination of chronologic sequence of the main embryogenesis periods and clarifying peculiarities of the mandibular structure in age dynamics of its development is a topical issue of morphology. Answering these issues will enable to develop new and improve existing preventive measures, methods of early diagnostics and surgical correction of congenital defects of the human mandible [1]. Congenital malformations of the human maxillofacial area occupy the third position among congenital defects. Annually approximately 600 children are born in Ukraine with maxillofacial defects, in an average for every region – from 15 to 46 cases a year. Cosmetic defects usually referred as a result of congenital maxillofacial deformities can be considered as psycho-traumatic conditions. Thus, in case of various kinds

of mandibular pathology patients are functionally inadequate, since such vital functions suffer as chewing, swallowing, breathing, articulation. In addition, various degree of facial asymmetry may occur, distorting children which lead to social maladjustment and development of a complex of general inferiority. Defects or/and mandibular hypoplasia not eliminated in childhood cause coarse secondary deformities of the facial bones which respond to treatment with great complications at the senior age [2, 3]. The analysis of scientific sources of information is indicative of the fact that a certain lack of evidence concerning comprehensive morphological studies of the maxillofacial structures, age anatomy of the human mandible is experienced. The data concerning peculiarities of mandibular development are fragmentary and disputable, and therefore they do not satisfy the needs of modern practical medicine. Therefore, clarification of peculiarities of mandibular development, formation of its structural variants and regularities of space-time changes during the period of human ontogenesis will enable to substantiate scientifically development and implementation of new methods of prevention, early diagnostics and timely rational surgical correction of congenital maxillofacial human defects.

**Objective** – to determine individual anatomical variability, sex-age and constitutional peculiarities of the mandibular structure during the fetal period of human ontogenesis, to find out critical periods of mandibular morphogenesis and design reconstructive and mathematical models of the organ in order to determine peculiarities of its functional morphology and embryo topography.

**Material and methods.** 60 specimens of human fetuses 160,0-450,0 mm of their parietal-coccygeal length (PCT) (4-9<sup>th</sup> months of the intrauterine development) were examined. A complex of methods of morphological examination was applied including anthropometry, computed tomography, morphometry, making the series of sequential histologic sections, microscopy, three-dimensional computer reconstruction, statistical analysis.

**Results and discussion.** Dynamic changes of the major mandibular morphometric parameters in correlation with age, sex and the type of constitutional coefficient have been investigated by means of the methods of multiple-factor regression analysis. Analysis of distance interrelations between the articular mandibular processes and age, sex and constitutional type in human fetuses demonstrated that the distance between the articular mandibular processes in human fetuses of both sexes increases evenly,

although in dolichomorphic female fetuses the rates of growth of this parameter increase intensively since the 6th month of the intrauterine development. Investigation of the correlation between the mandibular angle and sex, age and constitutional type determined that the mandibular angle of human fetuses decreases during the prenatal period, except female objects with brachyomorphic type, as on the contrary this morphometric parameter increases since the 4th month of development till birth. The mandibular angle is characterized by a tendency to increase for all the examined fetuses, except brachyomorphic objects, as this parameter decreases during the prenatal period of development.

Multiple-factor regression analysis concerning the correlation of the mandibular height, sex, age and constitutional type in human fetuses demonstrated that the mandibular height of brachyomorphic objects of human fetuses of both sexes decreases, while it increases in the rest of fetuses.

Examination of interdependence of the mandibular body length and sex, age and constitutional type in human fetuses demonstrated that the length of the mandibular body and maximum mandibular length in all the examined human fetuses decreases, although in female fetuses of all the constitutional types this parameter begins to grow intensively since the 6th month and till the end of the prenatal period of human ontogenesis.

Analysis of interdependence of the mandibular square and volume, age and constitutional type enabled to determine that this morphometric parameters prevail in female fetuses with brachyomorphic constitutional type, and the smallest values of these parameters are found in male fetuses with dolichomorphic constitutional type at the end of fetal period and in female fetuses with brachyomorphic constitutional type at 6-7th month of their intrauterine development.

**Conclusions:** Critical periods of morphogenesis of the human mandible, the period of changes of growth rate depending on sex, age and constitutional type, are 6-7th months of intrauterine development which can be indicative of the formation of structural variants at this term, and is the time of possible occurrence of congenital defects of the maxillofacial area.

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