



The study aimed to study the age-related dynamics of bone density indices of the upper jaw germs of human fetuses in prenatal ontogenesis by the content of macroelements; to conduct a statistical analysis of the data obtained, which significantly improves the study of the quantitative morphology of the human upper jaw.

The study involved the upper jaw germs of 130 human fetuses aged 11-40 weeks of intrauterine development, who died from causes unrelated to diseases of the maxillofacial region. Bone sampling for the study of macroelements (P, Na, Ca, Mg, S) was performed on both sides of the upper jaw germs of fetuses from different areas that had the most macroscopically pronounced density. Methods of macroscopy, morphometry of research objects, turbidimetric method, the method of flame atomic absorption, determination of metal ions and statistical method with the use of statistical groupings have been used in the study.

We have carried out a general analysis of the growth rate between all (1, 2, 3, 4) comparison groups. A negative growth rate was found among all macroelements, except phosphorus (P) – the increase of which is 67.14 % (Fig), which indicates an increasing need for this macroelement and these data confirm its positive distribution dynamics for the formation of the fetal body.

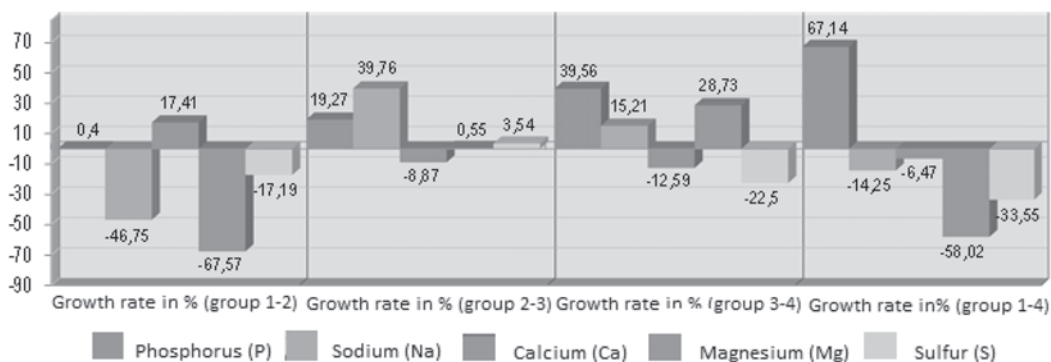


Fig. Generalizing image of the growth rate of macroelements (P, Na, Ca, Mg, s) in prenatal ontogenesis of the upper jaw germs of human fetuses, %.

Thus, the study of the dynamics of bone density of the upper jaw of human fetuses depending on the mineral composition and the presence of established synchronicity of these processes allows us to state that the change in density is evidence of changes in the content of individual mineral elements, but the main building material is macroelements (Ca, P, Na, Mg, s) with a predominance of phosphorus growth rate (P).

Popova I.S.

USAGE OF IMMUNOHISTOCHEMICAL MARKERS FOR COMPLEX DIAGNOSING OF HUMAN BREAST CANCER PROFILE

*Department of Histology, Cytology and Embryology
 Bukovinian State Medical University*

According to official statistic data, breast cancer (BC) is the most common oncologic disease among women in Ukraine, accretion of which increases in 3% each year and remains the reason of death in oncologic patients in 17,3% of diagnosed cases (Tamm T. et al, 2020). Nowadays, diagnostic opportunities allow one to estimate immunohistochemical (IHC) profile and differentiation degree of BC, besides a typical histopathological estimation. Data provided by IHC method is used for choosing a target adjuvant treatment and make prognosis for metastases or survival rate (Vallejos C.S., 2010).

The aim of this study is to analyze the usage of IHC markers while diagnosing BC. Investigations are being conducted at Scientific and diagnosing laboratory at Bukovinian State Medical University. Diagnostic panel for obtained biopsy or postsurgical material included Ki-67, c-erB-2/Her-2/neu, progesterone (YR85) and estrogen (SP1) markers. IHC studies were performed on primary breast tumors, which were fixed in formalin and embedded in paraffin. Staining was



performed with the above-mentioned antibodies and antigenic recovery was conducted according to the manufacturer.

IHC panel that is proposed for diagnostic aims, includes markers that can characterize proliferation features of a tumor, its hormonal reaction and degree of malignancy. Positive reaction is evaluated within cancer cells either within a nucleus (for nuclear markers) or a cell membrane, respectively. Besides a specific color of positive reaction, it is important to evaluate insensitivity of one, excluding a “false-positive” regions. That is why, the first step in conducting IHC method was evaluation of a histological slide stained with haematoxylin and eosin, and then slides, stained by IHC method as recommended by the manufacturer with the help of specific equipment. Anti-Ki-67 antibody is a nuclear marker that indicates proliferation degree of a tumor and thus can be considered, while estimating high or low proliferating cells within biopsy tissue. Positive reaction with Ki-67 visualizes active cancer cells and shows moderate expression within Luminal type A BC and a high level within Luminal type B BC. It can be assumed, that proliferation rate of Luminal A BC is significantly lower comparing to the Luminal B. This marker is often detected with a moderate intensity of staining. Moreover, it can be used as an additional IHC clue in differentiation Luminal A and B subtypes. Antibodies to progesterone receptors (YR85 clone) show positive reaction in Luminal A BC, accompanied by progesterone (YR85) positive and negative c-erB-2/Her-2/neu. A tumor, considered positive for estrogen or progesterone, is defined as having 10% or more of tumor cells with nuclear staining with varying intensity. Luminal B BC shows positive hormonal markers and can be either c-erB-2/Her-2/neu negative or positive, according to molecular classification of the BC. Expression of c-erB-2/Her-2/neu is evaluated by intensive total stain of cancer cell membranes that is seen in c-erB-2/Her-2/neu positive subtype of BC, often high-graded. Sometimes its expression can be amplified, while progesterone and estrogen can be negative. In case when none of the IHC markers are expressed, a triple negative BC can be diagnosed. The Allred D. C. scale is used to detect progesterone and estrogen expression, that includes proportion score and intensity score. A total of two scores is an index of malignancy that is subdivided into three degrees and used further, being taken into consideration by a clinical oncologist in treatment strategy.

As a result, it is shown that IHC panel helps to categorize BC and improves prognostic and predictive value of a pathological evaluation of biopsy or postsurgical BC material. IHC conclusions provide clinicians with data that is useful for further clinical management of oncological patients, prescribing a target therapy and ensure better survival rate.

Semeniuk T.A.

COMPARATIVE MACRO- AND MICROSCOPIC CHARACTERISTICS OF THE HEART VALVE CUSPS IN INFANTS

*Department of Histology, Cytology and Embryology
Bukovinian State Medical University*

Nowadays, early neonatal infant mortality, among which congenital heart defects play an important role, poses significant challenges for cardiac surgeons. In turn, the results of morphological studies can significantly improve the quality and the outcome of surgical treatments.

The aim of the study was to determine and compare the macro- and microscopic structure of heart valve cusps in infants.

The study was performed on 15 heart valves of infants using macroscopic, microscopic and immunohistochemical methods.

Macroscopic examination showed the cusps of the atrioventricular valves of infants having the appearance of thin translucent plates with shiny surfaces, with the atrial smoothness and roughness of the ventricular surfaces. The mitral valve cusps have much smoother edges, whereas the tricuspid valve cusps are scalloped. The cusps of the aorta and pulmonary trunk have the form of pockets with signs of ribbed surface on the aortic and pulmonary sides. The rib is more evident in the cusps of the aortic valve.