

with toluidine blue. Photographing was carried out on a microscope "Primo Star" Germany. The calculation of the main types of epithelial cells in the cranial and caudal part of the trachea, as well as the intra-lobular bronchus, was carried out at 100 µm length of the epithelial layer.

Results and discussion

The internal lining of the mucosa of the proximal part of the respiratory tract (trachea) is represented by a multi-row prismatic ciliated epithelium located on the basal membrane. In the thickness of the epithelial layer, both in the cranial and caudal trachea, a process of elimination is observed, which morphologically manifests itself by a change in the site of cell localization, the appearance of a cytoplasmic site on the surface, then the nucleated part and then the final isolation of the cell from the formation. In intact young rats, compared with older animals, epithelial cells are almost twice as likely to be extruded. In old rats ciliated cells are often found in the process of elimination, both without morphological changes, and with signs of partial destruction of the ciliary apparatus and structural rearrangement of the nucleus. With the cooling of the body with the composition of the epithelium, the number of obese and goblet cells increases, often eliminating elements on the apical surface of which there are no cilia. Given the features of the structure of the nucleus there is reason to assume that these are intermediate cells. Which are transitional forms in the development of ciliary and goblet elements. And the number of intermediate cells in older animals is 30% greater than in young animals. In old rats in the epithelial layer there are zones of hypertrophied ciliate cells, there are degenerate altered elements with signs of dystrophy of the cytoplasm and nucleus. The number of basal cells decreases significantly, most of which have altered nuclei. In the intralobular bronchi, ciliated cells and CS are present in the epithelium, the latter being part of the continuous lining of the bronchioles, which is a continuation of the epithelial stratum of the proximal airways. QA play the role of progenitor cells of the epithelium of bronchioles, they are capable of self-renewal of their own population and differentiation into ciliate cells. In young intact rats in the small bronchus ciliated cells in the main have a regular plan of the structure, between them are located QC, containing a few granules and keeping contact with the basal membrane. Vaccination of the cytoplasm appears in the old rats in the ciliated cells, some cells of the CC lose contact with the basal membrane. In older animals, the process of extrusion of morphologically differentiated epithelium is more common than in young rats [2]. It is known that as the caliber of bronchi decreases and the relative increase in the epithelium of cells with high functional specialization, the proportion of their participation in proliferation increases [3]. It should be borne in mind that with age, there are changes in epithelio-stromal connective tissue interactions in the epithelial lining of the respiratory tract, which leads to the development of involutive processes [2].

Under the action of low temperatures, the number of ciliate cells increases in the composition of the epithelium in young rats, among them, mitotic CM patterns are observed. In old animals, with a general cooling, the number of ciliate cells decreases by almost 20%, many of them have degenerately altered nuclei, a vacuolarized cytoplasm. In older animals, the level of proliferative processes changes more significantly, which can distort the direction of differentiation in the epithelium of the respiratory system.

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