

Expression of different tissue factors in relatively healthy lung tissue with non-changed and metaplastic bronchial epithelium

Mara Pilmane, Kaiva Zile Zarina, Elizabeta Lohova

The Institute of Anatomy and Anthropology, Riga Stradiņš University, Riga, Latvia

Objective: Knowledge about the regulatory cytokines in combination with proliferation, apoptosis and angiogenesis in healthy lungs with different bronchial epitheliums is limited, but can contribute to a better understanding of the physiological renewal of lung. Our aim was to determine the expression of Ki-67, nestin, CD34, VEGF, IL-6, IL-13 and apoptosis in relatively healthy lung.

Methods: 19 lung samples were divided into groups with non-changed and metaplastic bronchial epithelium. Informed consent of patient and/or relatives was given in each case. Ki-67, nestin, VEGF, CD34, IL-6 and IL-13-positive cells were detected by immunohistochemistry, but TUNEL was carried out for apoptosis. Mann-Whitney and Spearman's rank correlation test was used.

Results: Ki-67-positive cells were detected in one case. To moderate number of nestin-positive structures was found in various tissues of lungs with different bronchial epitheliums. A few apoptotic cells were seen in metaplastic bronchial epithelium only. Metaplastic epithelium contained more VEGF-positive cells. Number of CD34 cells didn't differ in samples with both bronchial epithelia. A strong positive correlation for IL-13 and IL-6 between the alveolar epithelium and alveolar macrophages was detected in the metaplastic epithelium group.

Conclusion: Proliferation, apoptosis and stimulation of endothelial origin cells are not prominent in normal lung tissue, while a moderate number of nestin alveolocytes suggests a role of neuronal origin cells, to be intensified in metaplastic bronchial epithelium. An increase in VEGF and IL-13 in bronchi with metaplastic epithelium suggests the presence/influence of tissue ischemia impact on possible development/maintenance of metaplasia. Atypical factors in hyaline cartilage demonstrates its plasticity.

Keywords: factors; human; immunohistochemistry; lungs; metaplasia