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Simulation of Experimental Pathology and Its Prevention

Pachevska Alisa, Ponina Solomia, Cherednichenko Lidia,
Biloshicka Alina, Istoshyn Valery

Vinnytsia National Medical Universityby M. I. Pirogov

Today one of the most distributed diseases are diseases of the respiratory system. Among the factors that increase the number of patients with these diseases, are atherosclerosis and type 2 diabetes. Today, these diseases affected 20 million citizens of Ukraine. Economic crisis leads to the fact that treatment with modern pharmacological agents available to many people. Therefore, we consider that's interesting to use herbal medicines for the prevention of pulmonary lesions.

To investigate the preventive effect of traditional medicinal plants on cell restructuring of the lung tissue in experimental atherosclerosis (Anichkov's model) and type 2 diabetes (dexamethasone model).

The experiment was held on 50 male rats which were divided into 5 groups: an intact, a group with experimental atherosclerosis, a group with experimental diabetes, and two groups, which were conducted disease prevention by the decoction of medicinal herbs. Histological studies were carried out by the usual methods.

In studying the lung parenchyma set, that in intact animals it is presented by alveolar tissue: open blisters filled with air. The walls of the alveoli contains holes (pores of Kohn), which connect adjacent alveoli between them. Inside the alveoli are lined with a continuous layer of epithelium, lying on the basement membrane. Among alveolar epithelial cells differ small respiratory epithelial cells, which is dominated by its number, and large granular secretory cells. Respiratory epithelial cells have a flat shape, broad cytoplasmic processes. Secretory epithelial cells of the alveoli located near the pore. They form the rounded shape, bulge into the lumen of the alveoli, all the cells form tight locking respiratory contacts. The

pulmonary stroma is presented by bronchus, bronchioles and blood vessels (Fig. 1).

During the experimental atherosclerosis and diabetes in the lung tissue degenerative changes occurred, which manifested by significant changes in qualitative and quantitative cellular composition. Atherosclerosis dominated emphysema of the lung tissue, the walls of the alveoli were overstretched, the amount of secretary alveolocytes decreased significantly. Most lesions aroused when we were modelling diabetes (Fig. 2).

The walls of the alveoli were thickened by impregnating of erythrocytes, were observed small haemorrhages. We observed an increase in the number of macrophages that can be regarded as the activation of cellular immunity (Fig. 3).

Prophylactic use of the herbal remedy for prevention the development of adverse changes in the lung tissue was successful in both cases. There was a decrease in degenerative changes, histological picture resembled the lung tissue of the intact animals (Fig. 4, 5).

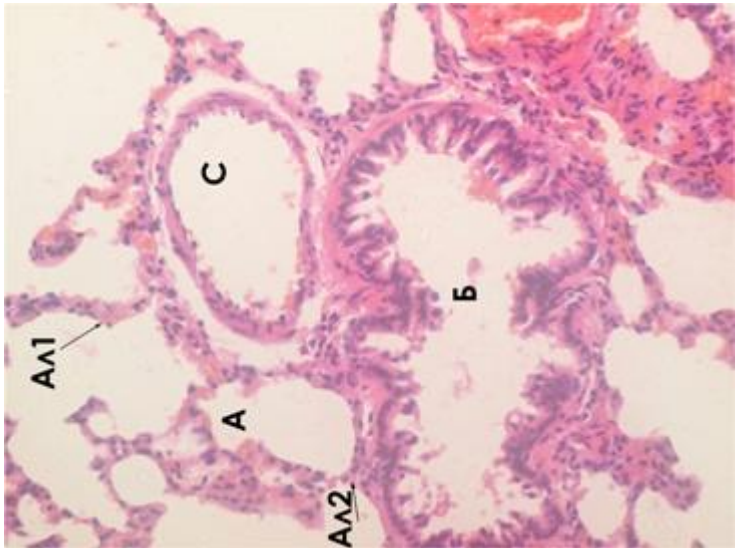

Fig. 1. Lung tissue of intact animals. ×40. А – alveoli, Ал1 – respiratory epithelial cells Ал2 – secretory epithelial cells, Б – bronchus, С – vessel

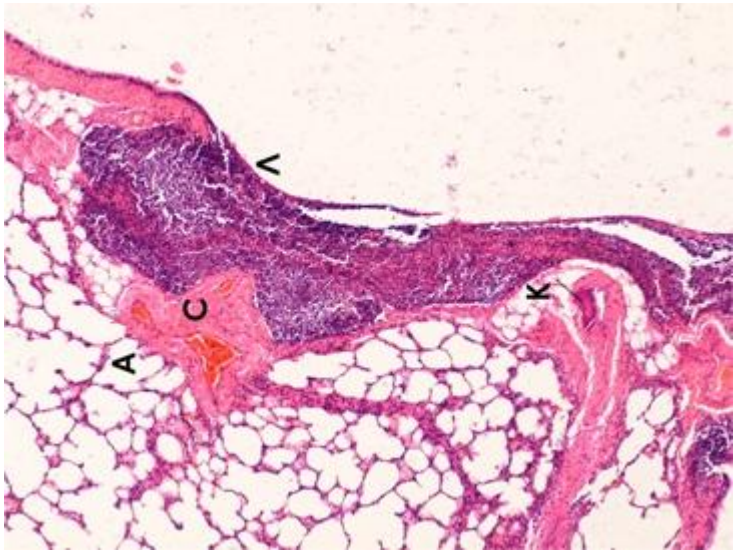

Fig. 2. Lung tissue of animals with experimental atherosclerosis. ×100. А – alveoli, С – vessel, К – calcifications, Л – lymphocytes

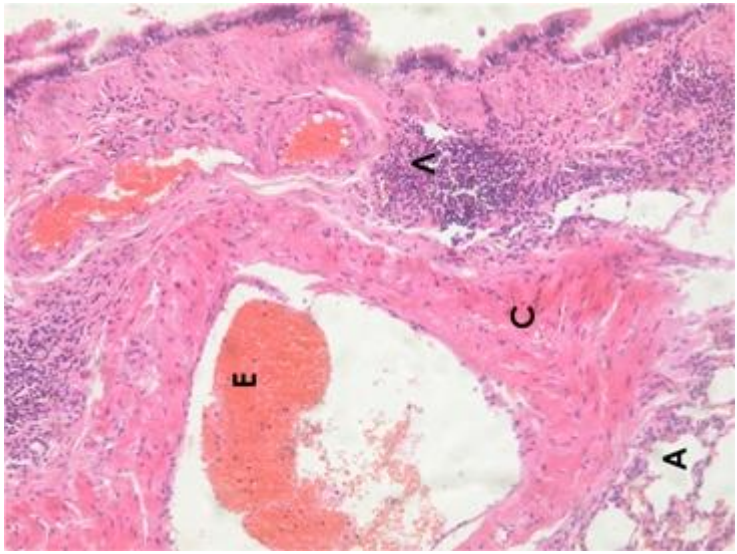

Fig. 3 Lung tissue of animals with experimental diabetes. ×200. А – alveoli, С – vessel, Е – red cells, Л – lymphocytes

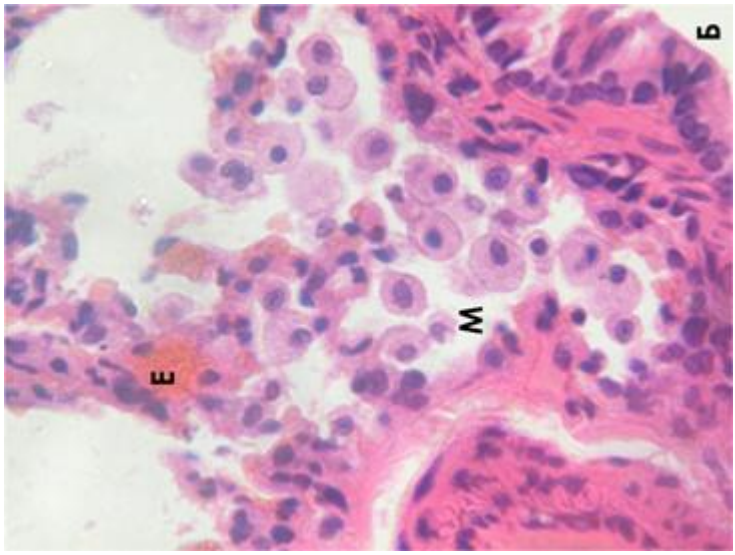

Fig. 4. Lung tissue of animals with experimental atherosclerosis and phytotherapy. ×1000. Б – bronchioles, M – macrophage, E – red blood cells

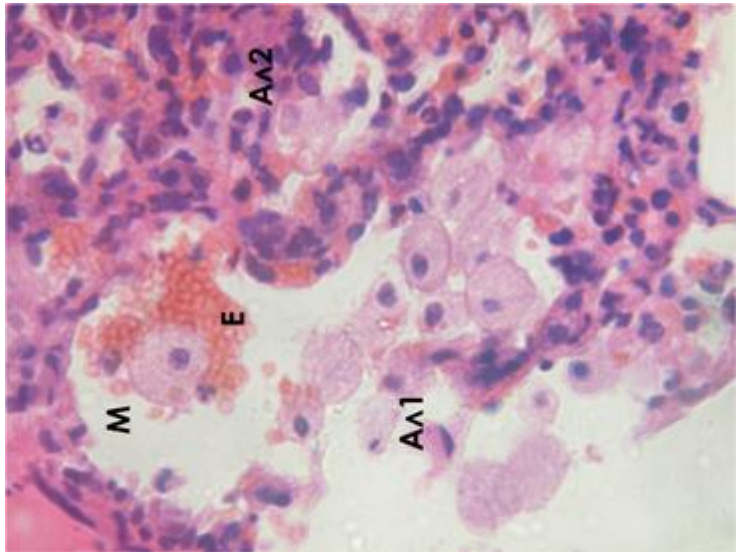

Fig. 5. Lung tissue of animals with experimental diabetes and phytotherapy. ×1000. А – alveoli, Ал1 – respiratory epithelial cells Ал2 – secretory epithelial cells, M – macrophage, E – red blood cells

The positive impact of the prophylactic administration of the herbal remedy were confirmed in the lung tissue by macro and microscopic examinations at experimental atherosclerosis and experimental diabetes.

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Potential *In Vitro* Antibacterial Effects of the Leaf Extracts of *Sansevieria canaliculata* Carrière (*Dracaenaceae*) Against *Staphylococcus aureus*

Tkachenko Halyna, Buyun Lyudmyla, Osadowski Zbigniew, Maryniuk Myroslava

Institute of Biology and Environmental Protection, Pomeranian University in Słupsk (Słupsk, Poland)
M. M. Gryshko National Botanical Garden National Academy of Science of Ukraine (Kyiv, Ukraine)

The genus *Sansevieria* (*Asparagaceae*), comprising about 70 species worldwide, is mostly found in dry or arid areas of the Old World tropics and subtropics (Brown, 1915, Staples and Herbst, 2005, APG IV, 2016), with a distribution range from Africa to South-East Asia and the islands of the Indian Ocean (Purseglove, 1972, Alfani et al., 1989). Representatives of this genus are usually xerophytic perennial rhizomatous plants that occur in dry tropical and subtropical parts of the world (Staples and Herbst, 2005). Africa is the center of diversity for *Sansevieria* (Brown, 1915, Carlquist and Schneider, 2007).

Sansevieria canaliculata Carrière is a stemless succulent, growing in patches from a creeping rhizome. It is a cylindrical-leaved species with only one leaf on a growth, although occasionally two are found. Rhizome is creeping, rather slender, 1 – 1.25 cm in diameter, light brown. Inflorescences are set directly from the rhizome, 5 – 16 cm long, 3 – 4 mm thick at the base, (very short if compared with the leaf blade), simple, spike-like. Raceme lax on the upper part of stem with usually 3 flowers per cluster at the lower part, solitary at