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THE INFLUENCE OF DOUBLE DUSTING ON THE DEVELOPMENT OF DISORDERS IN THE IMMUNE AND OXIDANT-ANTIOXIDANT SYSTEM IN A RAT MODEL OF CHRONIC OBSTRUCTIVE PULMONARY DISEASE

The model of COPD was created by the double introduction of coal and rock dust with a 40% alcohol with a 7 days interval. To create autoimmune disorders in the organism of the rat, Freund's adjuvant, cytostatic and immunopotentiator were used. In the model of COPD in rats, there was a decrease of leukocytes number in the peripheral blood. In the blood leukocyte formula an increase of the absolute and relative content of band forms of neutrophils, a decrease in total number of lymphocytes and segmented neutrophils, eosinophils, and monocytes were observed. In spontaneous NBT-test, there was a decrease of number of neutrophils; the activation index of neutrophils without stimulation has been reduced. The reduction of the activation index in model animals in spontaneous phagocytosis shows that the phagocytes have low back activity of intracellular enzymes and during activation can lead to significant loss of neutrophils and development of the phagocytic immunity failure. In the study of neutrophils phagocytic activity with *Staphylococcus* strain 209, there was a decline of phagocytic activity after 30 and 90 minutes, phagocytic num-

ber was reduced after 30 and 90 minutes in comparison with the control. Oxidant system activity and the amount of diene conjugate and malondialdehyde were increased. In the study of the antioxidant system decreased catalase activity was demonstrated. Some of the indicators of the antioxidant system were improved such as increased activity of xantinoxidase and increased number of uric acid in the serum. The disease affects on number of leukocytes, relative number of band neutrophils, absolute number of segmented neutrophils, lymphocytes and monocytes. Impact of the disease on phagocytic activity of neutrophils in spontaneous NBT-test and the significant influence on the activation index of neutrophils without stimulation were noted. Development of COPD influenced on phagocytic activity of neutrophils after 30 and 90 minutes and phagocytic number after 30 and 90 minutes. Studies revealed the influence of COPD on the indices of oxidative system (diene conjugates and malonic dialdehyde) and the indices of antioxidant system (on the content of uric acid in serum and catalase activity).