

Effect of a medicinal agent, possessing antioxidant and antihypoxant properties, on the state of oxygen homeostasis and lipid peroxidation under experimental pneumoconiosis in albino rats

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ABSTRACT

Introduction: Pneumoconioses (Pc) are interstitial pulmonary diseases of professional genesis, caused by long-term inhalation of high dust concentrations. Pc afflict 26.6-53% of the workers, exposed to dust contamination. The major feature of Pc course is irrevocability and incurability.

Purpose: The research of the effect of ethylmethyl hydroxypyridine succinate, possessing antioxidant and antihypoxant characteristics, on the oxygen metabolism, acid-alkaline state, and lipid peroxidation at the background of experimental pneumoconiosis in albino rats.

Material and methods: Pneumoconiosis was simulated on 72 albino rats through endotracheal injection of black coal suspension, on our own modification of O. Yu. Nykolenko methodology.

Results: Manifestations of experimental pneumoconiosis depended on the period of dust inhalation. Development of experimental pneumoconiosis was found to result in the decreased partial oxygen

pressure in the arterial blood, compensated hyperventilation-induced respiratory alkalosis, and marked increase in lipid peroxidation activity that could be seen in the blood content of malondialdehyde, as well as of conjugated dienes and trienes.

Conclusions: Application of ethylmethylhydroxy pyridine succinate in experimental pneumoconiosis has been found to improve oxygen metabolism, acid-alkaline state, and lipid peroxidation that is revealed in normalization of the partial oxygen pressure in the arterial blood, oxygen saturation of haemoglobin, index of bases' deficiency BE (Base-Excess), and in 1.6-2.0 decrease in the content of malondialdehyde, as well as of conjugated dienes and trienes.

Keywords: experimental pneumoconiosis, methodology of pneumoconiosis stimulation in albino rats, lipid peroxidation, oxygen metabolism, ethylmethylhydroxypyridine succinate

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