

# Mexidol protection of the glutathione-derived enzyme system of the blood in experimental pulmonary emphysema

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**Conflict of interest:** none

**BACKGROUND.** The paper presents an analysis of literature data on the glutathione-dependent enzyme system, the results of the authors' own studies on disorders in it, and the effect of mexidol in experimental pulmonary emphysema.

**OBJECTIVE.** To study the nature of changes in the glutathione-dependent enzyme system of blood in experimental pulmonary emphysema and the possibility of using mexidol as a protector.

**MATERIALS AND METHODS.** Experimental studies were conducted on 45 sexually mature, outbred white rats weighing 180-200 g. Pulmonary emphysema was reproduced by a single intratracheal injection of 0.5 ml of papain solution at doses of 50 and 100 mg/kg of weight. The activity of glutathione reductase, glutathione-S-transferase and glutathione peroxidase was determined in the blood. To assess the possibility of reactivating enzymes of the glutathione system, mexidol was used, which has a wide spectrum of pharmacological action, based on its antioxidant, antihypoxic, and membrane-protective properties.

**RESULTS AND DISCUSSION.** It was established that the development of pulmonary emphysema is accompanied by impaired function of glutathione reductase, glutathione-S-transferase and glutathione peroxidase. It was shown that these changes are not irreversible. Mexidol promotes reactivation of the glutathione-binding enzyme system.

**CONCLUSIONS.** In experimental pulmonary emphysema, the activity of enzymes of glutathione metabolism is disrupted. The dynamics of changes in the blood indicators of the glutathione enzyme system under the influence of mexidol, its metabolic effect indicate the possibility of using this drug as a protector in pulmonary emphysema.

**KEY WORDS:** pulmonary emphysema, glutathione reductase, glutathione-S-transferase and glutathione peroxidase, mexidol.