



**COMPARATIVE EFFECTIVENESS OF SIMULTANEOUS AND POST-
EXPOSURE CORRECTION WITH MILK THISTLE AND SAFFLOWER
EXTRACTS IN CARBON MONOXIDE-INDUCED MYOCARDIAL INJURY**

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Relevance. Carbon monoxide-induced myocardial injury is accompanied by hypoxia, microcirculatory disorders and stromal remodeling. Plant extracts with antioxidant and membrane-stabilizing properties may limit these changes, but the timing of correction may influence its effectiveness.

Aim of the study was to compare the effectiveness of simultaneous and post-exposure correction with milk thistle and safflower extracts in myocardial injury caused by carbon monoxide.

Materials and methods.

The study included 6- and 18-month-old white outbred rats. The myocardium was examined in control animals, carbon monoxide-exposed animals, animals receiving simultaneous correction, and animals receiving correction after carbon monoxide exposure. Collagen fibers were evaluated using Van Gieson staining, and desmin expression was assessed immunohistochemically.

Results.

Carbon monoxide exposure increased collagen fiber content from 5.2–6.8% to 11.5–17.2% in 6-month-old rats and from 14.3–16.7% to 24.6–32.8% in 18-month-old rats. Simultaneous correction reduced collagen accumulation to 8.6–11.4% and 14.8–



19.6%, respectively. Post-exposure correction was less effective, with collagen values remaining at 10.8–14.6% and 18.6–24.9%.

Conclusion.

Simultaneous correction with milk thistle and safflower extracts has a stronger protective effect than post-exposure correction. Early intervention limits myocardial fibrosis and better preserves myocardial structure, especially in younger animals.