

DOI: 10.5281/zenodo.4016816
UDC: 615.324:595.7+616-002-092



The influence of entomological preparations on oxidative stress in subacute inflammation

Ina Gutu

Department of Pharmacology and Clinical Pharmacology
Nicolae Testemitanu State University of Medicine and Pharmacy, Chisinau, the Republic of Moldova

*Corresponding author: ina.gutu@usmf.md

Manuscript received August 10; revised manuscript September 08, 2020; published online September 15, 2020

Abstract

Background: It was found out that the development of oxidative stress in the inflammatory processes is determined by the action of harmful factors, as well as by the activity of leukocytes, macrophages, monocytes with the production of reactive oxygen species. Preparations of entomological origin have revealed antioxidant effect in various pathological processes. Therefore, in the present study, we determine the influence of imuheptin and imupurin on the evolution of oxidative stress parameters during subacute inflammation.

Material and methods: Subacute inflammation was induced in 40 rats. Imupurin, imuheptin and dexamethasone were administered daily for seven days. Malondialdehyde (MDA), total antioxidant activity (TAA) superoxide dismutase (SOD) activity, pro-oxidant antioxidant balance (PAB), native and total thiols in the serum were measured on the 7th day. One-way ANOVA followed by Bonferroni's post-hoc comparisons tests were performed.

Results: Imuheptin produced non-essential reduction of MDA ($15.9 \pm 2.4 \mu\text{M/L}$), native thiol ($84.1 \pm 18.04 \mu\text{M/L}$) level and a tendency to increase SOD ($1033.6 \pm 171.4 \text{ u/c}$) activity, compared to the control group ($p > 0.05$). Imupurine decreased MDA ($14.6 \pm 2.0 \mu\text{M/L}$), total thiol ($85.9 \pm 14.7 \mu\text{M/L}$) and native thiol ($78.36 \pm 12.4 \mu\text{M/L}$), also restored SOD activity ($1117.6 \pm 103.7 \text{ u/c}$), increased TAA ($0.41 \pm 0.02 \text{ mM/L}$, $p < 0.05$) compared with the control group. PAB was more influenced by imuheptin ($325.82 \pm 57.82 \text{ HK}$) than imupurin ($340.14 \pm 37.09 \text{ HK}$).

Conclusions: Imupurine and imuheptin have shown a tendency to reduce the intensity of free-radical generation from membrane lipids and to restore antioxidant capacity.

Key words: imupurin, imuheptin, malondialdehyde, superoxide dismutase, total antioxidant activity, thiol.

Cite this article

Gutu I. The influence of entomological preparations on oxidative stress in subacute inflammation. *Mold Med J.* 2020;63(4):54-60.
doi: 10.5281/zenodo.4016816.