DERMOTROPIC EFFECT OF MELANIN ON SKIN REGENERATION AFTER INJURY

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Skin injuries are the most common type of injuries occurring in day-to-day life. Despite the wide arsenal of dermotropic drugs which are used to treat the wound process, creation of an effective domestic dermatropic drug is an actual problem nowadays. Melanin, produced by black yeast Pseudonadsoniella brunnea, which were seeded from vertical cliffs i. Halindez (Ukrainian Antarctic Station Academician Vernadsky) reduce ulcers and erosion damage of gastric mucosa, has expressed cytoprotective effect and can be offered as a new dermotropic drug.

Materials and Methods. 75 rats with modeled full-thickness skin wound were included into the study. Animals were devided into groups. 1st group was control, while in others wound healing occurred or without medical drugs or with administration of 0,5 % carbopol or with both 0,5 % carbopol and 0,1% melanin. The prooxidant-antioxidant balance in blood serum and skin gomogenate in dynamics on 3, 5, 7, 9, 14 and day of full epithelization was estimated using spectrophotometric and fluorimetric biochemical method. Type of data distribution in groups was checked with Shapiro-Wilk test.

Results. Current study demonstrates that rapid wounds healing using pharmacological composition that contained melanin occurred in the initial phase of the regeneration of the skin by analysis of active contraction of the wound surface in dynamics on 3, 5, 7, 9, 14, 21 and on 25-th days.
In the skin of untreated animals the content of collagen II type was higher that led to scarring. The cut wound is characterized by a violation of the prooxidant-antioxidant balance, develop in the increase in the amount of products of lipid peroxidation (diene conjugates, TBA active products and schiff bases) and changes in the activity of antioxidant enzymes (decreased superoxide dismutase and catalase activity) at all stages of the wound process. The use of a melanin-based pharmaceutical composition after injury reduced the content of LPO products and normalizes the activity of the anti-radical enzyme. The application of our pharmacological composition stimulated epithelization without rough scarring. Treatment with composition reestablished the prooxidant-antioxidant balance. Obtained results may indicate the advisability of applying melanin for the treatment of inflammatory processes.

Key words: skin wound, melanin, SOD, CAT, collagen

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