

Investigation of the effect of the tranexamic acid drug on the healing of open wounds in rat skin

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Abstract

Proper treatment and wound healing, as well as preventing it from becoming infected from increasing the speed of recovery, have always been considered by humans, therefore various methods have been used to achieve this goal. This study aims to compare the effect of tranexamic acid on open wound healing in rat skin. Forty healthy male rats with an average weight of 200-250 grams were selected and randomly divided into two main groups of 20: Group 1 - treatment group (creating an open wound and using tranexamic acid) and group 2 - control group (creating an open wound and medicinal vehicle without tranexamic acid); each of the main groups was divided into four sub-groups (3, 7, and 14-day time groups) and 21). For the histopathological investigation of the healing process, the wounds of the mice of the subgroups in both main groups were removed in total thickness and with a diameter of 15 mm (10 mm of the wound, plus 5 mm of healthy tissue margin) and were examined for histopathological histological studies. To observe the healing process, after histopathological sectioning, with two qualitative staining methods, i.e. hematoxylin-eosin and Masson's trichrome, the study groups and the obtained information were converted into quantitative information and subjected to statistical analysis. The healing process was highlighted based on eight histopathological parameters including epithelial tissue defect, flesh bud, angiogenesis, collagen fibers, number of fibroblast cells, inflammatory response, necrosis length, and thickness of the newly formed epithelium at the healing site. Using tranexamic acid improved the epithelial tissue defect, fleshy bud, average collagen fibers, number of collagen cells, and inflammatory response. In addition, the use of tranexamic acid significantly improved the average length of necrosis, the thickness of the newly formed epithelium, and the histological condition. The findings suggest that tranexamic acid drug helps to heal the open wound in rat skin.

Key words: Tranexamic acid, Skin wound, Inflammation, Open wound, Wound healing

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