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Effects of topical application of coumarin on incisional wound healing in BALB/c mice

Maryam Honarmand

Birjand University of Medical Sciences, Iran

Abstract

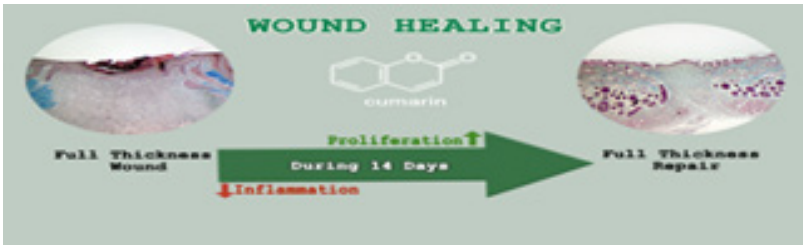
Background and objective: Wound healing is one of the main problems facing medical science and nowadays herbal compounds are used to accelerate repairing process. Coumarin is a plant compound with anti-inflammatory and anti-oxidant effects. In the present study, benefits of using coumarin in accelerating the wound healing was investigated in mice.

Methods: In this study, 60 male BALB /c mice were used. After making a linear wound on the dorsum of the animals, they were randomly divided into 5 equal groups: First and second groups received topical cream of coumarin at the concentrations of 1% and 2%, third and fourth groups received nitrofurazone cream (positive control) and ucerin cream (Negative control), respectively. The fifth group as the sham group was not treated. Then on the 4th, 7th, 10th and 14th days of experiment, on 3 mice from each group, biopsies were performed. Histological examination was performed by using hematoxilin & eosin and Masson Trichrome staining. Data were analyzed by ANOVA and Tukey tests.

Results: Compared to control groups, inflammation significantly decreased in both of the experimental groups at the days 4, 7 and 10. In the proliferation phase, fibroblast cells, granulation tissue formation and epithelialization were significantly higher in both experimental groups than the control groups. In addition, collagen synthesis was significantly increased in the experimental groups compared to the control groups. Conclusion: Topical application of coumarin had beneficial effects on different phases of wound healing in the skin in BALB/c mice.

Biography

Maryam Honarmand is specialized in anatomy and faculty of Birjand University of Medical Sciences, Iran.



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