عنوان مقاله:

Sliver nanoparticles accelerate skin wound healing in mice (Mus musculus) through suppression of innate immune system

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نویسندگان:

Mohammad Saeed Heydarnejad - *Research Institute of Biotechnology, Shahrekord University, Iran*

Samira Rahnama - *Department of Biology, Shahrekord University, Iran*

Mohsen Mobini-Dehkordi - *Department of Genetics, Shahrekord University, Iran*

Parisa Yarmohammadi - *Department of Biology, Shahrekord University, Iran*

خلاصه مقاله:

Objective(s): This study aimed to find the effects of silver nanoparticles (Ag-NPs) (40 nm) on skin wound healing in mice Mus musculus when innate immune system has been suppressed.Materials and Methods: A group of 50 BALB/c mice of about 8 weeks (weighting 24.2±3.0 g) were randomly divided into two groups: Ag-NPs and control group, each with 25 mice. Once a day at the same time, a volume of 50 microliters from the nanosilver solution (10ppm) was applied to the wound bed in the Ag-NPs group while in the untreated (control) group no nanosilver solution was used but the wound area was washed by a physiological solution. The experiment lasted for 14. Transforming growth factor beta (TGF-β), complement component C3, and two other immune system factors involving in inflammation, namely C-reactive protein (CRP) and rheumatoid factor (RF) in sera of both groups were assessed and then confirmed by complement CH50 level of the blood. Results: The results show that wound healing is a complex process involving coordinated interactions between diverse immunological and biological systems and that Ag-NPs significantly accelerated wound healing and reduce scar appearance through suppression of immune system as indicated by decreasing levels of all inflammatory factors measured in this study. Conclusion: Exposure of mice to Ag-NPs can result in significant changes in innate immune function at the molecular levels. The study improves our understanding of nanoparticle interaction with components of the immune system and suggests that Ag-NPs have strong anti-inflammatory effects on skin wound healing and reduce scarring.

کلمات کلیدی:

Silver nanoparticles (Ag-NPs), Skin wound, Innate immune system, Mus musculus