Effect of Nigella Sativa Extract Oil on Granulation Tissue in Cutaneous Wound:

Granulation Tissue in Cutaneous Wound:

An Experimental Study in a Rabbit Model

{Original Article (Anatomy)}

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ABSTRACT

Objective: The present study aims to observe the effect of Nigella Sativa (NS) oil extract on the granulation tissue formation on induced cutaneous wounds in a rabbit model.

Study Design: Experimental study

Place and Duration of Study: This study was conducted at the Department of Anatomy, Isra University Hyderabad from May to October, 2012.

Materials and Methods: Twenty male adult Wistar rabbits were studied according to inclusion and exclusion criteria. The rabbits were divided into two groups; Group I. (n=10) skin wounds were treated with 1% pyodine daily and Group II. (n=10) Nigella sativa extract oil was applied on inflicted cutaneous wounds. The animals were sacrificed by over-dose of Ketamine and Xylazil as per protocol and skin wound area was excised. The tissue samples were fixed in marked containers, containing 10% formaldehyde as preservative. The tissue samples were embedded in paraffin, cut into 5 um thick sections and stained with Hematoxylin-Eosin & Masson’s trichrome and examined for histological findings. The data was analyzed on SPSS version 17.0 (Chicago, IL, USA). The continuous variables were analyzed by independent sample t-test. The p-value was taken at ≤0.5 as significant.

Results: The study proves bulky granulation tissue formation in NS extract oil group compared to controls with statistically significant differences on 5 th, 9 th and 14 th days (p=0.0001). The overall content of granulation tissue was nearly double on all three days in NS group compared with the controls. Our study shows that NS extract oil induces angiogenesis, fibroblast proliferation and collagen synthesis as observed on the histological examination. The study proves that the blood capillaries are found more in NS oil extract group and similarly more fibroblast and collagen fibers. The findings of present study indicate that NS oil extract has soothing effect on the skin and blood vessels reaction to injury. The findings reveal better healing in NS extract oil group regarding the wound size and healing.
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**Conclusion:** The NS extract oil produces granulation tissue formation as topical agent in cutaneous wounds in rabbit model. It is concluded that the NS extract oil induces angiogenesis, fibroblast proliferation and collagen synthesis, however further studies are recommended.

**Key Words:** Nigella sativa, Granulation tissue, Pyodine, Rabbit.

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