

Evaluation of the Effect of Bee Propolis Cream on Wound Healing in Experimentally Induced Type I Diabetes Mellitus: A Histological and Immunohistochemical Study

Noha Abdellatif Ibrahim

Histology Department, Faculty of Medicine, Fayoum University, Egypt

Background: Diabetic foot and poor wound healing are serious problems in diabetic patients. Propolis is a honeybee product. It can improve wound healing and has free-radical scavenging activity.

Aim: To evaluate the possible wound-healing effect of bee propolis cream on streptozotocin – induced type I diabetes mellitus in adult male albino rats by using histological, immunohistochemical and morphometric studies.

Materials & Methods: Twenty adult male albino rats were used in the study. Diabetes mellitus was induced and two cutaneous wounds were created at the dorsal region of the rats. The rats were randomly divided into two equal groups: control group which was subdivided into 2 subgroups, 5 rats each; subgroup Ia: received vehicle cream once daily for one week & subgroup Ib: received vehicle cream once daily for two weeks and propolis group which was subdivided into 2 subgroups, 5 rats each; subgroup IIa: received propolis cream once daily for one week & subgroup IIb: received propolis cream once daily for two weeks. Histological {using H&E and Masson's trichrome stains} and immunohistochemical {using vascular endothelial growth factor (VEGF)} studies were performed. Wound healing was assessed by rate of wound closure estimation and morphometric measurements of area % of collagen fibers and VEGF. This was followed by statistical analysis.

Results: There was marked improvement in wound healing with a significant increase in the rate of wound closure and collagen deposition in the propolis group compared with the control group. Increased area% of collagen fibers and VEGF immunoexpression were found in the propolis group.

Conclusions: The present study reinforced the significant role of VEGF in the wound healing process. The powerful healing effect of propolis on diabetic wounds was also revealed. This could be an effective strategy for managing patients with diabetic foot.

Keywords: propolis, diabetic foot, [streptozotocin](#), VEGF.

Corresponding author: Noha Abdellatif Ibrahim

Mobile: 01149939637

Email: nh_ebrahim@yahoo.com