

Comparative evaluation of Artaderm (herbal alcoholic extracts ointment) and cod liver oil ointment on healing process in burn of the second degree in Rat

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Abstract

Introduction: The treatment of skin burning is one of the most important problems in medical sciences. Burns are divided into 3 degrees and each degree has different damage and effects on skin and other related tissues. Many efforts have been applied by clinicians to manage wound healing through the use of genes, cytokines, chemokines and surgery. Some involved mechanisms in the process are local tissue hypo perfusion, edema, prolonged inflammation, hypercoagulability, free radical damage and accumulation of cytotoxic cytokines.

Methods and Results: Twenty-six female laboratory Wistar rats weighing 200-250 grams obtained, and all the rats were kept in controlled temperature of 23-25 °C and light period of 12-hours lightening and 12-hours darkness. Due to make burns after rats' general anesthesia Ketamine (40 mg/kg) and Xylazine (5 mg/kg) by Intraperitoneal (IP) method was performed, after shaving of rats, a brass metal piece 1.4 cm × 3 mm thickness with 100 °C was kept on back of rats for 15 seconds and it was made similar deep second-degree burns. No significant difference was found among four groups regarding the primary wound surface area. The rats randomly were separated into 4 groups each one consisting of 6 rats. In the control group the burn injury only was covered with sterile gauze, Artaderm ointment group, cod liver oil group, Eucerin group. The injury area was covered with sterile gauze bandage and this process continued for 21 days. On the 0, 7th, 14th and 21st day of the experiment, tissue samples were taken under anesthesia from predetermined areas from all subjects in all groups. Wounds were daily examined for any changes in appearance of wounds, the color, and smell of any discharge and time of scar separation.

Conclusions: Statistical comparison of the burn area of study groups on days 7-14 and 21 post-burn, showed a significant difference ($p < 0.05$) between the control group and other groups. The best results obtained from the group treated by Artaderm. According to studies, pathology quickly restored with Artaderm. Cell repair in the treated group by Artaderm herbal ointment was significant compared to other groups after staining with H&E. Finally, Artaderm successfully demonstrated its therapeutic effect in terms of healing the wounds.

Key words: Second degree burns, Cod liver oil, Artaderm ointment, Rats.