

Topical insulin in the gel formulation vs. cream formulation in the tissue repair of hyperglycemic mice

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Abstract

Topical insulin is an option for the treatment of wounds in hyperglycemic animals with delayed tissue repair. Although there is evidence on the impact of insulin on wound healing, further studies are needed to evaluate the best insulin-containing formulation in tissue repair.

Objective: To investigate the cream formulation vs. the gel formulation in wounds of hyperglycemic animals.

Method: Diabetes was induced with five consecutive daily doses of streptozotocin (60mg / kg) intraperitoneally. The wound was performed in the dorsal region of the animals with the aid of a mold with an area of 1cm². The study was composed of group 1: wounds treated with insulin cream and group 2: animals treated with insulin gel. Wounds were treated daily, photographed and extracted for further analysis. Wound areas were analyzed using ImageJ software. The groups were compared by means of the t-Student test; the level of significance adopted was p <0.05.

Results: Microscopically both groups were very similar in relation to inflammatory infiltrate, presence of fibroblasts and vessels. There was a higher rate of reepithelialization with treatment in the gel formulation. We also observed increased expression of the protein Ki67 and the TGFβ1 on day 8 in the gel formulation when compared to the cream. On the 14th day, the findings are similar in both groups.

Conclusion: Topical insulin favors tissue repair in the cream or gel formulation. It modulates the inflammatory phase, the cellular proliferation through KI67 and favors the proliferative phase through the expression of TGFβ1 evaluated by immunohistochemistry.

Biography

Lima MHM has completed her PhD at the age of 32 at the University of Campinas, Brazil. She is the Associate Professor at the School of Nursing from University of Campinas, Brazil. She has over 50 publications that have been cited over 300 times and her publication H-index is 09. She has also been serving as an editorial board member of reputed Journals.

Publications:

- Assessment of the use of Unna boot in the treatment of chronic venous leg ulcers in adults: systematic review protocol
- Effect of Topical Insulin on Second-Degree Burns in Diabetic Rats
- Maintenance of central venous access devices permeability in cancer patients / Maintaining the permeability of central venous access devices in cancer patients / Maintaining the permeability of central venous access devices in cancer patients
- Effect of Educational Strategies on the Sleep Quality of People with Diabetes: Randomized Clinical Trial
- Mental health interventions for health professionals in the face of the Coronavirus pandemic [Mental health interventions for health professionals in the context of the Coronavirus pandemic]



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