



Ozone therapy transcutaneous versus Photobiomodulation in treating burn

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Objective: To compare the use of photobiomodulation with ozone therapy in the treatment of burns.

Methods: Case study of a 40-year-old man without comorbidities presenting second-degree thermal burns caused by cooking oil in the left lower limb. Patient with severe pain, treated in May 2021 (10 days after the injury) at the plastic surgery team outpatient clinic (physician and residents, nurse and nursing students) of a teaching hospital in southern Brazil. Lesion measuring 748 cm² (44X17) in the anterolateral tibial region extensive to the dorsum of the foot, toes and calf with 80% granulation and 20% sloughing; delimited, regular and adhered edges; perilesional area with maceration. Hygiene and instrumental debridement¹ was performed, weekly treatment was started with Low Intensity Laser (LLL) in 25 cm from the upper region of the lesion, frequency 660nm 1J by punctual technique (40 points), radiance 10J; and in the remainder of the wound, an ozone bag was used, dose and 90 mcg for 30 minutes. As primary coverage, hydrofiber with silver was used and, in the final stage of healing, gauze with petrolatum. At home, the dressings were performed by the wife, as instructed by the nursing team. A total of five consultations were carried out, from the third onwards, only ozone therapy was maintained, and after the fourth, the dose was changed from 90 mcg to 20 mcg. At outpatient discharge, the use of a 20 mmHg compression stocking was prescribed. The research was approved by the ethics committee for research with human beings.

Results: In the area where it was applied only ozone transcutaneous by lowering bag was 30 cm² of total area after the first application, better vascularization, epithelialization and quality of the regenerated tissue. In total, five sessions of ozone therapy were performed with total tissue repair and outpatient discharge within four weeks.

Conclusion: Ozone therapy and photobiomodulation are adjuvant treatments that contribute to tissue repair by promoting agility in these processes, modulation of inflammation, promotion of analgesia, tissue regeneration, regulation of cell metabolism and modulation of the immune system. In the case described it is inferred that the Ozone therapy transcutaneous a bag showed better results the treatment of patients with burn especially having antimicrobial activity, given the exponential risk for these patients to infections and; by decreasing oxidative stress due to the action on cytochrome C oxidase through its byproducts: reactive oxygen species (ROS) and lipid oxygenation products (LOPs). New clinical studies are suggested with expansion of the investigated sample and in new care contexts.