

Adequate management of oxidative stress in wound environment, significantly improves the healing of neuroischemic postsurgical diabetic foot ulcers

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Aim:

The excess of free radicals induces the expression of proinflammatory cytokines and matrix metalloproteases as well as cell senescence, importantly contributing to healing process arrest (1). In addition, oxidative stress is behind several pathogenic events that characterize diabetes disease. Diabetic patients produce higher levels of free radicals and in addition their physiological antioxidant defenses are reduced. Indeed, it has been observed that patients with diabetic foot ulcers (DFU) have even more level of oxidative stress (2). In this work we have treated five patients with neuroischemic postsurgical DFUS with a new antioxidant treatment, with the aim to eliminate the excess of free radicals in the wound environment, help to overcome faster the inflammatory phase and avoid chronification.

Methods:

Wounds presented a size ranged from 10 to 33 cm², with presence of soft non viable tissue in the wound bed and moderate exudates level. Three of them were positive to "probe to bone" test. Previous treatments included NWPT and classic moist wound healing, without positive results. Treatment consist on a vegetal absorbent matrix, obtained from galactomannan from Carob Tree and a solution containing Curcumin and N-Acetylcysteine (3,4). These components together present a potent antioxidant activity. The matrix, previously hydrated with the solution, was applied directly to the wound bed, a barrier system was used to protect perilesional skin and hydrofiber foam with silicone border was used as secondary dressing, to help to manage wound exudates. Wound size, exudates level, percentage of granulation tissue and inflammation signals were recorded every week for wound evolution assessment.

Results:

- Four men and one woman
- Aged: 43-75 years
- Days of treatment: 14 - 59 days
- Total healing was achieved in four cases
- One of the patients did not complete the treatment due to adverse events occurrence not related with the antioxidant dressing



Conclusions:

Antioxidant treatment showed good debriding capacity, eliminated fibrinous and sloughy tissue, obtained a nice wound bed, avoided wound arrest and achieved a fast wound closure.

Bibliography:

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