The presence of elevated protease activity (EPA) influences the integration of dermal grafts in diabetic foot ulcers.

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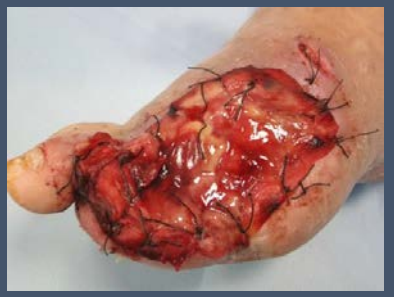
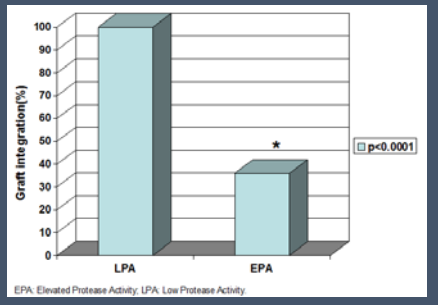
Introduction: The knowledge of the wound bed features is important to plan the wound care mainly when the use of expensive treatments like dermal substitutes is advisable.



Objectives: The aim of our study is to analyse factors, including protease activity (MMPs and HNE), that could influence the integration of dermal grafts when applied in diabetic foot ulcers.

Methods: 35 diabetic patients with an extensive foot tissue loss (IIA, Texas Wound Classification) were considered suitable for dermal graft. Before the enrolment we ensured adequate blood supply, control of infection, offloading. The protease activity of each lesion was evaluated blindly, using WOUNDCHEK Protease Status, before the application of dermal substitutes. At 1 month follow up, we evaluated the integration of the dermal grafts. We analysed the correlation between clinical patient characteristics, local wound features including the presence or absence of elevated protease activity (EPA), dermal substitute applied and the outcome expressed in terms of dermal graft integration.

Results: We observed the integration of the dermal graft in 80% of our population n=28 patients). At the multivariate analysis EPA was the only negative predictors for dermal graft integration ($p<0.0007$). We divided the patients in two groups according to protease activity: group 1 with low protease activity (24 patients) and group 2 with elevated protease activity (11 patients). Graft integration was 100% in group 1 (24 patients) and 36,4% in group 2 (4 patients) [$p<0.0001$].



Conclusions: Our study highlights the utility of assessing protease activity, i.e. testing for EPA, in the wound environment before to apply costly treatments like dermal substitutes.

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