

Clinical evaluation of a novel nanofiber wound matrix for the treatment of chronic wounds

Matthew J Regulski¹ and Matthew R MacEwan²

¹Ocean County Foot & Ankle Surgical Associates, USA

²Acera Surgical, Inc., USA

Background: Chronic wounds, including diabetic foot ulcers (DFUs) and venous leg ulcers (VLUs), place a substantial burden on the healthcare system. There is a strong need for new technologies to treat these wounds, particularly those refractory to existing therapies. A novel, resorbable nanofabricated wound matrix, made from biocompatible synthetic materials and designed with a fibrous structure similar to native extracellular matrix, offers a new solution for these challenging wounds.

Objective: Evaluate clinical outcomes of a large, single-center cohort of chronic wounds treated with the nanofiber wound matrix.

Methods: Retrospective data were collected from 91 patients with chronic lower extremity wounds, the majority being DFUs and VLUs, which had persisted for at least 4 weeks and failed previous treatment with standard of care. The nanofiber matrix was applied weekly to the wound surface for up to 12 weeks as deemed appropriate by the treating physician. Wound quality was assessed and wound area measurements were recorded weekly.

Results: No adverse events were noted. Significant reduction in local inflammation and marked improvement in wound quality were observed over the course of the treatment. The wounds


underwent progressive and sustained wound area reduction, with 89% of DFUs and 94% of VLUs achieving complete closure at 12 weeks. Wounds treated with the nanofiber matrix had increased mean healing velocities (0.063 cm²/day) compared to control wounds that were not treated with the nanofiber matrix (0.036 cm²/day).

Conclusion: Application of the nanofiber wound matrix supported healing in chronic refractory wounds, as evidenced by notable decrease in inflammation, faster healing velocities, and complete closure of nearly all of the wounds after 12 weeks of treatment. The results of this study suggest that the nanofiber wound matrix is well-suited for the management of challenging cutaneous wounds and well-tolerated by patients.

Speaker Biography

Matthew J Regulski is the director of the wound institute of ocean county NJ and Senior partner with ocean county foot and ankle surgical associates. He is also board of directors of the international federation of podiatric educators. He was triple board-certified member. He has been pi on 12 RCT's. he has published multiple articles in peer reviewed journals and authored chapters in surgical texts. He acts as a reviewer for 6 peer reviewed journals and the associate editor for the Journal of Dermatology and Cosmetology. He treat over 6, 000 chronic wounds in a year.

e: mregulski@comcast.net

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