

Use of Bioelectric Dressings for Faster Wound Healing: A Prospective Case Series

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INTRODUCTION: Despite advancements in wound care treatments for the management of acute and chronic wounds, there is an unmet need for interventions that accelerate epithelialization. Recent research findings support the use of bioelectric currents to address this challenge (1). Novel wound dressings with inherent bioelectric activity have been developed and studied in both the porcine model (2) as well as human subjects. The principal aim of this study is to evaluate the impact of a bioelectric wound dressing on acute wound healing.

METHODS: Thirteen participants presenting to a multidisciplinary burn clinic were enrolled. Each patient underwent split-thickness skin graft (STSG) for treatment of their burn wound, with their donor site serving as the wound addressed for this study. Each participant served as his/her own control; one-half of all wound sites were treated with the bioelectric dressing and semi-occlusive dressing, the other half using solely semi-occlusive dressing (SOD). At each standardized follow-up visit, percent epithelialization was rated by the same attending burn surgeon who served as a blinded evaluator. Participants also provided a self-assessment of their scar appearance.

RESULTS: At week 1 post-procedure, average epithelialization of 64.2% was noted on the bioelectric dressing treated side, compared to 46.9% on the SOD side, representing an average 36.89% faster wound healing ($p=0.028$) (Figure 1). At one month, patients rated the bioelectric dressing treated half superior in terms of color, thickness, and overall quality ($p<0.05$, two-tailed).

CONCLUSION: This early data shows promise in terms of faster healing, improved scarring, and improved patient outcome with the use of the bioelectric dressing on acute wounds. With fulfillment of an extended study population, we hope to provide a solid foundation for extrapolating our data beyond skin graft donor sites to all areas of wound care.



Figure 1. Patient one week post-autograft harvest and application of bioelectric dressing.

REFERENCES:

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