

“CHARGE YOUR WOUNDS”, a novel bioelectric dressing for non-healing wounds

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Introduction:

Substantial resources and time are consumed in the treatment of chronic ulcers. Wound treatment modalities that address bioburden and promote wound closure have long been a subject of research. Published research has shown that microcurrent stimulation in the treatment of wounds via close proximity electrically active wound dressings has contributed to faster healing, stronger tensile strength of scar tissue and antibacterial effects (1-4).

Objective:

We present 3 cases of wounds, in various stages of healing that showed that the application of low level microcurrents, delivered in the form of a bioelectric dressing* may be helpful in the treatment and healing initiation of chronic wounds. We have investigated the efficacy and antimicrobial effects of this wound dressing in reducing and resolving lower extremity wounds.

Methods:

The three presented cases are from case studies and retrospective review of their medical records. Cases are one of each; diabetic plantar forefoot ulcer, venous leg ulcer and a pressure ulcer. Each patients was followed for healing and closure. All patients received the bioelectric wound dressing in conjunction with standard wound care. The bioelectric dressing was applied 1-3 times per week in addition to appropriate wound care. Debridement, offloading and compression were also utilized, when appropriate. All wounds in this series were chronic non-healing wounds of the lower extremities despite conservative local wound care. Weekly evaluation and photos were taken to monitor and assess wound healing. Wound cultures were also obtained.



Pressure Ulcer

28 Days

54 Days

63 Days



Venous Leg Ulcer

35 Days

42 Days

Conclusion:

The various wounds responded to this bioelectric dressing. All three cases showed progress in healing and some to full closure. Our patients also experienced a decrease in pain and inflammation.

Significance:

We believe that our cases demonstrated a wound response to microcurrent stimulation by means of the bioelectric dressing and that this biophysical stimulus promotes wound healing via stimulation of dormant cells. The case study also showed fast healing, reduction in pain and antimicrobial reduction. The results are encouraging and warrant additional investigation via randomized control trials.

References:

1. Wolcott LE, Wheeler PC, Hardwicke HM, Rowley BA. Accelerated Healing of Skin Ulcers by Electrotherapy. Southern Medical Journal 1969;62(7):795-801.
2. Venable, Joseph. The Role of Endogenous Electrical Fields in Limb Regeneration, Part A, pgs. 587-596, Alan Liss Publishing, NY, 1983.
3. Sinitzyn, Razvozia. Effects of Electrical Microcurrents on Regeneration Processes in Skin Wounds. Ortop Travmatol Protz, Feb, 1986.
4. Chu CS, McManus AT, Pruitt BA, Mason AD. Therapeutic Effects of Silver Nylon Dressings with Weak Direct Current on Pseudomonas Aeruginosa-Infected Burn Wounds. J of Trauma Injury, Infection and Care 1988;28:1488-92.



Diabetic Foot Ulcer



28 Days



42 Days