

## News Article

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### **Electrical Stimulation a Promising Adjunct to Limb Salvage Treatments**

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SAN DIEGO (EGMN) - High-voltage, pulsed electrical stimulation is an effective adjunct to multidisciplinary attempts at limb salvage in diabetic patients with complex lower extremity wounds, results from a small study demonstrated.

Of 45 wounds in 30 patients, 78% of the wounds healed in a mean of 14 weeks using the electrical stimulation system, Dr. Jeremy J. Burdge reported at the annual meeting of the Wound Care Society.

"This is a preliminary study," said Dr. Burdge, a plastic and reconstructive surgeon who practices in Columbus, Ohio. "Further research is warranted."

He and his associates evaluated the efficacy of a high-voltage electrical stimulation system manufactured by MicroVas Technologies Inc. (Tulsa, Okla.) in patients who failed to improve despite multidisciplinary treatment approaches, including vascular evaluation and surgical intervention as indicated, aggressive off loading, bacterial infection control, and wound debridement.

"There is a variety of ways in which people speculate that high-voltage pulsed current has improved wound healing," Dr. Burdge said at the meeting, which was held in conjunction with a symposium on advanced wound care. "They fall into several groups of either increasing blood flow through promoting microcirculation, increasing wound healing through attraction of proliferating different cell types, or bacteria inhibition by this type of pulsed current."

More than half (57%) of the patients in the study were men; their mean age was 66 years. Comorbidities included neuropathy (84%), peripheral vascular disease (77%), cardiac disease (37%), and infection (33%). "This was a fairly high-risk group of patients," Dr. Burdge noted. "The mean hemoglobin A

The mean age of wounds was 25 weeks, and the mean surface area was 7.8 cm<sup>2</sup>. Most wounds were located on the foot (51%) and heel (28%), followed by the ankle (12%) and lower extremity (9%).

Emitter pads were placed over each wound. Stimulation was delivered for 45 minutes 2-3 times per week by a narrow pulsed current with a width of 80-100 microseconds at a frequency of 55 Hz. Pulses were delivered for 1.5 seconds, with a 1.5-second interval between pulses. The amplitude was individualized for each patient to maximize fused tetanic muscular contraction.

Dr. Burdge reported that the mean number of electrical stimulation treatments per wound was 23 and that 35 (78%) of the wounds healed in a mean of 14 weeks.

Wound healing was defined as either complete epithelialization of the wound or closure with supplemental skin grafts.