Assessment of a Microcurrent-Generating Device as an adjunct to NPWT in complex surgical wounds

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Background
A multidisciplinary approach is often employed in the treatment of complex surgical wounds, with Negative Pressure Wound Therapy (NPWT) used as a common treatment method. The wireless microcurrent-generating device (MCD) has been used to treat complex and difficult-to-heal wounds (1-2) and has demonstrated successful outcomes when used as an adjunct to NPWT (3-5).

Methods
We used a wireless microcurrent-generating device (MCD) as an adjunct to Negative Pressure Wound Therapy (NPWT) for the treatment of non-healing wounds in five cases that had previously been treated with advanced standard of care modalities without evidence of healing. The following cases were assessed: three surgically débrided leg ulcerations from various stages of disease, one decubitus ulcer of the right foot from peripheral neuropathy, and an abdominal dehiscence from a previous appendix. All patients received the MCD as an interface layer under the NPWT device, which was changed at NPWT dressing changes, whereas patients were evaluated weekly NPWT was used until no longer indicated based on facility protocol, after which the MCD was used as a primary dressing.

Results
Wound healing initiation and significant reduction in volume were observed following the application of the MCD as an adjunct to NPWT in all cases. All five wounds progressed without complications or infection. The three wounds of the same patient in cases 1 and 3 reduced in volume significantly. Full closure was achieved in cases 2, 4, and 5.

References

Case 1 - Right Lower Extremity Surgically Débrided Wound

Patient History: 63 yo female admitted to rehab facility on 9/25/13 following hospitalization for surgical débridement to right lower extremity due to infection and abscess.

On 10/2/13 was noted to have a large area of skin overlying the right lower leg that was erythematous with induration. Wound care included negative pressure wound therapy (NPWT) and MCD. The wound continued to improve with NPWT and MCD treatment and has healed with no signs of infection.

Case 2 - Pelvic Dehiscence

Patient History: 71 yo female admitted to rehab facility on 7/16/13 due to pelvic dehiscence after surgery for aortic aneurysm repair.

On 7/16/13 patient was noted to have a large area of skin overlying the pelvic area that was erythematous with induration. Wound care included negative pressure wound therapy (NPWT) and MCD. The wound continued to improve with NPWT and MCD treatment and has healed with no signs of infection.

Case 3 - Debrided Abdominal Surgical Incision

Patient History: 56 yo female admitted to rehab facility on 7/16/13 due to abdominal incision after surgery for colon resection.

On 7/16/13 patient was noted to have a large area of skin overlying the abdominal area that was erythematous with induration. Wound care included negative pressure wound therapy (NPWT) and MCD. The wound continued to improve with NPWT and MCD treatment and has healed with no signs of infection.