Improved Patient Outcomes Using Noncontact, Low-Frequency Ultrasound* to Rapidly Heal Challenging Wounds

Mark Hinkes, DPM, Chief, Podiatry Section
Veteran's Affairs Medical Center, Nashville, Tennessee

Background
The wound healing process is inhibited by sustained inflammation and high levels of bacteria that occur more frequently in medically compromised patients. This delayed healing can result in costly surgical procedures, increased risk of infection, and extended treatment costs that place a strain on the Veteran Administration (VA) budget while causing patient dissatisfaction. In medically compromised patients, intervention with advanced therapies may be necessary to progress healing and reduce overall wound care costs. Noncontact, Low-Frequency Ultrasound (NLFU) has been previously shown to reduce sustained inflammation and a wide range of bacteria to accelerate healing in even the most difficult to treat wounds 1-5.

Case Series
We evaluated the clinical effectiveness of NLFU to treat a case series of medically compromised patients with painful, challenging wounds where conventional wound therapies failed to result in healing.

Conclusions
NLFU resulted in accelerated healing to improve patient satisfaction via reduction in pain levels and improved quality of life while avoiding costs associated with an amputation, extended wound treatments, and pain management.

References

Outcomes:
- Wound healed
- Pain score decreased from 10 to 0
- Reduction of Tramadol
- Patient reported increased sensation
- Patient achieved goal of being able to swim again

Outcomes:
- Wound healed
- Pain score decreased from 10 to 0

Outcomes:
- Wound healed
- Amputation avoided

Patient 1
Traumatic Injury
Patient/Wound History: A 63-year-old obese male with venous insufficiency, type II diabetes (A1c 8.6), hypertension, anemia and neuropathy. Traumatic injury on lower leg due to shrapnel from land mine. Previously treated with Unna Boots for 8 years. Wound MRSA positive.

Treatment: 12 NLFU treatments, 12 Dermagraft applications, pneumatic compression

Patient 2
Radiation Burns
Patient/Wound History: A 60-year-old obese male with type II diabetes (A1c 7.0), with atrial fibrillation, Hodgkin’s Disease, pancreatitis, hyperlipidemia, and smoker. Carcinoma 3rd toe bilateral, all interspaces macerated, degloving apparent. Wound positive for multiple bacteria including P. aeruginosa and S. aureus.

Treatment: 2 NLFU Treatments

Patient 3
Post-Op Infection

Treatment: 10 NLFU treatments and 2 applications of Santyl