ESWT to improve the outcome of complex nonhealing leg and foot ulcers

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Device and producing company:
Activitor, Switech (Kreuzlingen, Switzerland)

Introduction:
Unfocused, low energy Extracorporeal Shock Wave Therapy (ESWT) has been shown to be a feasible treatment option in acute and chronic non-healing wounds with complete healing rates of up to 75%. We report our preliminary experience with soft-focused low energy (SFLE) ESWT in complex non-healing leg and foot ulcer patients.

Methods:
Retrospective analysis of 22 patients (mean age 73+-13.6 years) with 30 complex non-healing (mean 104 weeks; max 1,382 weeks) leg or foot ulcers treated by SFLE ESWT from July 2007 to February 2008. Etiologies were: arterial (n=11), venous (n=5), mixed arterio-venous (n=4) and other (n=9) such as rheumatic, postoperative, posttraumatic and of unknown etiology. Seven of 30 wounds were infected, 11 of 30 associated with diabetes and 5 of 30 with immunosuppressive therapy. Twenty-nine of 30 wounds were chronic and non-healing despite adequate local therapy and treatment of underlying disease. One diabetic patient suffered from subacute Osteomyelitis. The device (Activitor, Switech, Kreuzlingen, Switzerland) was used at an energy level of 0.09 mJ/mm2, 4 pulses/sec. Chosen treatment dose was 100 pulses/cm2. Accordingly, 300 to 3,000 pulses were applied based on wound size initially weekly, then every one to three weeks according to the clinical response Thorough debridement was carried out either before or after SFLE USWT and the wounds were treated after the principles of phase adapted moist wound healing.

Results:
Nineteen of 22 patients (26 of 30 wounds) completed all proposed sessions.
Three patients (13.6%; 4 of 30 wounds) withdrew because of pain, inflammatory reaction of periwound tissue or unknown reasons, respectively. Of the remaining 26 wounds, 7 (29%) were completely healed, 14 (58%) improved and 5 (13%) were non-responding to SFLE ESWT. Possible reasons for non-responding were: 2 skin cancers (1 proved, 1 unproved due to patient denial of biopsy), 1 gadolinium associated nephrogenic dermatofibrosis, 1 lymphedema, and 1 infection of Achilles tendon. Average wound size in the 21 (87%) responding wounds decreased from 4.2 +- 5.07 cm2 to 1.6 +- 3.09 cm2.

Discussion:
Healing was induced in 21 of 26 (87%) non-healing wounds after treatment with SFLE ESWT.

Conclusion:
SFLE ESWT is a valuable treatment tool for complex non-healing wounds with a high responder rate. However, RCTs are needed to definitely prove its efficacy.