

DERMA-PACE EXTRACORPOREAL SHOCKWAVE TREATMENT FOR CHRONIC SKIN ULCERS

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Aims: This prospective study compared extracorporeal shockwave treatment (ESWT) with hyperbaric oxygen therapy (HBO) in chronic foot ulcers.

Methods: 71 patients with 76 chronic foot ulcers were randomly divided into two groups of similar demographics with 26 patients with 31 ulcers in ESWT group and 45 patients with 45 ulcers in HBO group. Patients in ESWT group received derma PACE shockwave treatment with 8 shocks x treatment area (cm²) or at least 500 shocks at 0.11 mJ/cm² energy flux density 2x/week for 3 weeks, whereas patients in HBO group received HBO daily for 20 treatments. The evaluations included clinical assessment of the ulcers with photo-documentation, bacteriological examination, blood flow perfusion scan, histological study and immunohistochemical analysis.

Results: The overall results showed completely healed in 48%, improved in 42% and unchanged in 10% for ESWT group; and 18% completely healed, 51% improved and 31% unchanged for HBO group (P = 0.008). The results were not significant between diabetic and non-diabetic patients. The complications are mild and negligible. ESWT group showed significantly better local blood flow perfusion and more cell proliferation and concentration and less bacterial colony count than HBO group. On immunohistochemical analysis, ESWT group showed significant increases in VWF, eNOS, VEGF and PCNA expressions and a decrease in TUNEL expression than HBO group.

Conclusions/Discussion: ESWT appears to be more effective than HBO in chronic skin ulcers. ESWT was associated with angiogenesis, improved local blood flow perfusion, anti-bacterial effect, reversal of cell apoptosis and tissue regeneration.