ESWT-induced healing of diabetic foot ulcers

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Device and producing company:
MINILITH-SL1, STORZ MEDICAL

Introduction:
ESWT became a standard treatment for common orthopedic conditions based on its therapeutic potential to locally induce increases in circulation and growth factors. Our study aim is to determine the role of shock waves in the management of chronic wounds.

Methods:
We selected 25 diabetic patients with non-healing foot ulcer and prospectively we randomized them into 2 groups; treated and not treated with ESWT. The study lasted 20 weeks. Every 72 hours we applied a protocol of three applications of shockwaves by an electromagnetic generator (Storz Minilith SL-1), 100 impulses/cm2 with flux energy of 0.03 mJ/mm2. The two groups were compared by means of reepithelization index and the percentage of recovery. All patients received debridement and then were inserted into either group A (ESWT: 13 patients) or group B (control: 12 patients).

Results:
In group A the reepithelization index was 2.9 mm2/day, (range 2 - 3.5); complete healing occured in 46% of patients and reepithelization above 50% occurred in 38.5% of patients. In group B the index was 1.3 mm2 /day (range 1 - 1.5), complete recovery occurred in 33% of patients and reepithelization above 50% occurred in 16.5%.

Discussion:
The rationale of this study is to prove the influence of shockwaves on skin lesions, as reported by Schaden and Meirer. In an ongoing study we apply shockwaves on fibroblast cultures in vitro to value the cellular response in relationship to the clinical results.

Conclusion:
Topical shockwave application promotes healing and accelerates recovery time of diabetic foot skin ulcers.