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Extracorporeal shockwave therapy for treatment of keloid scars

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Abstract

The purpose of this investigation was to study the effectiveness of extracorporeal shockwave therapy (ESWT) for the treatment of keloid scars, and compared the results with intralesional steroid injection. Thirty-nine patients were randomly divided into 22 in ESWT group and 17 in steroid group. The ESWT group received 3 ESWT treatments in 6 weeks. The steroid group received three intra-lesional triamcinolone injections in 6 weeks. The evaluations included gross morphology, functional outcome, local blood flow perfusion, biopsy for histopathological examination, and immunohistochemical analysis. Both groups showed significant improvements in appearance with less discoloration, flattening and softer consistency, and more elasticity of the lesions. There is a significant reduction in keloid height after treatment in both groups, and significant differences are noticed between two groups after treatment. The volume of keloid was decreased after treatment but there is no statistically significant difference between two groups. Both groups showed comparable functional scores, POSAS patient, and observer scales. The blood flow perfusion rates were statistically not significant between two groups before and after treatments. Histopathological findings revealed no significant difference in cell count, cell activity, and cell concentration between two groups. After ESWT, the significant decreases in collagen type I, type III, and Masson Trichrome stain were observed as compared with steroid group. However, very little changes were noticed in angiogenesis, inflammatory cytokines, proliferating and regeneration, and apoptosis, with no statistical significance noticed between two groups before and after treatment. This study revealed that ESWT showed comparable functional outcome and POSAS patient and observer scales as compared with steroid injection for keloid scars. Treatment of keloid scars with ESWT resulted in significant decreases in collagen fibers and increases in MMP-13 enzyme.

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