

Evidence-Based Analysis of Level I Studies Involving f-ESW or r-ESW for Plantar Fasciopathy

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Introduction:

The utilization of extracorporeal shock wave treatments for plantar fasciopathy (fasciitis) has progressively increased since the Food and Drug Administration approval of the initial device (OssaTron) in 2000. Since then at least five additional devices have been approved. All approvals required variably randomized studies, many (but not all) of which have been published in peer reviewed journals. The number of randomized, variably blinded prospective studies (Level I) also has increased. However, the effectiveness of this treatment modality continues to be questioned, especially by the US private health insurers. We chose to expand our previous meta-analysis (Toronto, 2007) to conduct a systematic analysis and update of Level I studies.

Method:

We searched several electronic databases (MEDLINE, EMBASE, CINAHL, COCHRAN) and other relevant resources for the use of ESW in plantar fasciopathy (fasciitis), in any language, from 2000 to 2008. In addition, we searched by hand relevant journals published in that same time period, as well as bibliographies of reviews concentrating on musculoskeletal applications of ESW. Information on the methodological quality, stimulation device, pattern of treatment, patient demographics and clinical outcome was extracted from those studies determined to be Level I. The appropriate Level I studies then were combined to systematically assess whether extracorporeal shock waves were clinically beneficial to patients with refractory plantar fasciopathy.

Results:

Seventy-seven (77) clinical studies specifically assessed ESW for treatment of plantar fasciopathy. However, only seventeen (17) fit the accepted criteria for a Level I study. A multiple question checklist was used to assess each study individually. Fifteen studies supported the statistically valid effectiveness of ESW for plantar fasciopathy. One study had equivocal results. Only one study found negative results. All studies reported decreased or complete relief of pain (usually in at least three parameters) in successfully treated patients. Some pain relief occurred even in unsuccessful patients, but not enough to fulfill success/failure criteria.

Conclusions:

Our pooled analysis of Level I studies showed a significant impact supporting the use of ESW for plantar fasciopathy in patients who have failed multiple antecedent conservative treatments. However, there are methodological limitations that prevent specific device comparisons.