Journal of Bone Research
ISSN: 2572-4916
OPEN ACCESS Freely available online
Opinion

Effect of Transducing Shock Waves on Calcaneal Bone Spurs

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Pain and discomfort in the inferior surface of the heel are common symptoms of chronic proximal plantar fasciitis, which appear shortly after stepping out of bed. An inferior calcaneal bone spur close to the plantar fascial enthesis is present in at least half of patients with heel discomfort. Changes in fascial mechanics (tensile changes in the fascia due to sclerosis and thickness), inflammation, or mechanical stimulation from the plantar soft tissues could all cause this spur. The heel spur is unlikely to be the cause of the distinctive heel pain. 18 The majority of current surgical studies recommend a partial surgical release of the medial plantar fascia without resection of the heel spur. 3 Heel spurs have also been seen in 10–27% of asymptomatic patients who had foot or ankle radiographs taken for reasons other than heel soreness. In a considerable number of patients, extracorporeal shock wave application to musculoskeletal tissues (Orthotripsy) results in symptom resolution or improvement. Since the Food and Drug Administration approved various devices in 2000, an additional nonincisional strategy to treating various musculoskeletal disorders has been employed in Europe since 1990 and is gaining increasing recognition in Asia and the United States. A total of 364 patients were treated with high-energy electrohydraulic extracorporeal shock waves utilising the OssaTron (HealthTronics, Marietta, GA) or received a placebo treatment in FDA-approved studies. 16 The patients in the study all exhibited distinct, chronic discomfort in the inferior heel around the plantar fascia's proximal insertion. Examination indicated discrete point tenderness at the plantar enthesis in all of the patients. Despite the fact that several patients experienced bilateral heel pain complaints, all patients received solely unilateral treatment. Patients from both the randomised and nonrandomized groups were included in the patient cohort.

Following FDA approval, another 71 nonrandomized patients were treated with the OssaTron for orthopaedic surgery (no patients in this group were randomised to sham treatment). A total of 435 individuals were evaluated prospectively, with 308 of them receiving shock waves and the rest receiving sham treatments. Before and after shock wave treatment, each radiograph was checked for any osseous anomalies involving the calcaneus. Furthermore, each radiographic view presence of inferior calcaneal spurs before and after therapy. Because they were not in this examined for the e line of the shock wave energy application, similar posterosuperior heel spurs at the enthesis of the Achilles tendon were not particularly examined in this investigation. While under conscious sedation or ankle block anaesthesia, patients received one or two Orthotripsy treatments. The second treatment has to be at least 3 months after the first. In the FDA investigations, each heel received 1500 18 kV (0.22 mJ/mm^2) shocks administered at a rate of two shocks per second (2 Hz). The heels in the post-FDA trial were subjected to 1500 20 kV (0.27 mJ/mm^2) shocks delivered at a rate of four shocks per second (4 Hz). The Roles and Maudsley scoring system was used to assess patients at three and twelve months.

A radiographically visible inferior calcaneal bone spur was found in 283 (65%) of the 435 individuals. Two hundred and five patients (67%) in the therapy group of 308 patients had an inferior calcaneal spur visible on at least one radiograph, while 103 patients (33%) had no evidence of a spur on radiographs. In the 127 patients who received sham treatment, 78 patients (61%) developed a spur, while 49 individuals (39%) had no indication of a spur. The heel spurs ranged in size from 1 mm to 18 mm, with the majority falling between 2 mm and 5 mm. We did not link the size of the spur to the final outcome because there was no full control over radiologic location.

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Received: July 5, 2021; **Accepted:** July 18, 2021; **Published:** July 29, 2021

Citation: Sandners R (2021) Effect of Transducing Shock Waves on Calcaneal Bone Spurs. J Bone Res. 9:127.