

Focused shockwave and ultrasound in the treatment of lateral epicondyle enthesopathy

Abstract

The aim of the study presented in the dissertation was to evaluate the therapeutic effects of focused shockwave and ultrasound applied to treat lateral epicondyle enthesopathy and to compare the efficacy of both therapies.

Sixty patients with the condition were randomly divided among 3 comparative groups – A, B, and C – so that each group contained 20 patients. Depending on the group, they were treated with focused shockwave therapy (A), ultrasound therapy (B), and sham-ultrasound therapy (C). In addition, all patients received deep transverse massage.

Before the intervention and at weeks 1, 3, 6, and 12 post-therapy, patients were assessed for pain intensity, the strength of the wrist and finger flexors, the strength of the wrist and finger extensors, grip strength of the affected and unaffected extremities, active flexion and extension range of motion of the wrist, the supination and pronation range of motion of the forearm, and the function of the affected extremity. At weeks 1, 3, 6, and 12 post-therapy, treatment effects were also evaluated.

Pain intensity measurements performed during physical activity at week 12 post-therapy showed that it decreased significantly more in group A than in group B, but the difference between groups B and C was not statistically significant. Percentage changes in the muscle strength, the range motion of the forearm and the wrist of the affected extremity did not significantly differentiate group A from B and group B from C. Group A had significantly lower total scores at week 12 on both the PRTEE questionnaire and the modified Laitinen questionnaire compared with group B, but the scores of groups B and C were not significantly different. Treatment outcomes measured on the Roles and Maudsley scale were excellent or good for 15 patients in group A, 10 in group B, and 9 in group C.

These results lead to the conclusion that focused shockwave (0.2 mJ/mm² / 2000 pulses / 3 treatments) effectively reduces pain felt by patients with lateral epicondyle enthesopathy and improves the function of the affected extremity, unlike ultrasound (3 MHz / 0.5 W/cm² / 20% / 2.5 min/cm² / 7 treatments). However, neither ultrasound nor focused shockwave applied as described in dissertation improves the mobility of the wrist and the forearm or increases the strength of the affected extremity.

Keywords: focused shockwave, ultrasound, sham-ultrasound, lateral epicondyle enthesopathy, treatment.