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Effect of High-Power Laser Therapy Versus Shock Wave Therapy on Pain and Function in Knee Osteoarthritis Patients: A Randomized Controlled Trial

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Abstract

Objective: The aim of this study was to evaluate and compare the effects of extracorporeal shock wave therapy (ESWT) and high-intensity laser therapy (HILT), as outpatient physical therapy modalities, on knee osteoarthritis (KOA) patients. **Materials and methods:** The treatment program was completed by 40 individuals with stage II KOA (according to Kellgren and Lawrence) who were randomly allocated to one of two groups. They have had more than grade 3 pain on the visual analog scale (VAS) during activities for the last 3 months, with body-mass index less than 30 and no history of knee operation, fracture, cancer, or other neuromuscular or musculoskeletal diseases that may affect study results. The ESWT group ($n = 20$, mean age = 40.12 ± 9.45 years) received ESWT, 0.05 mJ/mm^2 , one session/week for 4 weeks, and the HILT group ($n = 20$, mean age = 46.62 ± 8.68 years) received HILT, 1500 mJ/cm^2 in each session, three sessions/week for 4 weeks. Both groups received conservative physical therapy programs. Before and after 4 weeks of intervention, pain, physical function, and disability were assessed using a VAS, 6-min walking test, and the Western Ontario and McMaster Universities Osteoarthritis Index. **Results:** When the pre- and post-treatment mean values of dependent variables of both groups were compared, there were statistically significant improvements in both groups. Significant differences in the measured variables were also discovered in favor of the HILT group compared with the ESWT group. **Conclusions:** HILT showed a superior effect compared with ESWT on pain, physical function, and disability in chronic KOA patients. Pan African Clinical Trials Registry number: PACTR202007638955907.

Keywords: high-intensity laser; knee osteoarthritis; pain; shock waves.

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