

Pulsed Nd:YAG laser: effects on pain, postural stability, and weight-bearing pattern in children with hemophilic ankle arthropathy.

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Abstract

Hemophilic ankle arthropathy features joint pain, impaired postural control, and abnormal weight-bearing pattern. This study was designed to investigate the effects of pulsed Nd:YAG laser on pain, postural stability, and weight-bearing pattern in children with hemophilic ankle arthropathy. Forty children diagnosed with hemophilia type A (age, 8-16 years) were randomly allocated to either the treatment group (n = 20) who received a three-phase active therapy with pulsed Nd:YAG laser thrice/week (total energy was 1500 J) plus a physical exercise program for four consecutive weeks, or the placebo group (n = 20) who received placebo laser plus the physical exercise program. Pain, postural control (i.e., directional control [DC], endpoint excursion [EE], center-of-gravity movement velocity [CoG-MV], and maximum excursion [MXE]), and weight-bearing pattern (i.e., pressure peaks of the hindfoot [PP-HF] and forefoot [PP-FF], and the foot contact area [FCA]) were assessed pre- and post-treatment. The treatment group showed greater improvement in pain (P = .004), DC (P = .02), EE (P = .003), and CoG-MV (P = .003) compared to the placebo group. However, there was no statistically significant difference between both groups regarding the MXE (P = .15). In addition, the treatment group achieved favorable improvements in PP-HF (P = .003), PP-FF (P = .027), and FCA (P = .002) relative to the placebo group. Pulsed Nd:YAG laser is a potentially effective therapy for pain relief, postural control enhancement, and weight-bearing pattern adjustment in children with hemophilic ankle arthropathy.

KEYWORDS: Dynamic stability limits; Hemophilia; High-intensity laser therapy; Joint inflammation; Plantar pressure

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