Low Level Laser Therapy for osteoarthritis and rheumatoid arthritis: a metaanalysis.

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OBJECTIVE: Osteoarthritis (OA) and rheumatoid arthritis (RA) affect a large proportion of the population. Low level laser therapy (LLLT) was introduced as an alternative noninvasive treatment for RA and OA about 10 years ago, but its effectiveness is still controversial. We assessed the effectiveness of LLLT in the treatment of RA and OA. METHODS: A systematic review was conducted, following an a priori protocol, according to the methods recommended by the Cochrane Collaboration. Trials were identified by a literature search of Medline, Embase, and the Cochrane Controlled Trials Register. Only randomized controlled trials of LLLT for the treatment of patients with a clinical diagnosis of RA or OA were eligible. Thirteen trials were included, with 212 patients randomized to laser and 174 patients to placebo laser, and 68 patients received active laser on one hand and placebo on the opposite hand. Treatment duration ranged from 4 to 10 weeks. Followup was reported by only 2 trials for up to 3 months. RESULTS: In patients with RA, relative to a separate control group, LLLT reduced pain by 70% relative to placebo and reduced morning stiffness by 27.5 min (95% CI -52.0 to -2.9), and increased tip to palm flexibility by 1.3 cm (95% CI -1.7 to -0.8). Other outcomes such as functional assessment, range of motion, and local swelling were not different between groups. There were no significant differences between subgroups based on LLLT dosage, wavelength, site of application, or treatment length. In RA, relative to a control group using the opposite hand, there was no difference between control and treatment hand, but all hands were improved in terms of pain relief and disease activity. For OA, a total of 197 patients were randomized. Pain was assessed by 3 trials. The pooled estimate (random effects) showed no effect on pain (standardized mean difference -0.2, 95% CI -1.0 to +0.6), but there was statistically significant heterogeneity ($p > 0.05$). Other outcomes of joint tenderness, joint mobility, and strength were not significant. CONCLUSION: LLLT should be considered for short term relief of pain and morning stiffness in RA, particularly since it has few side effects. For OA, the results are conflicting in different studies and may depend on the method of application and other features of the LLLT. Clinicians and researchers should consistently report the characteristics of the LLLT device and the application techniques. New trials on LLLT should make use of standardized, validated outcomes. Despite some positive findings, this metaanalysis lacked data on how effectiveness of LLLT is affected by 4 factors: wavelength, treatment duration of LLLT, dosage, and site of application over nerves instead of joints. There is a need to investigate the effects of these factors on effectiveness of LLLT for RA and OA in randomized controlled clinical trials.Publication Types:

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