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Efficacy of low-level laser therapy in the treatment of TMDs: a meta-analysis of 14 randomised controlled trials

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Abstract

This study was designed to evaluate the efficacy of low-level laser therapy (LLLT) in the treatment of temporomandibular disorders (TMDs). We searched electronic databases and references lists of relevant articles, retrieved all of the published randomised controlled trials in regard to these issues and then performed a meta-analysis. Fourteen highly qualified RCTs reporting on a total of 454 patients, which evaluated the effectiveness of LLLT for patients suffering from TMDs were retrieved. The results indicated that LLLT was not better than placebo in reducing chronic TMD pain (weighted mean difference = -19.39; 95% confidence interval = -40.80-2.03; $P < 0.00001$; $I(2) = 99\%$). However, the LLLT provided significant better functional outcomes in terms of maximum active vertical opening (MAVO) (weighted mean difference = 4.18; 95% confidence interval = 0.73-7.63; $P = 0.006$; $I(2) = 73\%$), maximum passive vertical opening (MPVO) (weighted mean difference = 6.73; 95% confidence interval = 0.13-12.13; $P = 0.06$; $I(2) = 73\%$), protrusion excursion (PE) (weighted mean difference = 1.81; 95% confidence interval = 0.79-2.83; $P = 0.59$; $I(2) = 0\%$) and right lateral excursion (RLE) (weighted mean difference = 2.86; 95% confidence interval = 1.27-4.45; $P = 0.01$; $I(2) =$

73%). The results of our meta-analysis have provided the best evidence on the efficacy of LLLT in the treatment of TMDs. This study indicates that using LLLT has limited efficacy in reducing pain in patients with TMDs. However, LLLT can significantly improve the functional outcomes of patients with TMDs.

Keywords: low-level laser therapy; meta-analysis; pain; temporomandibular disorders.