Effect of low-level laser therapy on pain levels in patients with temporomandibular disorders: a systematic review

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ABSTRACT

Temporomandibular disorders (TMD) are characterized by the presence of temporomandibular joint (TMJ) and/or masticatory muscle pain and dysfunction. Low-level laser is presented as an adjuvant therapeutic modality for the treatment of TMD, especially when the presence of inflammatory pain is suspected. Objective: To systematically review studies that investigated the effect of low level laser therapy (LLLT) on the pain levels in individuals with TMD. Material and Methods: The databases Scopus, Embase, Ebsco and PubMed were reviewed from January/2003 to October/2010 with the following keywords: laser therapy, low-level laser therapy, temporomandibular joint disorders, temporomandibular joint dysfunction syndrome, temporomandibular joint, temporomandibular, facial pain and arthralgia, with the inclusion criteria for intervention studies in humans. Exclusion criteria adopted were intervention studies in animals, studies that were not written in English, Spanish or Portuguese, theses, monographs, and abstracts presented in scientific events. Results: After a careful review, 14 studies fit the criteria for inclusion, of which, 12 used a placebo group. As for the protocol for laser application, the energy density used ranged from 0.9 to 105 J/cm², while the power density ranged from 9.8 to 500 mW. The number of sessions varied from 1 to 20 and the frequency of applications ranged from daily for 10 days to 1 time *per* week for 4 weeks. A reduction in pain levels was reported in 13 studies, with 9 of these occurring only in the experimental group, and 4 studies reporting pain relief for both the experimental group and for the placebo. Conclusion: Most papers showed that LLLT seemed to be effective in reducing pain from TMD. However, the heterogeneity of the standardization regarding the parameters of laser calls for caution in interpretation of these results. Thus, it is necessary to conduct further research in order to obtain a consensus regarding the best application protocol for pain relief in patients with TMD.