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Occlusal splint and combined multiwave locked system laser therapy demonstrated differential patient-reported outcomes and clinical parameters: A randomized controlled trial in patients with temporomandibular disorder

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Abstract

Purpose: To evaluate the impact of occlusal splint plus laser therapy (OS + LT) compared with OS alone on the patient-reported outcomes and clinical parameters of patients with temporomandibular disorders (TMDs).

Methods: Twenty-three patients with TMDs were randomly assigned to two treatment approaches: OS and OS + LT (multiwave locked system). The two outcomes were clinical parameters (mouth-opening distances, number of muscles and TMJs with pain) and patient-reported outcomes (pain score and oral health-related quality of life [OHRQoL] determined using the 14-item oral health impact profile [OHIP-14]). The outcomes were measured at four time points: baseline, 2 weeks, 1 and 3 months after treatment. According to DC/TMD Axis I classification, the participants were diagnosed as having pain only and pain with intraarticular joint disorder. Adjusting for age and sex, the outcome changes were analysed using generalized estimating models at a 5% significance level.

Results: The pain-free mouth-opening distance of the patients who received OS + LT continuously increased from 2 weeks to 3 months. However, the value was significantly increased at 3 months in patients who received OS alone. The unassisted mouth-opening distance significantly increased after 3 months in both groups. In both treatment approaches, the number of muscles and TMJs with pain, as well as the pain and OHIP-14 scores gradually decreased from baseline to 3 months.

Conclusions: The patients who received OS and OS + LT demonstrated better OHRQoL and clinical parameters during 3 months after treatment. An improvement in the pain-free mouth-opening distance at 2 weeks was found only in OS plus LT group; however, this difference may not be clinically significant.

Keywords: laser therapy; muscle of mastication; occlusal splint; oral health impact profile; oral health-related quality of life; temporomandibular disorder.

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