A Pilot Study to Determine the Efficacy of Therapeutic Class IV Laser Treatment on Local Muscle Spasm Associated with Myofascial Pain Syndrome in Patients with Neck Pain

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Introduction

The pathophysiology of myofascial trigger points is incompletely understood[1]. Low levels of visible or near infrared light for reducing pain and inflammation[3,4] has been known for many years. Despite positive findings in vitro animal models and randomized controlled clinical trials, low level laser therapy (LLLT) remains controversial[5]. The mechanism of LLLT at the cellular level suggests mitochondria and cytochrome c-oxidase contribute to cellular response and reduce prostaglandin synthesis[2,6].

Methods

A Class IV laser (LCT-1000™) was used on 10 patients with at least one month of myofascial neck pain. Patients underwent an initial evaluation, two-week laser treatment, and follow up at 15 and 30 days post treatment. A Visual Analogue Scale (VAS), patient reported global impression of change, and muscle pain detection device (MPDD)[7], were used for measurements. Institutional IRB approval was obtained.

Results

Baseline mean scores of VAS were 52.9 SD of 32.4, post treatment (Day 15), mean scores reduced to 30.0 SD of 19.9. 77.8% of participants improved after treatment; 22% very much improved, 33% moderate improvement, 22% no change. Objective detection of painful muscles with MPDD showed 71% of patients with positive points pretreatment had no positive trigger points post treatment.

Conclusion

Class IV laser therapy showed a majority of patients who underwent treatment reported improvement, as assessed by VAS, Global impression, and MPDD trigger points detection. This encouraging pilot study justifies further studies with larger populations and addition of control groups for laser therapy as a potential non-pharmacological and non-interventional adjunct treatment, for patients with chronic myofascial pain.

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