Abstract

Background: Myofascial Pain Syndrome (MPS) is a frequently encountered condition affecting the musculoskeletal system. It is characterized by the presence of myofascial trigger points—tight, sensitive areas within muscles that can cause localized pain and spasms. Among the muscles commonly affected, the upper trapezius stands out, particularly in individuals with poor posture, prolonged computer use, and repetitive mechanical stress. These issues are especially relevant among college students, who often spend extended hours at desks or in front of screens, making them more susceptible to postural imbalances and trigger point development. Various physiotherapy techniques, including Ultrasound Therapy (UST) and Muscle Energy Technique (MET), are commonly applied to manage these trigger points. However, comparative evidence regarding their effectiveness remains limited and requires further investigation.

Objective: The aim of this study was to compare the effectiveness of Ultrasound Therapy (UST) and Muscle Energy Technique (MET), both combined with standard range of motion (ROM) exercises, in reducing latent trigger points in the upper trapezius muscle among male college students.

Method: This randomized controlled study included 30 male university students aged between 18 and 25 years who presented with latent trigger points in the upper trapezius muscle. Participants were randomly divided into two groups. Group A (Experimental Group) received Muscle Energy Technique using reciprocal inhibition principles, performed 2–3 times per week with light effort (20–30% of maximum), holding each stretch for 10–30 seconds, and completing 1–3 sets per session over the course of one week. These sessions were paired with standard neck ROM exercises. Group B (Control Group) underwent Ultrasound Therapy using continuous waves at 1 MHz frequency and 1 watt/cm^2 intensity, applied for 5–10 minutes during each of 3–4 sessions over one week, alongside the same standard ROM exercises.

To evaluate the outcomes, pain intensity was measured using the Visual Analog Scale (VAS), and muscle length of the upper trapezius was assessed. Both measures were recorded before and after the treatment period, which consisted of four sessions conducted over one-week.

Result : The average age of participants was 21.48 ± 1.64 years. Both groups showed notable improvements in pain relief and muscle flexibility during the within-group analysis.

The MET group experienced significant gains in left lateral flexion and reductions in VAS pain scores (both $p<0.001$). Similarly, the UST group showed significant progress across all measured outcomes—right lateral flexion ($p=0.002$), left lateral flexion ($p<0.001$), and VAS scores ($p<0.001$). However, the comparison between the two groups revealed no statistically significant differences ($p>0.05$), suggesting that both treatments were equally effective.

Conclusion: Both MET and UST have shown similar effectiveness in managing latent trigger points in the upper trapezius. This allows clinicians to choose between the two based on factors like patient preference and available resources, rather than worrying about differences in treatment outcomes.

Keyword: Myofascial pain syndrome (MPS), latent trigger points (LTP), upper trapezius muscle, muscle energy technique (MET), ultrasound therapy (UST), college students, physiotherapy, comparative effectiveness, neck pain, range of motion (ROM).

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