



REVIEW

Effectiveness of physical and rehabilitation techniques in reducing pain in chronic trapezius myalgia: A systematic review and meta-analysis



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KEYWORDS

Chronic trapezius myalgia;
Myofascial pain syndrome;
Neck pain;
Shoulder pain;
Trapezius pain;
Trigger point

Abstract *Background:* Neck pain is highly prevalent in the general population. Chronic trapezius myalgia (CTM) is a common cause of neck pain.

Methods: Systematic review and meta-analysis to evaluate the clinical effectiveness of physical and rehabilitation techniques in reducing CTM pain in short, intermediate and long term periods. A comprehensive search strategy identified relevant research from 8 electronic databases covering January 1990 to November 2013. Principal keywords were trapezius myalgia, trapezius pain, neck and shoulder pain, myofascial pain syndrome, trigger points and treatment. Only randomised controlled trials examining the clinical effectiveness of physical modalities in the treatment of CTM in adults (>18 years) with pain for more than 3 months, were included in this review. Methodological quality was assessed by two reviewers with the criteria developed by the Cochrane Back Review Group and inter-reviewer reliability reported using Kappa values. Effect sizes and 95% CI were reported for pain in the three stages of the follow up. A cut off point of 15 points change in pain (scale 0–100) was considered for minimal clinically important change (MCIC). Evidence quality was assessed using the GRADE approach.

Results: Seventeen articles met the inclusion criteria (n = 944 patients); 7 exercise therapy, 5 acupuncture/dry needling, 3 laser therapy, 1 TENS and 1 from manual therapy. Methodology quality revealed that 11 studies had high risk of bias and 6

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low risk of bias. Meta-analysis revealed the following effect sizes: a significant MCIC for acupuncture/dry needling (MD: -24.88 , 95% CI: -40.20 to -9.56), no MCIC effect for exercise (MD: -8.84 95% CI: -20.20 – 2.51), for laser (MD: -12.89 , 95% CI: -16.38 to -9.39), for TENS (MD: -2.60 , 95% CI: -25.76 – 20.56) and manual therapy (MD: 2.00 , 95% CI -13.07 – 17.07). There was no effect from one laser trial at the intermediate time point (MD: -5.70 , 95% CI: -24.10 – 12.70), and at the long term time point stress management had superior outcomes to exercise therapy (MD: 16.00 , 95% CI 2.26 – 29.73).

Conclusion: The quality of evidence ranged from very poor to poor in short term with acupuncture/dry needling having the largest effect size. This review found no evidence of effective treatment to reduce pain in the intermediate and long term periods.

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Implications for practice

- Chronic trapezius myalgia (CTM) is a common condition causing chronic pain in neck and shoulder, commonly seen in daily practice. However, there is no agreement in the treatment of this condition.
- Despite CTM's high prevalence, up to the present date, no systematic reviews were found in the literature evaluating treatment and pain management approaches and their clinical effectiveness. In order to draw consistent conclusions about the treatment and management of CTM, it is reasoned that an updated systematic review of current scientific literature would be relevant to clinicians and researchers.
- For clinic relevance, effect size was calculated for pain reduction in short, intermediate and long term. A reduction of 15 points (scale 0–100) is considered to represent the minimal clinically important change (MCIC) for chronic neck pain. The GRADE approach was used to verify these results with studies quality evidence.
- If this review demonstrates an effective treatment, it should be considered a guideline for this condition. If there is no effective treatment, this review should be considered a start point for more studies.

Background

Pain in the upper limb and neck is a highly prevalent health problem in the general population.^{1–5} Amongst the various clinical conditions responsible

for pain and disability in this area, chronic trapezius myalgia (CTM) is one of the most common, and is frequently found in the working population.^{6–12} CTM features pain, mainly localized in the upper trapezius muscle, which mainly affect neck and shoulder regions making them equally painful.^{7,8,13,14} The criteria for this clinical condition to be considered chronic in terms of pain duration, is that it must be present for three or more months.¹⁵ Localized soft tissue tenderness is present on examination as well as neck movement restriction, mainly in cervical lateral-flexion.^{8,16}

Typical physiological changes associated with chronic CTM include trigger point and tissue shortening; impairment in blood flow within the muscle causing lack of oxygen and nutrient supply to the muscle^{17,18}; increased levels of inflammatory mediators present within the muscle^{19–21}; neuromuscular changes²²; a decrease in muscle strength¹⁸; increased EMG signals indicating an increase in trapezius activity and difficulty in relaxing the muscle¹⁶; increase in type I and II muscle fibres in cross-sectional areas of the trapezius in females and signs of lesion in type I fibres.^{10,23}

Despite CTM's high prevalence, up to the present date, no systematic reviews exist in the literature which evaluate the several treatment and pain management approaches and their clinical effectiveness in this field. In order to draw consistent conclusions about the treatment and management of CTM, an up to date systematic review of current scientific literature is relevant and warranted to inform clinicians and researchers. To this end, we aimed to systematically review the English Language randomized controlled trials (RCT) in the literature and perform a quantitative meta-analyses, to determine the effectiveness of treatment and pain management in CTM.

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