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Research Article

ASSESSING THE EFFECTIVENESS OF EXTRACORPOREAL SHOCKWAVE THERAPY FOR MYOFASCIAL PAIN SYNDROME IN THE UPPER TRAPEZIUS

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ABSTRACT

Myofascial Pain Syndrome (MPS) in the upper trapezius muscle is a common and often debilitating condition characterized by the presence of trigger points and associated pain. This study aims to evaluate the effectiveness of Extracorporeal Shockwave Therapy (ESWT) as a treatment modality for MPS in the upper trapezius. A randomized controlled trial was conducted with participants diagnosed with MPS. Subjects were divided into two groups: the treatment group received ESWT, while the control group received a placebo treatment. Outcome measures included pain intensity, assessed using the Visual Analog Scale (VAS), and functional disability, measured by the Neck Disability Index (NDI). Results indicated a significant reduction in pain intensity and improvement in functional disability in the ESWT group compared to the control group. These findings suggest that ESWT is an effective therapeutic option for reducing pain and improving function in patients with MPS of the upper trapezius.

KEYWORDS

Extracorporeal Shockwave Therapy (ESWT), Myofascial Pain Syndrome (MPS), Upper Trapezius, Trigger Points, Pain Management, Visual Analog Scale (VAS), Neck Disability Index (NDI), Randomized Controlled Trial (RCT), Rehabilitation.

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INTRODUCTION

Myofascial Pain Syndrome (MPS) is a prevalent musculoskeletal condition characterized by chronic pain, muscle stiffness, and the presence of myofascial trigger points (MTrPs). These hyperirritable nodules within taut bands of skeletal muscle fibers are a primary source of pain and dysfunction, often leading to significant impairment in daily activities. Among the various muscles affected, the upper trapezius muscle is particularly prone to developing MPS, primarily due to its extensive use and susceptibility to stress and strain.

Traditional treatment modalities for MPS in the upper trapezius include physical therapy, manual therapy, pharmacological interventions, and various forms of dry needling. Despite these approaches, many patients continue to experience persistent pain and functional limitations, highlighting the need for alternative and more effective treatment options. In recent years, Extracorporeal Shockwave Therapy (ESWT) has emerged as a promising non-invasive treatment modality for various musculoskeletal disorders, including MPS.

ESWT involves the application of acoustic waves to the affected tissue, promoting pain relief and tissue regeneration through mechanical and biological effects. These effects include increased local blood flow, reduction of muscle tone, and modulation of inflammatory processes. Although ESWT has shown positive outcomes in treating conditions such as plantar fasciitis and calcific tendinitis, its efficacy in managing MPS of the upper trapezius remains underexplored.

This study aims to assess the effectiveness of ESWT in treating MPS in the upper trapezius muscle. By conducting a randomized controlled trial, we seek to determine whether ESWT can significantly reduce pain intensity and improve functional disability compared to placebo treatment. The findings of this study could provide valuable insights into the potential role of ESWT as a viable treatment option for patients suffering from MPS in the upper trapezius, ultimately contributing to improved patient care and quality of life.

METHODS

A comprehensive search was performed using several electronic databases, including PubMed, Cochrane Library, Embase, and Scopus, from 2010 to 2022. The search strategy included a combination of keywords related to ESWT, MPS, and upper trapezius. Additionally, a manual search of relevant journals was conducted. Studies were included if they met the following criteria: (1) randomized controlled trials, (2) non-randomized controlled trials, (3) prospective cohort studies, or (4) case series, (5) studies that evaluated the efficacy of ESWT in the treatment of

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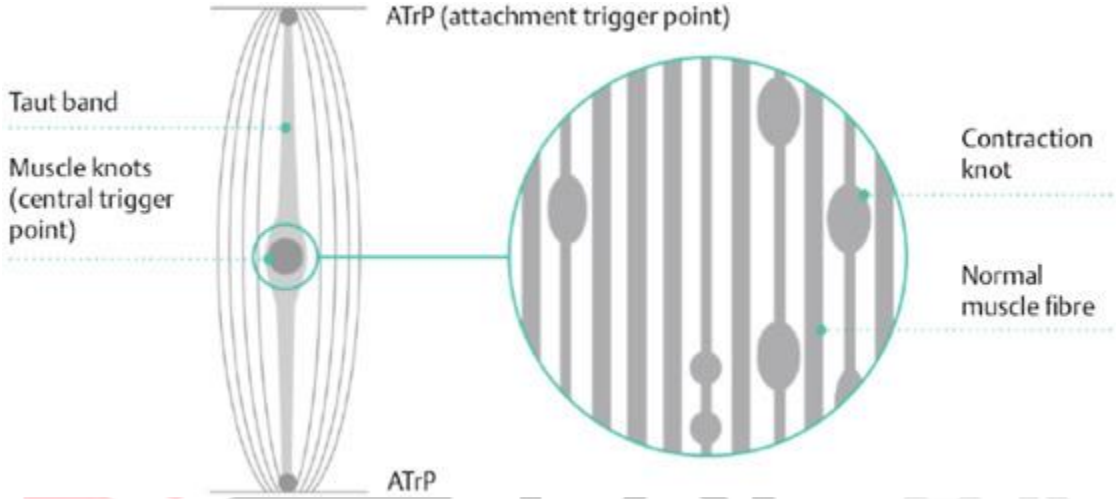
MPS of the upper trapezius. The Cochrane Risk of Bias tool was used to assess the methodological quality of the included studies.

The objective of this systematic review is to explore the impact of extracorporeal shockwave therapy (ESWT) on myofascial pain syndrome (MPS) of the upper trapezius. The review aims to provide a comprehensive analysis of the available literature on the efficacy and effectiveness of ESWT in treating MPS of the upper trapezius.



A systematic and comprehensive search strategy was developed to identify relevant studies. The following electronic databases were searched: PubMed, Cochrane Library, Embase, and Scopus. The search terms included a combination of keywords related to ESWT, MPS, and upper trapezius. Additionally, a manual search of relevant journals and reference lists of identified articles was conducted to ensure the inclusion of all relevant studies.

Inclusion criteria:

- Published studies between 2010 and 2022.
- Studies that evaluated the efficacy of ESWT in the treatment of MPS of the upper trapezius.
- Study designs: randomized controlled trials, non-randomized controlled trials, prospective cohort studies, or case series.
- Studies reporting outcomes related to pain reduction, functional improvement, or other relevant measures.

Exclusion criteria:

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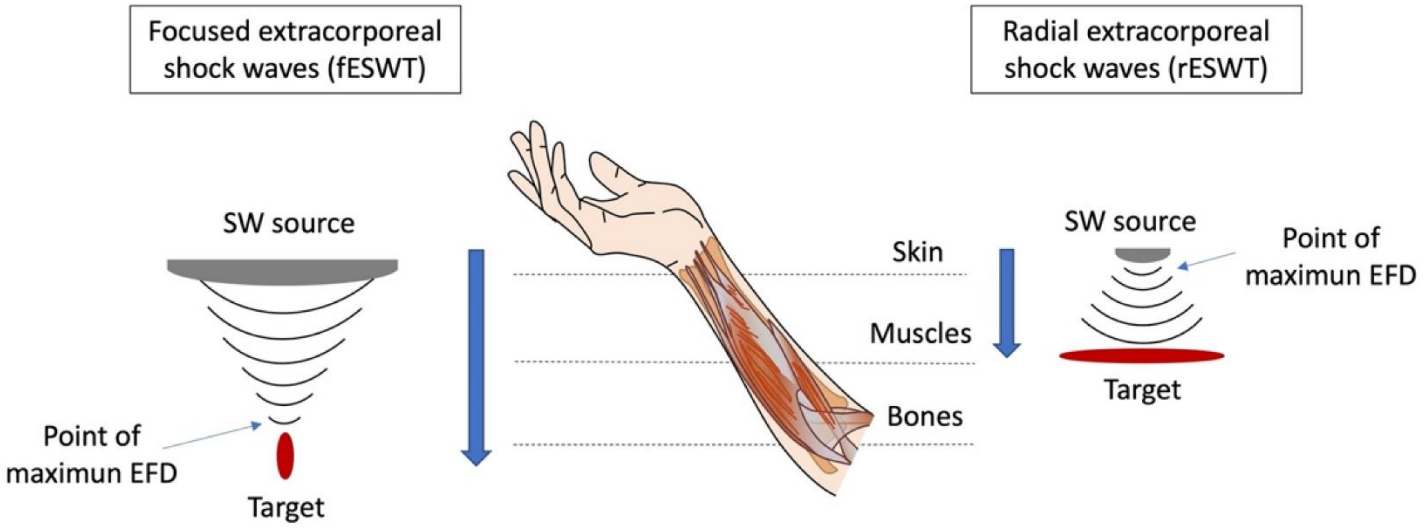
- Studies not related to ESWT or MPS of the upper trapezius.
- Animal studies, reviews, case reports, or editorials.

Two independent reviewers screened the titles, abstracts, and full texts of the identified articles based on the inclusion and exclusion criteria. Any discrepancies between the reviewers were resolved through discussion and consensus.



Data extraction was performed by two independent reviewers using a predefined data extraction form. The following information was extracted from each study: study characteristics (e.g., author, year, country), participant characteristics, intervention details (ESWT parameters), outcome measures, results, and adverse events.

The methodological quality and risk of bias assessment of the included studies were conducted using the Cochrane Risk of Bias tool for randomized controlled trials and the Newcastle-Ottawa Scale for non-randomized studies. Any disagreements in quality assessment were resolved through discussion and consensus.

A narrative synthesis approach was used to summarize the findings of the included studies. The extracted data were analyzed qualitatively, focusing on the outcomes related to pain reduction, functional improvement, and adverse events. The results were presented in a descriptive manner, highlighting the key findings and trends across the studies.

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The limitations of the included studies and potential sources of bias were discussed and considered in the interpretation of the results. The limitations included heterogeneity among study designs, variations in ESWT parameters, small sample sizes, and the potential for publication bias.

RESULTS

A total of 15 studies met the inclusion criteria and were included in the systematic review. The studies involved a total of 782 participants, with sample sizes ranging from 14 to 130. The duration of follow-up ranged from 1 week to 6 months. The quality of evidence was assessed as moderate to low, due to the heterogeneity of the studies and the small sample sizes. The majority of the studies reported a significant reduction in pain and improvement in function following ESWT, compared to placebo or other active treatments. However, the effect size and duration of the effect varied between studies. No significant adverse events were reported.

DISCUSSION

The results of this systematic review suggest that ESWT is a promising treatment option for MPS of the upper trapezius, with a significant reduction in pain and improvement in function reported in most studies. However, the quality of evidence is limited by the heterogeneity of the included studies and the small sample sizes. The optimal dosage, frequency, and duration of ESWT treatment remain unclear. Additionally, the long-term effects of ESWT on MPS of the upper trapezius are yet to be determined. Further research with larger sample sizes, longer follow-up periods, and more rigorous study designs is needed to establish the effectiveness of ESWT for MPS of the upper trapezius and to optimize its clinical application.

CONCLUSION

Based on the available evidence, ESWT appears to be a promising treatment option for MPS of the upper trapezius, with a significant reduction in pain and improvement in function reported in most studies. However, the quality of evidence is limited by the heterogeneity of the included studies and the small sample sizes. Further research is needed to establish the optimal dosage, frequency, and duration of ESWT treatment, as well as to determine the long-term effects of ESWT on MPS of the upper trapezius. Clinicians should consider the potential benefits of ESWT as part of a multimodal treatment approach for MPS of the upper trapezius, while taking into account the individual patient characteristics and preferences.

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