SHORT COMMUNICATION

Comparison of effects of manual physical therapy and exercise therapy for patients with Temporomandibular disorders

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Abstract

The term temporomandibular disorder is used for pain and dysfunction at the temporomandibular joint. Manual therapy or exercise therapy has proven to be an effective measure for pain relief. The purpose of this study was to compare the effectiveness of manual therapy and exercise therapy in temporomandibular disorders. A quasi-experimental study was conducted from June 30, 2020 to December 30, 2020 in Al-Sheikh teaching hospital, Sialkot, Pakistan. A convenient sample of 24 patients was involved in the study. Lottery method was used to randomise the patients in either the Manual Therapy Group or Exercise Therapy Group. The participants were assessed before and after the intervention through Numeric Pain Rating Scale (NPRS) for pain, Patient-Specific Functional Scale (PSFS) for function, Fonesca Amnestic Index (FAI) for the severity of condition, and Millimetre Mouth Opening (MMO) for ranges. The manual therapy group showed a statistically significant difference in pre- and post-treatment NPRS, PSFS, FAI and MMO ($p < 0.0001$). Manual physical therapy is more effective to improve pain, ROM, function, and severity in temporomandibular disorders.

Keywords: Exercise therapy; Manual physical therapy; Temporomandibular disorder.

DOI: 10.47391/JPMA.3594

Introduction

The term Temporomandibular Disorder (TMD) is employed for pain and dysfunction that involves the muscles of mastication and joint. The vital feature of this pain is within the regional and pre-auricular space that will limit jaw movement.[1]

The synovial joint is used for speech and masticatory purposes and is extremely important for the functioning of the mouth. TMD may be a broad term for issues involving the temporomandibular joint(TMJ), neck muscles, and different parts inflicting a variety of clinical issues, that involve the synovial joint, muscles of chewing, and associated different structures.[2]

TMD can be treated in several ways like manual therapy (MT), exercise therapy (ET), modalities, and neuromuscular re-education. Both manual therapy and exercise therapy have been extensively used to treat TMD.[3]

The conservative approach of treatment includes exercises and manual therapy. Manual therapy includes joint mobilisation/manipulation, soft-tissue mobilisation, other soft tissue techniques, and upper cervical spine techniques that includes articular upper cervical mobilisation.[4] It aims to decrease pain to improve function.[4] Exercise therapy includes strengthening exercises, masticatory and lingual relaxation, stretching of the muscles, exercises to boost coordination for control, and programmes to boost muscle endurance for chewing and cervical muscle system.[5]

Recovery depends on the technique such as myofascial release, muscle energy techniques, progressive resistive training, and duration of the treatment. A study shows that using progressive resistive training is effective in reducing pain and increasing reading of millimetre mouth opening.[6]

Although the combination of manual physical therapy and exercise therapy involves patient education that could have been beneficial for TMD patients in previous studies, there is no noted study that shows whether manual physical therapy alone is more or less effective in treating TMD symptoms as compared with exercise therapy.[5]

The present study was conducted to compare the effectiveness of manual physical therapy with exercise therapy in decreasing pain and increasing mouth opening to a maximum level in patients having TMD. The results could determine which therapy had a better effect in reducing symptoms of the disorder. Literature has so far compared therapeutic intervention in combination with electrotherapy or without electrotherapy or just the

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therapeutic intervention.

Patients/Methods and Results

This quasi-experimental study was conducted from June 2020 to December 2020 in Al-Sheikh Teaching Hospital, Sialkot, Pakistan. Research included data of participants (both male and female) who had temporomandibular disorder, considering the inclusion and exclusion criteria. After the approval from the institutional review board and Ethics committee of Riphah International University with reference ID(REC/RCRS20/1058), written informed consent was taken from the participants aged 18 to 55 years. The subjects were divided into two groups A and B considering the inclusion criteria of participants with a diagnosis of myogenic TMD according to categories 1a and 1b of the RDC/TMD; pain on palpation of at least three of 12 muscular points bilaterally was compulsory to be included in the study. Participants were excluded from the study if they were diagnosed with any tumours of joint or bone, psychiatric condition (depression), displacement of a disc without reduction, arthritis of TMJ, chronic TMJ pain history, clinical pathology or previous surgery related to the masticatory system or cervical spine and history of TMD management within the last three months. A convenient sample of 20 patients (10 in each group) was calculated by G power Software[7] with a 20% attrition rate. The sample size increased to 24. The participants were randomly allocated to two groups by lottery method of convenient random sampling technique. Group A received manual physical therapy (three sessions per week), and Group B received exercise therapy (three sessions per week) for six weeks. Outcome measures were assessed using the numeric pain rating scale (NPRS) for pain, patient-specific functional scale (PSFS) for function, FAI (Fonesca Amnestic Index) questionnaire for Severity of condition and millimetre mouth opening (MMO) for the range of mouth opening. Each group was treated for 20 minutes. Participants were reassessed after six weeks of intervention. Two measurements, pre-and post-intervention, were included in the study after the application of manual physical therapy (mobilisation with movement, soft-tissue mobilisation, myofascial release, muscle energy techniques and active isolated stretching) and exercise therapy (Racabado Exercises, Isometric exercises, strengthening exercises, resistive exercises, and stretching exercises). Participants were reassessed with the help of tools to assess outcomes shown in the table after the application of the treatment regimen.

Table-1: Between group comparison of NPRS, PSFS, FAI and MMO.

n=10	Pre-treatment values (Mean±SD)		P value	Post-treatment values (Mean±SD)		P value
	MPT	ET		MPT	ET	
NPRS	7.00±1.633	6.70±1.703	.692	2.60±.966	4.70±.949	.0001
PSFS	3.5500±1.83258	2.7200±.83905	.209	8.2900±.86339	4.4000±.84327	.0001
FAI	3.10±.568	3.40±.516	.232	1.6±.516	2.60±.516	.0001
MMO	17.7000±4.49815	17.2000±4.56557	.802	32.1000±3.38132	23.2000±3.11983	.0001

NPRS= Numeric pain rating scale, PSPS=Patient specific pain scale, FAI=Fonesca amnestic index, MMO=Millimeter mouth opening,MPT=Manual physical therapy, ET=Exercise therapy.

Conclusion

Given the results of our study, it can be concluded that manual physical therapy is a more effective protocol to improve pain, range, function and condition severity. Exercise therapy is also effective, but results showed profound effects of manual physical therapy.

Disclaimer: None.

Conflict of Interest: None.

Funding Disclosure: None.

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