

Effect of dry needling on Pain Sensitivity in Temporomandibular Disorder Patients: A Randomized Control Trail

Biswajit Kanungo¹ Ramesh Chandra Patra² Patitapaban Mohanty³

1. Assistant Professor, Lovely Professional University, Phagwara, Punjab.
2. Corresponding Author: Assistant Professor, Lovely Professional University, Phagwara, Punjab.
3. Associate Professor, Department of Physiotherapy SVNIRTAR, Cuttuck, Odisha.

ABSTRACT

Background: The main aim of this study was to find out the effectiveness dry needling on Pressure Pain Threshold (PPT) level in patient with TMD. **Material and Methods:** A total of one hundred participants were randomly assigned into group A with 50 subjects of TMD who received conventional physiotherapy and group B with 50 subjects of TMD were received dry needling. Ages of all the subjects were between 18-49 years. Pressure pain threshold (PPT) was measured by Pressure pain threshold algometer on masseter muscle. **Results:** The results of this study indicate that dry needling increases the pressure pain threshold which was statistically significant different ($P < 0.05$) from the control group **Conclusion:** Participants with TMD those who received Dry needling showed low PPT as compare to control subjects. Therefore, it is important for the clinician that for the management of TMD patients dry needling could be used.

Keywords: Temporomandibular Disorders, Pressure Pain Threshold, Dry needling

Introduction

Temporomandibular Dysfunction (TMD) is a multidimensional condition that affect almost 5%-12 % of the general population and the aetiology of this condition is considering “biomechanical, neuromuscular and biopsychosocial” [1]. TMDs are defined in various types whereas pain and dysfunction of joint masticatory muscles and these complex neuromusculoskeletal constructions is associated with the “head and neck.” [2-4] The main sign symptoms of TMD patients include pain in temporomandibular joint and/or muscle with or without reduced range of motion of temporomandibular joint. The symptoms included with TMD may lead a patient to changes their lifestyle due to problem in talking, impeding their ability to partake in discussing, problem in eating. This may be the responsible for the low quality of life. [4-6]

Physical therapist uses many techniques to manage the patient and each and every technique has some specific indication like Manual therapy, electrotherapy, and exercise therapy. Dry Needling (DN) is technique which is becoming a popular technique to reduce the myofascial pain. Therefore the primary objective of this study was to evaluate the effectiveness of the dry needling in patient with TMD pathology.

Materials and Methods

This study is an experimental study and carried out during May 2018 in Department of Physiotherapy, Lovely Professional University, Punjab. A total of one hundred participants were randomly

assigned into group A with 50 subjects of TMD who received conventional physiotherapy and group B with 50 subjects of TMD were received dry needling. Ages of all the subjects were between 18-49 years. Pressure pain threshold (PPT) was measured by Pressure pain threshold algometer on masseter muscle FDX (Wagner, Greenwich, USA).

Ethical approval for the study was obtained from the institutional research and institutional ethical committee before recruiting the patient. Written, signed informed consent was obtained from all participants. The participants were included for the study, pain and positive three finger test with limited MMO of less than 30mm (but not necessarily painful) clearly originating in the TMJ. Those who are suffering any dental problem, headache, hypertension, diabetes, asthma, epilepsy, and trauma and surgery to the maxillofacial area were excluded from the study.

Results and Analysis

Statistical analysis was carried out using SPSS 16 and paired t-test was used to compare the control and experimental group. Demographic variables (age, weight, height, BMI) are showing in the (Table-1). Statistical analysis (Table-2) revealed low PPT score among both the groups.

Discussion

The main objective of this study was to investigate the effectiveness of dry needling in patient with TMD. Numerous studies scrutinised that the dry needling is a beneficial treatment modalities to reduce the myofascial pain syndrome. [7–10] Pain is a difficult phenomenon predisposed by both biologic and psychological reasons. [11-12] In a meta-analysis study suggested that dry needling is very effective in reducing pain and improving pressure pain threshold in patient with myofascial pain syndrome. [13]

Another study claimed that dry needling, release the endorphin and de-activate the myofascial trigger points which may leads to reduce pain sensitivity. An experimental study suggested that dry needling reduced the pain and improved the pressure pain threshold where 12 females subjects with TMD were participated.[14] Therefore, the results of our study also support the previous study result that dry needling improved the Pressure pain threshold

Conclusion

Dry needling focused on myofascial trigger point of masseter muscle shown an improvement in pressure pain threshold. Therefore, for the better management of TMD clinician could use dry needling technique. However further study with strong methodology with combination of exercises should be carried out to create gold standard treatment protocol for TMD.

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Conflict of Interest

Author does not have any conflict of interest

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Table 1: Demographic data of the subjects (Mean±SD)

| Variables | Control group | Experimental Group | Not e: y=y ear, kg= kilo gra m, cm= cent imet er, m= |
|-------------------------------------|---------------|--------------------|--|
| | Mean ± SD | Mean ± SD | |
| Age(y) | 39±10.11 | 38±12.12 | |
| Weight(kg) | 66.22±5.93 | 67.32±7.58 | |
| Height(cm) | 163.34±8.52 | 164.33±7.24 | |
| Gender | Female (n=28) | Female(n=30) | |
| | Male (n=22) | Male (n=20) | |
| Body mass Index(kg/m ²) | 22.55±3.65 | 23.32±3.15 | |

Table 2: Comparison of pressure pain threshold between the group A and Group B

| <u>Outcome Measure</u> | Control Group Group A | | Experimental Group Group B | |
|-------------------------|--------------------------|------------------|-------------------------------|------------------|
| | Pre | Post | Pre | Post |
| Pressure pain Threshold | 1.77±0.16 | 2.12±0.26 | 2.37±0.26 | 5.52±0.26 |
| P-value | <i>P</i> < 0.001 | | <i>P</i> < 0.001 | |