

Effectiveness of Physiotherapy Management of Patients with Temporomandibular Joint Disorder in Jaffna Dental Clinic

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I. Introduction

(Temporomandibular Joint)

Temporomandibular Joint (TMJ) is one of the most frequently used joints in the human body. (Hoppenfeld, 1976) It is used when speaking, yawning, chewing, swallowing and other activities during the day and even in sleep. The frequency of movement is assessed as approximately 1500-2000 times a day (Magee, 2002). It is articulate between the condyle of the mandible and the squamous portion of the temporal bone. These two osseous elements are enclosed into a fibrous capsule and articulate with each other by an interposed disc of connective tissue (Haskin CL 1995).

Temporomandibular Joint Disorder (TMD) can be caused by trauma such as whiplash injury, excessive stress on the joint due to clenching or grinding of teeth, postural abnormalities especially a forward head posture, emotional stress, myofascial pain syndrome, arthritis, fractures, dislocation of the disc within the joint (Melissa Joan, etal,2010).

Temporomandibular joint disorder is usually manifested by one or more of following signs or symptoms, pain, joint sounds like clicking, popping

sounds when opening and closing the mouth, limitation in jaw movement, muscle tenderness and joint tenderness. It also is commonly associated with other symptoms affecting the head and neck region such as headache, earache, dizziness and cervical spine disorders (McNeely, 2006)

Management of temporomandibular joint disorders most often involves a multidisciplinary approach. Dentists, Physiotherapists, Orthodontists, Psychologists and Physicians work together to address the condition of patient with TMD

Physiotherapy is commonly prescribed for the patients with TMJ disorder as a conservative treatment that aims to relax muscles, reduce inflammation, relieve pain, improve posture, and restore the oral motor function. Physiotherapy management include manual joint mobilization, soft tissue releasing technique, massage over painful muscles, muscle stretching, electrotherapy, gentle isometric exercises against resistance, postural correction and relaxation techniques. Transcutaneous Electrical Nerve Stimulation (TENS) and ultrasound commonly used electrotherapy modalities in the treatment of

temporomandibular joint disorder (Margaret L, 2006)

To date, the question of whether physiotherapy interventions are effective in the management of temporomandibular disorder remains under debate. Thus the purpose of this study to assess the effectiveness of physiotherapy in the management of TMD

II. Objectives

(General Objective)

To assess the effectiveness of Physiotherapy management of patient with Temporomandibular Joint Disorder

III. Methods and Material

This is a randomized control study. Patients diagnosed with Temporomandibular Joint disorder from Dental clinic, Teaching Hospital Jaffna, satisfying the inclusion and exclusion criteria were included in the study. By convenient sampling 30 participants were divided into an intervention group and a control group. Among these 15 participants from each group completed the study and were included for analysis. The control group received physiotherapy treatment alone whereas intervention group received drug therapy in addition.

The treatment protocol for the control and intervention groups included 40 minutes treatment session include Transcutaneous Electrical Nerve Stimulation (TENS) application for 15 minutes,

1MHz ultrasound therapy for 5 minutes, therapeutic soft tissue releasing massage techniques and manual joint mobilization. At the end of each treatment session physiotherapist taught some home exercises like isometric strengthening exercises, mouth opening movements and coordination exercises. At the first visit take initial assessment, every two weeks outcome measured using reassessment.

Temporomandibular joint pain intensity, muscle palpation and Range of Motion (ROM) of mouth opening and side movements were assessed by Visual analogue scale (VAS), muscle palpation Index and Goniometer respectively. Data was collected using a standard temporomandibular joint assessment format. Participants were assessed by physiotherapist before the start of treatment and at the end of every week till the completion of four weeks of physical therapy treatment.

All analyses were performed with MINITAB statistical software (version14). Frequency distributions as well as means and standard deviations were used for descriptive purposes. At the baseline, differences in age was analysed using the two-sample Wilcoxon rank sum test. Differences between treatment groups in change scores at the baseline and at the end of each treatment sessions over a period of 4 consecutive weeks were analysed with the two-sample Wilcoxon rank sum test. Repeated measurements obtained before and after treatments within groups were also analysed with the two-sample Wilcoxon

rank sum test. The Kruskal Wallis test was performed to estimate differences between age groups for each studied outcome. The alpha level for significance was set at 0.05.

IV. Results and Discussion

The measurements in VAS, Muscle palpation index and mouth opening ROM shows significant improvement in both control and intervention groups at the end of four weeks treatment period. In the control group VAS for pain measurement has reduced from 52.53 ± 23.24 to 10.95 ± 9.52 , the muscle palpation index has reduced from 50.10 ± 19.11 to 8.13 ± 7.03 . And the ROM for mouth opening has increased from 10 ± 4.2 to 28 ± 6.90 , right side deviation has increased from 4.46 ± 1.73 to 6.54 ± 1.15 , left side deviation has increased from 4.53 ± 2.88 to 6.69 ± 2.33

Intergroup comparisons to analyse the improvement in patient's condition in relation to pain, palpation and ROM for mouth opening, right deviation and left deviation after the four weeks treatment or at the end of first or second week have shown no statistically significant difference between the groups.

v. Conclusion

The results of this study shows that the participants who received physiotherapy management alone as well as the participants who received physiotherapy and drug treatment had significant improvement at the end of the four weeks treatment session and the

at the end of each treatment session. The study finally concludes that according to the study results between the control and the intervention groups have no significant differences. Therefore patient with temporomandibular joint disorder can treat with physiotherapy management to improve their quality of the life.

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References

[1] McNeely M.L., Arminjo O.S., Magee D.J., Effectiveness of physical therapy interventions for temporomandibular disorders: A Systemic Review. *Phys ther.* **86**(5),(2005), pp. 710-25.

[2] Haskin C.L., Athanasiou K.A., Klebe R., Molecular biology of temporomandibular joint disorders: Proposed mechanism of disease. *Journal of oral and maxillofacial surgery.* **53**,(1995), pp. 1448-1454.

[3] Michelotti A., Wijer A., Steenks M., Farella M., Home exercise regimes for the management of nonspecific temporomandibular disorders, *Journal of Oral Rehabilitation*, **11**, (2005), 779-785.

[4] Hansson P., Anders E., Transcutaneous Electrical Nerve Stimulation (TENS) as compared to placebo TENS for the relief of acute orofacial pain. *Journal of Pain*, **15**, (1982), 157-165.

[5] Celine P., Say H.T., Marie A.G., Alain W., Activity of masticatory muscles in subjects with different orofacial pain conditions. *Journal of Pain*, **116**, (2005), 33-41.

[6] Santiesteban J. Isometric exercises and a simple appliance for temporomandibular joint dysfunction: a case Report. *Phys Ther.* 1989;69(6):463-6.

[7] Nicolakis P, Erdogmus B, Kopf A, Djaber-Ansari A, Piehslinger E, Fialka-Moser V. Exercise therapy for craniomandibular disorders. *Arch Phys Med Rehabil*, (2000);81:1137-42.

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