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Transcutaneous Electric Nerve Stimulation: An Adjuvant Modality For Pain Relief In Myofacial Pain Dysfunction Syndrome Along With Occlusal Splint & Conventional Therapy In Jaipur, Rajasthan

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Abstract

Aim: To determine effectiveness of TENS in the management of Myofacial pain disorders(MPDS), along with the use of conventional therapy and occlusal splint.

Material and method: 42 patients suffering from chronic pain owing to MPDS were included in the study. The patients who fulfilled LASKINS CRITERIA for MPDS were enrolled for the study. Ethical clearance for study was taken. Patient were distributed randomly into three equal group (Group 1,Group 2,Group 3) . A Performa was designed and filled for the same. VAS score were recorded before initiating treatment. Group 1 was treated by conventional therapy. Group 2 was treated by both conventional as well as TENS therapy and in group 3 along with conventional, TENS therapy & occlusal splint.15 days post therapy patients were recalled and VAS score was recorded.

Results: Results showed that Group 2 (mean value of 5) had better efficacy followed by Group 1 then Group 3.

Conclusion: In the present study, it was found that Conventional therapy with TENS offers a modest, safe, and non-invasive technique, which has minimal, or no side effects. Proper use and monitoring would help the patients suffering from chronic pain the opportunity, to fully appreciate the scope of this small equipment.

Keywords: MPDS, Occlusal splint, TENS therapy.

Introduction

Myofascial pain syndrome (MPS) is a muscular pain syndrome that arises from a primary dysfunction in muscle and is associated with central sensitization and a segmental spread within the spinal cord to give rise to the phenomenon of referred pain, or pain that is felt at a distance[1-4]. The etiology and pathogenesis of MPDS are controversial although they are considered to be multifactorial, such as excess tension in the muscles of mastication, malocclusion between the upper and lower teeth and jaws (dysgnathism), disturbed movement of the jaw joint, displacement or abnormal position of the jaw joint, luxation/dislocation or arthritis, and excess or limited motion of the joint, injury of the jaw or face[5-8]. The pathophysiology of MPDS is not completely understood. It is currently hypothesized that trigger points (TrPs), the most common feature of MPDS, contain areas of sensitized low - threshold nociceptors (free nerve endings) with dysfunctional motor end plates. These motor end plates connect to a group of sensitized sensory neurons in charge of transmitting pain information from the spinal cord to the brain. The successful management of patients with MPDS is dependent on establishing an accurate diagnosis and using proper therapy based on an understanding of the etiology of the disorder[9]. Management of MPDS is divided into two groups – Non surgical management & surgical management.

Non surgical management

Initial therapy(Reassurance, Diet, Rest, Thermotherapy).

Supportive therapy- Pharmacological therapy (Analgesics, Anti Inflammatory Agents, Anxiolytics agents, Local Anesthetics Muscle Relaxants, Antidepressant, Herbal medicines) [10-13].

Physical therapy-Cutaneous stimulation therapy (Superficial massage, Stripping massage, Ice massage, Periosteal therapy, Injections at Myofascial trigger points)

Manual therapy – (Acupuncture, Ultrasound, Cold or Soft laser, Exercises).

Surgical Management- (Condylotomy, Myotomy, Menisectomy, Arthroscopy, Botulinum toxin A (BtA) injections)[14].

So considering different management approaches for MPDS this study was planned to assess the effects of different management approaches and to determine effectiveness of TENS in the management of Myofacial pain disorder (MPDS)s, along with the use of conventional therapy and occlusal splint.

Materials and Method

Ethical clearance for study was taken from the institution. A prospective study was conducted in the Department of Oral Medicine & Radiology in where (42) patients suffering from chronic pain owing to MPDS (Laskin's criteria) were included and randomly divided into three groups. Patient details were filled in a performa specially designed for the study and VAS score was recorded and the treatment initiated.

Group 1 was treated with conventional therapy. Group 2 was treated with combination therapy using conventional as well as TENS therapy and in Group 3 patients were treated with conventional, TENS therapy & occlusal splint combination.

They were recalled after 15 days to note down the visual analog score. Before and after treatment visual analog

score from each group were performa and statistical analysis was done.

Result

VAS score was recorded for the participants of all the three groups and compared the mean values of each group as shown in table 1. It was found that Group 2 (mean value of 5) had better efficacy compared to rest while it was followed by Group 1 then Group 3 (Table 1).

Standard error of difference was found to be 0.370 which was greater than 0 indicating the accuracy of the mean of our samples. 95% Confidence interval was found between -2.8859 to -1.4141 and t value was found to be 5.7915 which was greater than 1 thus rejecting the null hypothesis and p value was 0.0001 which was less than 0.05 proving the fact that the study was statistically significant as shown in (Table 2).

Discussion

The World Health Organization defines pain as "an unpleasant sensory or emotional experience associated with actual or potential tissue damage, or described in terms of such damage." Pain is the important aspect for which any patient approaches the clinician.

Clinically diagnosed patient of MPDS selected for the same (42) who fill the criteria for study design. Previous literature has reported female predominance as noted in our study. MPDS is more common in females as they are more likely to suffer from anxiety and stress as noted in the present study.

Most of the participants in the present study were in the age group of 17-55 years (Graph 1).

Subjects were divided (<30 years 16 patients, 30–40 years 14 patients, 41–50 years 10 patients and >50 years 2 patient) as shown in (Graph 1). This is in accordance with several other studies where in MPDS has been found to occur in the third-to-fifth decades of life[15].

Group I participants were treated with conventional therapy that included Stress management :Habit reversal / relaxation / Hypnosis / Biofeedback / Cognitive therapy. Muscle relaxants / Antianxiety medication was prescribed to the patient. The second group was treated with conventional & TENS was designated as group II.

So the mean value of VAS after treatment for Group II is 5 as shown in (Table 1) .

The third category with 14 subject was treated with conventional, TENS along with Occlusal splint. So the mean value of VAS after treatment for group III was **4.071429** as shown in (Table 1).

Where as the patient taken under Group II were treated using Conventional therapy and TENS therapy which was entirely dependent on the clinician and thus can be regulated successfully .This ensures positive outcome of a treatment plan and Group III subject were under Conventional, TENS and Occlusal splint therapy, Occlusal splints are designed to stabilize the jaw in order to restore proper jaw movement, one of the major problems associated with it is pain and discomfort . So this could be one of the reasons that the patient tend to discontinue wearing them. This could be one of the main reason that affects the outcome of the patient in Group III in this study. As the treatment modality is patient dependent.

Conclusion

Conventional therapy with TENS offers a modest, safe, and non-invasive technique, which has minimal, or no side effects. Proper use and monitoring would help relive the patients suffering from chronic pain and an opportunity, to fully utilize the scope of this small equipment.

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Legends Figure and Tables

Graph 1: Patients of all age group were included into the study as shown in graph 1.

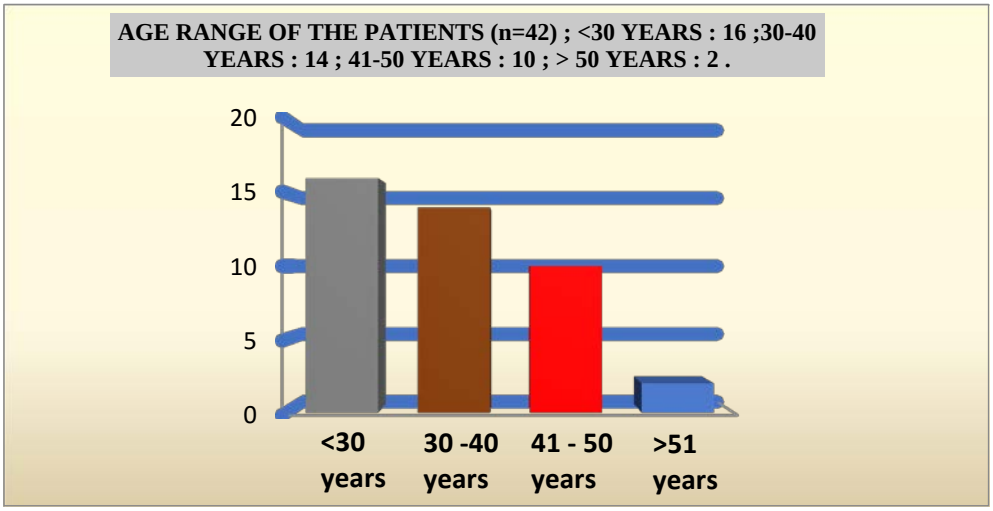

Table 1: Comparison of Mean Values of Group 1 , Group 2 , Group 3

Group 1	Group 2	Group 3
4	5	4
3	4	3
4	8	4
2	8	5
4	2	2
5	5	1
6	6	4
4	5	6
3	4	4
7	4	5
5	5	7
4	3	5
5	6	4
7	5	3
4.5	5	4.071429
	Mean Value	

Table 2: Statistically Significant at p≤0.05

Standard Error of Difference	0.37
95% concentration interval	-2.8859 to -1.4141
t value	5.7915
P value	0.0001