

Effect of Muscle Relaxant on Pain Perception among Patients of Temporomandibular Disorder

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ABSTRACT

Objective: The objective of the study was to explore the impact of muscle relaxants on pain relief among patients of temporomandibular disorders.

Method: This research study was based on clinical trial conducted in Oral and Maxillofacial Surgery Department of Dental Hospital, University College of Dentistry, Lahore. Data was collected from 60 patients reported the department of oral and maxillofacial surgery with complaints of myofascial pain using nonprobability convenient sampling technique. SPSS version 25. Was used for data analysis. Age and duration of symptoms were reported in mean and standard deviation whereas to calculate the effectiveness of muscle relaxant, independent sample t test was used.

Results: The results of independent sample t test revealed a significant difference between the pre-treatment values and post-treatment values in terms of pain ($P=.001$) and mouth opening ($P=.034$). Pre-treatment in terms of pain, mean score was 7.70 ± 2.4 whereas post-treatment, mean score was 4.01 ± 1.3 . Pre-treatment, in terms of mouth opening, mean score was 37.70 ± 3.90 whereas post-treatment, in terms of mouth opening, mean score was 41.67 ± 3.06 .

Conclusion: Muscles relaxant (diazepam) is quite effective in relieving TMD pain and in enhancing mouth opening due to temporomandibular disorders among patients

Keywords: Muscle relaxant, Pain perception, TMD, Diazepam

INTRODUCTION

An umbrella term used for multiple clinical complaints in terms of temporomandibular joints, structures surrounded by temporomandibular joints and muscles involved in mastication is called temporomandibular disorder which is abbreviated as TMD.¹ Though, there is a difference of symptomology. With exclusion of intracapsular disorders, all other disorders related to facial muscles cover under Myofascial pain dysfunction.² Presentation of myofascial pain dysfunction includes dull, diffuse, jaw and check muscle ache normally linked with reduction in mouth opening. With the movement of jaw, the intensity of pain increases and affect the routine life of a patient.³ The prevalence of temporomandibular joint disorders is about 50% to 70% among which patients with major problems are about 25%. The chief reason of pain in muscles of jaw is extreme reflex tone.⁴ Literature supports that pain is associated with the tone of muscle of jaw and there are 2 different theories associated with this phenomenon. First theory is vicious cycle theory and the 2nd is pain adaptation model. As per the vicious cycle theory, preliminary intensification in tone of muscle leads to the pain in jaw which enhances the tone of muscles. To break this vicious cycle, numerous strategies has been devised.⁵ Normally, the diagnosis of myofascial pain is underestimated in clinical settings resulted in continuing and multifarious pain in facial muscles which disturbs the quality of life of patients.^{1-3,5,6,7} It is evident that prevalence of high anxiety level is more in myofascial pain syndrome due to continuous pain.⁸ Till now no proper treatment strategy has been devised for myofascial pain syndrome. Drug therapy has also been used for pain treatment. For the treatment of TMD, muscle relaxants are normally used but there is a scare literature about the effectiveness of muscle relaxants on pain relieving element. So, this study has designed to explore the impact of muscle relaxants on pain relief among patients of temporomandibular disorders.

METHODOLOGY

This research study was based on clinical trial conducted in Oral and Maxillofacial Surgery Department of Dental Hospital, University College of Dentistry, Lahore. Data was collected from 60 patients reported the department of oral and maxillofacial surgery

with complaints of myofascial pain using nonprobability convenient sampling technique. Patients of both genders between 18 to 40years of age were included in the study whereas patients with any other comorbidities, any psychiatric issue and pregnant patients were excluded. After the ERB approval, 60 patients were recruited for the study after getting their consents in written form. Pain score as well as mouth opening was recorded as baseline. Pain score was recorded using visual analogue scale whereas mouth opening was measured by Vernier calipers. Each patient was given one tablet of diazepam 5mg daily. After 4 weeks patients were called for follow up in which pain score and maximal mouth opening was measured again to compare the pre and post condition. SPSS version 25. Was used for data analysis. Age and duration of symptoms were reported in mean and standard deviation whereas to calculate the effectiveness of muscle relaxant, independent sample t test was used.

RESULTS

Among 60 patients, 41(68.33%) were females and males were 19(13.67%). The mean score of age was 30.50 ± 7.46 years. The mean score of duration of symptoms was 10.7 ± 5.9 weeks and it ranges between 5 weeks to 22 weeks.

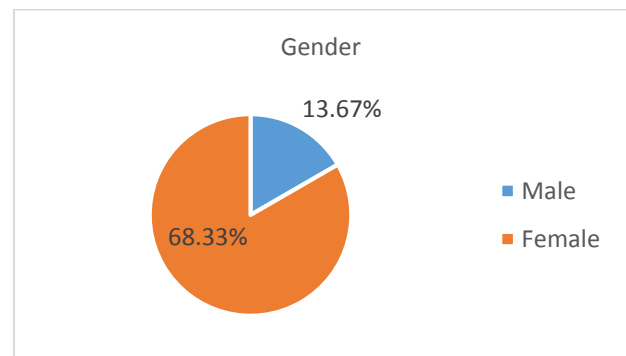


Figure 1: Gender distribution of sample

The results of independent sample t test revealed a significant difference between the pre-treatment values and post-treatment values in terms of pain ($P=.001$) and mouth opening ($P=.034$). Pre-treatment in terms of pain, mean score was 7.70 ± 2.4 whereas post-treatment, mean score was 4.01 ± 1.3 . Pre-treatment, in terms of mouth opening, mean score was 37.70 ± 3.90 whereas post-treatment, in terms of mouth opening, mean score was 41.67 ± 3.06 .

Table 1: Pre-treatment and post-treatment comparison in terms of pain and mouth opening

	Pre-treatment Mean \pm Std. deviation	Post-treatment Mean \pm Std. deviation	Sig.
Pain	7.70 \pm 2.4	4.01 \pm 1.3	.001
Mouth opening	37.70 \pm 3.90	41.67 \pm 3.06	.034

DISCUSSION

The findings of current study revealed a significant difference between the pre-treatment mean score and post-treatment mean score in terms of pain as well as mouth opening among patients of temporomandibular disorders. A study conducted in India by Pramod and his colleagues concluded after making the comparison between placebo and muscle relaxant to relieve pain that muscle relaxant showed pain relieve among 72% patients as compared to placebo⁹, which is line with the findings of current study. Another study conducted by Singer and Dionne on patients with severe myofascial pain concluded a significant reduction in symptoms of pain among patients prescribed with diazepam which supports the findings of current study.¹⁰ Same findings were also reported by Jagger. He conducted a research while prescribing diazepam in patients with myofascial pain syndrome. The findings of the study revealed better pain reliving characteristics than placebo. Its effectiveness in treating temporomandibular joint dysfunction is effective as the origin of dysfunctioning is mechanical.¹¹

The findings of current study revealed that use of muscle relaxant also helps in improving the jaw opening due to the intake of diazepam which was also supported by the findings of Pramod and colleagues who concluded the 30% increase in mouth opening in TMD patients.⁹ In contrast, there is study conducted by

Singer and Dionne reported no statistically significant difference of pre and post treatment in terms of mouth opening using diazepam among patients with severe myofascial pain. The reason reported for such findings was normal mouth opening was reported among patients.

In conclusion, muscles relaxant (diazepam) is quite effective in relieving TMD pain and in enhancing mouth opening due to temporomandibular disorders among patients.

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