



ROLE OF ANTIDEPRESSANTS AS A THERAPEUTIC AGENT IN THE MANAGEMENT OF TEMPOROMANDIBULAR DISORDERS: A RETROSPECTIVE STUDY

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Abstract

Background: TMD – is the second most common cause of musculoskeletal pain and disability and the most common cause of orofacial pain. It is of multifactorial origin and associated with various risk factors. Treatment includes physical, pharmacological, surgical, and behavioral therapy. Various pharmacological agents were used in the management of temporomandibular disorders. Tricyclic antidepressants are increasingly used due to their chronic pain-relieving potential in lower doses.

Methodology and Results: A retrospective analysis of the management of temporomandibular joint disorders with antidepressants was analyzed (N - 42 cases). Clinical parameters such as VAS and mouth opening were evaluated. Descriptive statistics were given and paired t-test was used to determine the mean and standard deviation of pre and post-treatment VAS and mouth opening. There is a significant reduction of pain and improvement in mouth opening evident with the use of antidepressants

Conclusion: This retrospective study analyses the exclusive use of Tricyclic antidepressants in temporomandibular disorders. TCA can safely be used as a primary therapeutic modality in TMD to improve quality of life.

Keywords: TMD, TCA, Amitriptyline, antidepressants, chronic pain

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1. Introduction

The term “Temporomandibular disorders” is a condition that includes musculoskeletal and neuromuscular abnormalities that result in pain and dysfunction of the masticatory muscles, temporomandibular joint, and its associated structures(1). The symptoms of TMD include pain in the joints and their associated structures, reduced mouth opening/ trismus, and joint sounds like clicking or crepitations(2). Severe pain intensity conditions hamper the normal daily activities of the affected individual and impact the patient’s psychological functioning and quality of life. The other symptoms of TMD include pain in the face, head, and ear region, tinnitus, ear fullness, and vertigo. It causes a great deal of suffering in society and widespread problems in clinical practices(3).

The prevalence of TMD includes 5-12% in the general population(4). Studies suggest that it is of multifactorial origin and associated with various risk factors like biological factors, individual anatomy, injuries, stressors, pharmacotherapy, occlusal interferences or occlusal factors, behavioral factors, neuroendocrine elements, genetics, and systemic disease. Treatment of TMD begins with predicting the individuals who are likely to have chronic pain and treating those patients with an alternative or additional interventions that address biobehavioral factors that decrease the likelihood of acute pain becoming chronic(1). Based on DC/TMD framework, the primary predictor of the transition from acute pain to chronic pain is the reported pain intensity, which can be measured by a Graded Chronic Pain Scale or Visual analog Scale, pain-free opening of the jaw, pain with the movement of the jaw and pain in the palpation of the muscles. From the clinical perspective, any TMD patient should be considered for chronicity and treated accordingly(5).

Regarding pharmacologic therapy, the effects of nonsteroidal anti-inflammatory drugs (NSAIDs), corticosteroids, muscle relaxants, anxiolytics, opioids, and tricyclic antidepressants (TCAs) on TMDs have been studied among others, although with no conclusive results for any medication. However, in those cases where a TMD is associated with states of anxiety, depression, and/or stress, the use of TCAs may be clearly indicated. This retrospective study analyzes the role of antidepressants as therapeutic agents in the management of temporomandibular disorders.

2. Materials and Methods

This study was done in Saveetha Dental College, Chennai. Retrospective analysis of temporomandibular disorder patients was done from June 2020- June 2022. Demographic data, clinical parameters, radiological findings, and management along with follow-up data were collected. Clinical parameters such as VAS, mouth opening were evaluated. Pre- and post-treatment VAS were into consideration.

Tricyclic antidepressants (amitriptyline -10mg – once daily at night time) along with topical anti-inflammatory agent were given to 42 patients.

3. Results

Figure 1: Descriptive statistics of gender distribution
 Figure 2: Descriptive statistics of diagnosis of TMD
 Total number of patients included 42. Among them 31 were male and 69 were female patients. Antidepressants were given to the following temporomandibular disorders, Internal derangement (N=54), Subluxation (N=16), Muscle related temporomandibular disorders (N=30). Paired t-test was used to compare the VAS pain and mouth opening at baseline and at a one-month follow-up, giving a significant p-value.

Table 1: Mean and standard deviation of VAS

VAS	MEAN	STANDARD DEVIATION	P VALUE
BASE LINE	15.375	2.560	0.000

FIRST VISIT	5.750	2.375	0.000
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Table 2 : Mean and standard deviation of mouth opening

MOUTH OPEING	MEAN	STANDARD DEVIATION	P VALUE
BASE LINE	10.345	1.678	0.000
FIRST VISIT	2.500	.756	0.000

4. Discussion

The main goal in the management of TMD is to decrease the pain intensity, increase mouth opening, decrease adverse loading, restoration of function and resumption of normal daily activities(6). Most of the studies suggest that the majority of patients with acute TMD do not immediately seek treatment(7). They visit the dentist for a chronic pain condition. It can be defined as pain that persists beyond the time of usual healing or pain that does not respond to usual treatment. Current evidence from the OPFERA project indicates that in the case of chronicity, the CNS burden of ongoing pain leads to alterations at multiple levels in the CNS, and the state of depression is one manifestation, in terms of behavior and mood, of the CNS changes(8)(9). Similar to other chronic pain disorders, with high-impact chronic painful TMD comes substantial psychological distress, disruption of normal daily activities, and the ongoing pursuit of health care resources(10).

There are two approaches in the management of TMD. They are non-invasive approach/conservative approach and invasive approach. The former includes behavioral therapy, self-management, physical therapy, pharmacotherapy, and occlusal appliances(11). The latter includes surgery, arthroscopy, arthrocentesis, and complex occlusal therapy. Surgical intervention should be considered for patients who show evidence of

pathology or internal derangement as the source of pain and dysfunction or for whom more conservative treatment has failed(12). Various clinical trials and randomized controlled trials suggest that the majority of individuals with TMD respond well to conservative therapy(13).

None of the treatments is considered the gold standard for TMD(14). A 5 year follow up study indicated that TMD patients could be allocated into three categories. They are remission states, recurring symptoms or persisting symptoms(15). Increase in incidence of TMD allows the clinicians to choose treatment based on personal biases rather than scientific investigation. Research suggests TMD should be treated with combination therapy rather than a single modality treatment. This emphasizes a multidisciplinary approach(16). It should not be considered a treatment failure. Muscle-related TMD pain disorders appear to relapse more often than articular disorders and they require retreatment more frequently(17). Therefore, clinicians should aim for evidence-based treatment modalities that are successful in the management of TMD pain and disabilities(18).

Pharmacological agents are usually prescribed with a combination of other therapy, like physiotherapy, occlusal splint and even in surgical interventions(19). It has been used for several years in the management of TMDs. Several routes of administration are oral, intra-articular, muscular injection, topical application. Most commonly used

drugs in the management of TMD include anti-inflammatory, corticosteroids, muscle relaxants, antidepressants, anticonvulsants and opioids(20). Tricyclic antidepressants (amitriptyline) administered up to 15 mg for a period of 10 - 14 days showed a drastic relief in pain, muscle tenderness and improvement in sleep in patients with stress-associated TMD at our institution explains that tricyclic antidepressants are also an effective treatment modality. Our team has extensive knowledge and research experience that has translate into high quality publications (21–30))

5. Conclusion

This retrospective study analyses the exclusive use of TCA in TMD. Literature establishes the role of TCA in chronic pain management. In lower doses, TCA has very negligible side effects. 10mg for 30 days was given to our study group. There is a significant reduction of pain and improvement in mouth opening evident with the use of antidepressants. TCA can safely be used as a primary therapeutic modality in TMD to improve QOL.

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