PREVALENCE OF DIFFERENT TYPES OF TEMPOROMANDIBULAR DISORDERS SEEN AT ARMED FORCES INSTITUTE OF DENTISTRY

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ABSTRACT

The temporomandibular joint (TMJ) is a synovial joint that connects the mandible to the skull. Each joint is composed of condyle of the mandible, an articulating disc and an articular fossa of the temporal bone. Temporomandibular joint disorders (TMD's) are characterized by decreased mandibular range of movements, inadequate mouth opening and TMJ sounds such as click, pop, crepitations. TMD's can be classified as masticatory muscle disorders, Temporomandibular joint disorders, chronic mandibular hypomobility disorders and growth disorders. This cross sectional study was carried out in the Prosthodontics department at Armed Forces Institute of Dentistry, Rawalpindi. A total of 140 subjects were evaluated both clinically and radiographically to estimate the prevalence of symptoms of TMDs as a function of age and gender. The most common disorder in the age frame, less than 20 years was found to be disc dislocation with reduction, while disc displacement was the most common disorder in older age groups. Inferior head of lateral pterygoid muscle was most commonly found to be involved in 88.6% individuals, followed by Medial pterygoid muscle that was tender in 82.9% individuals.

INTRODUCTION

The temporomandibular joint (TMJ) is a synovial joint that connects the mandible to the skull. Each joint is composed of condyle of the mandible, an articulating disc and an articular fossa of the temporal bone.[1] The TMJ provides hinging movement in one plane and therefore can be considered a ginglymoid joint. However, it also provides for gliding movements, which classifies it as an arthrodial joint. Thus it can be considered as a ginglymoarthrodial joint.[2]

Temporomandibular disorders (TMDs) is a group of disorders that cause pain and dysfunction in the TMJ.[3] The etiology of TMDs is considered multifactorial including structural abnormalities of the TMJ, muscle hyperactivity which may be stress induced, and overloading of the joint from trauma.[4] However, its association with occlusal parameters remains controversial. TMDs are characterized by decreased mandibular range of movements, inadequate mouth opening and TMJ sounds such as click, pop, crepitations. A group of disorders affect the TMJ that cause variety of signs/symptoms and are collectively known as TMDs. Auditory symptoms and pain around the TMJ being the most common complaint of the patient seeking treatment.[2,4,5] Masticatory discomfort, both during rest and function is a common complaint.[5]

Accurate diagnosis of a particular TMD is crucial to its management. Detailed history, comprehensive extra and intraoral examination both clinical as well as radiographic is the key to making correct diagnosis. TMD diagnosis is a comprehensive examination in clinical practice. In addition to dental history and performing a thorough dental examination of every patient, a brief screening history and examination pertinent to the temporomandibular disorders should be done which helps the practitioner determine the need for further detailed evaluation.[2,5] TMD's can be classified as masticatory muscle disorders, Temporomandibular joint diorders, chronic mandibular hypomobility disorders and growth disorders.[6]

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Although several epidemiological studies have been conducted, population-based studies are still necessary to find out the prevalence of this condition in smaller population groups, as well as to establish regional differences. The aim of this study was to estimate the prevalence of symptoms of TMDs (single and multiple symptoms) as a function of age and gender. It also aims to find out the most prevalent form of TMDs in a representative sample from our sub-population.

METHODOLOGY

This cross sectional study was carried out in the Prosthodontics department of Armed Forces Institute of Dentistry, Rawalpindi. A total of 140 subjects were evaluated both clinically and radiographically. The study aimed to find out the most prevalent form of TMDs in the representative sample. The subjects were selected based on the following inclusion and exclusion criteria.

Inclusion criteria

All patients diagnosed with TMD (pain, clicking and limited mouth opening), reporting to the Prosthodontics department (AFID) reporting from January 2017 till July 2017 were included.

Both male and female patients,

Patients between the ages 15-50 years,

Patients with complete dentition, and those

Patients previously treated for TMDs.

Exclusion criteria

Patients with bone diseases (Osteoporosis, osteopetrosis, osteomalacia), suffering from

Debilitating diseases (Rheumatoid arthritis, poliomyelitis, chronic obstructive pulmonary disease).

Dyskinesia, and those

With history of orthodontic treatment or orthognathic surgery.

OPERATIONAL DEFINITION

- **Non-inflammatory Myalgia:** Local muscle soreness resulting from continued protective co-contraction. Clinically it can be seen as reduced velocity and range of mandibular movement, minimal to no pain at rest and increased pain during function along with muscle weakness and tenderness.

- **Disc displacement:** If the inferior retrodiscal lamina and the discal collateral ligament becomes elongated, the disc can be positioned more anteriorly by the superior lateral pterygoid muscle.

- **Disc dislocation:** If the inferior retrodiscal lamina and the discal collateral ligament becomes further elongated and the posterior border of the disc becomes sufficiently thinned, the disc can slip or be forced completely through the discal space.

DATA COLLECTION PROCEDURE

- As a protocol, all patients presenting to Armed Forces Institute of Dentistry, Rawalpindi were examined in general OPD and those patients who fulfill the criteria were sent to the Prosthodontics department. A thorough history was obtained from each patient and detailed oral examination was carried out to evaluate the type of TMD.

- Each subject was interviewed using modified Fosenca's questionnaire.[7] Patients were evaluated concerning facial pain, TMJ tenderness, joint sounds, limitations in mandibular movement, locking, stiffness or tenderness of jaw muscles and difficulty in chewing. Those reporting with one or more of these symptoms were asked further questions regarding their severity and functional consequences in order to reach the diagnosis of type of TMD.

- Information collected from each patient was entered into a performa.

DATA ANALYSIS PROCEDURE

Data was entered and analyzed using SPSS version 21.0, descriptive statistics were calculated for both qualitative and quantitative variables. Quantitative variables like age were presented as mean ± SD. Qualitative variables like type of disorder, were presented in terms of frequencies and percentages. Effect modifiers like age and gender were controlled by stratification and post-stratification Chi-Square test.

RESULTS

The representative sample consisted of 60% males and 40% females. Out of which, majority (62.9%) of the sample belonged to the age frame of 20-40 years. Fig 1 indicates the most prevalent temporomandibular joint disorders amongst the representative sample. Table 1 illustrates the prevalence of disorders amongst both the genders. The most common disorder in the age frame, less than 20 years was found to be disc dislocation with reduction, while disc displacement was the most common disorder in older age groups. Inferior head of lateral pterygoid muscle was most commonly found to be involved in 88.6% individuals, followed by Medial pterygoid muscle that was tender in 82.9% individuals. Table 2 illustrates the variation in prevalence of pain amongst different disorders while, Table 3 illustrates the limitation in mouth opening amongst different disorders.
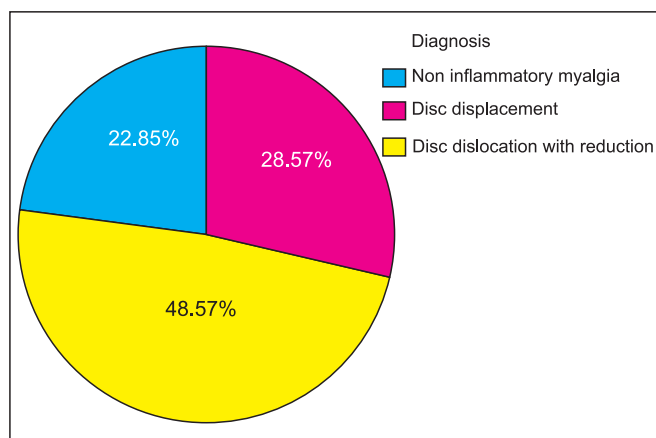
Fig 1: Frequency of temporomandibular joint disorders

TABLE 1: FREQUENCY OF DISORDERS AMONGST BOTH THE GENDERS

		Gender		Total
		Male	Female	
Diagnosis	Non inflammatory myalgia	12	28	40
	Disc displacement	52	16	68
	Disc dislocation with reduction	20	12	32
Total		84	56	140

TABLE 2: FREQUENCY OF PAIN IN DIFFERENT DISORDERS

		Pain	
		Absent	Present
Diagnosis	Non inflammatory myalgia	4	36
	Disc displacement	0	68
	Disc dislocation with reduction	4	28
Total		8	132

TABLE 3: LIMITATION IN MOUTH OPENING IN DIFFERENT DISORDERS

		Absent	Present
Diagnosis	Non inflammatory myalgia	16	24
	Disc displacement	20	48
	Disc dislocation with reduction	12	20
Total		48	92

DISCUSSION

TMD are highly prevalent disorders.[1,7] Several epidemiological studies have been conducted to highlight the prevalence of TMDs, population-based studies are still necessary to emphasize the regional differences. Males (60%) were found to be more affected in study sample as compared to a study by De Godoi Goncalves et al, who concluded TMD symptoms to be more prevalent in women than in men.[8]

Despite the methodological differences, a review of 18 epidemiological studies suggested that TMDs were most prevalent after 30 years of age.[8,9] The representative sample suggests 20-40 years of age to be most affected by this condition. It is acknowledged that pain as a symptom is particularly prone to methodological differences. For instance, demographic features such as race are of importance.[9] It has been suggested that Caucasians are more likely to report pain than African-Americans,[9,10] and Asians. In this study, a total of 132 out of 140 individuals complained of pain, where all the patients diagnosed with disc displacement gave positive responses for pain.

Regarding the prevalence of TMD signs and symptoms, Wigdorowicz-Makowerowa and coworkers found a prevalence of 10.5% of "pure" TMD, and in 0.3% of individuals pain was associated with dysfunction.[10] Similar results were described by Wänman and Agerberg,[11] who found 13% and 7% with moderate and severe TMD respectively, and by Rieder et al,[12] who found advanced and severe TMDs in 10.3% of the individuals. This study concluded, limitation of mouth opening in 65.7% individuals and pain in 94.2%. A total of 50% of the subjects with non-inflammatory myalgia complained of difficulty in chewing. While, 70% and 87.5% subjects with disc displacement and disc dislocation with reduction complained with difficulty in chewing, respectively.

Strengths of the study include the use of a randomized stratified probability sample, allowing an estimate of the frequency of TMD symptoms as a function of gender and age. The study also highlighted the most prevalent disorder in our sub population. Limitations of the study include a smaller sample size and inability to emphasize on the cause of TMDs. Further research in this aspect shall prove to be helpful.

CONCLUSION

Temporomandibular joint disorders are more common in men. The most common disorder in the age frame, less than 20 years was found to be disc dislocation with reduction, while disc displacement was the most common disorder in the older age group. This condition requires to be timely managed by the dental practitioner, in order to improve the quality of life of an individual.

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