Research Article

Assessment of Periodontal Status in Patients with Temporomandibular Disorders

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Abstract

Aims: The aim of the study is to assess the periodontal status in patients with temporomandibular disorders. **Materials & Methods:** Case records of 86000 patients who had visited university hospital were analyzed. A total of 55 patients who had been diagnosed with temporomandibular disorders were taken into the study. Age, gender and the periodontal status were collected. The data collected was then statistically analyzed in SPSS software version 20. **Results:** The results of the present study showed that 50.9% of males had temporomandibular disorders and 49.1% of females patients had temporomandibular disorders.71% of temporomandibular disorder patients were diagnosed with generalised chronic gingivitis and 7.2% were diagnosed with generalized chronic periodontitis. Majority of the patients in the age group of 26-40 years (16.3%) were diagnosed with generalised chronic gingivitis ($p<0.05$). Majority of female patients were diagnosed with generalised chronic gingivitis ($p>0.05$). Generalised chronic periodontitis (7.2%) was present more commonly in patients in the age group of 41 to 60 years. **Conclusion:** Within the limitation of the current study, we observed that generalised chronic gingivitis was more common in the age group of 21 to 40 years and generalised chronic periodontitis was more common in the age group of 41-60 years.

Keywords: Anthropometry; Intercanthal distance, Inter-alar width, Inter-commissural width, Maxillary inter-canine distance

Introduction

Temporomandibular disorder is one of the most challenging diseases of today's society. It is said that it is difficult for the clinician to diagnose and manage. [1] Of such Temporomandibular Disorders (TMDs) Temporomandibular Joint (TMJ) dysfunction is reported to present itself as a multifactorial disease process that may manifest with various combinations of signs and symptoms. [2,6]

Temporomandibular disorders are defined as a collective term embracing a number of clinical problems involving the TMJ, mastication muscle, or both in the criteria of AAOP. Women have been found to represent the majority of patients with TMJ dysfunction several studies have shown that the female patients with TMJ dysfunction is more than 80%. The exact cause of TMD is still unknown, although TMJ overloading is considered to be a common aetiological factor. [7-13]

Chronic periodontitis is the bacterial infection resulting in the loss of alveolar bone and the occurrence of periodontal pockets. [14] Aetiology may be bacteria calculus, overhanging restorations, smoking, systemic diseases and genetic factors. [15] If it's not treated it may lead to tooth loss. In temporomandibular disorders the masseter muscles over develops and blocks the opening of parotid glands. Thus it causes xerostomia which causes changes in the oral microflora and leads to recession, periodontal diseases. Previously our team had conducted numerous clinical trials and lab animal studies and *in vitro* studies over the past 5 years. [16-30] Previously our team has a rich experience in working on various research projects across multiple disciplinesnow the growing trend in this area motivated us to pursue this project. [31-45] The aim of the present study was to assess the periodontal status in patients with temporomandibular disorders.

Methodology

Study setting

This is a hospital based retrospective study to evaluate the periodontal status in patients with temporomandibular disorders. Ethical approval was obtained from the Institutional Ethical Committee (Ethical approval no.SDC/SIHEC/2020/DIASDATA/0619-0320).

Study design

This study was designed to include patients who reported with temporomandibular disorders involving all the age groups and gender.

Sampling method

Non probability consecutive sampling method was followed. All the case sheets who were reported to have temporomandibular disorders and underwent treatment for the same were included in the study.

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Data collection and tabulation: Case records of 86000 patients who had visited Saveetha Dental College and Hospitals between the period of June 2019-March 2020 were analysed. From these case sheets, a total of 55 patients who had temporomandibular disorders were included in the study. Cross verification of data was done by telephonic communication, photographs and radiographs. Two examiners were involved in the study who had reviewed the case sheets. Age, gender and the periodontal status were recorded. The collected datas was entered in a methodical manner in excel sheet and then statistically analyses.

Statistical analysis

The SPSS software version 20 was used to statistically analyse the collected data. Descriptive statistics (Percentage, mean and SD) was performed. Chi-square test was performed to analyse the association of TMDs and periodontal disease status.

Results

A total of 55 patients with TMDs were taken into this retrospective study and were enrolled for the analysis. Based on age and periodontal status of TMD patients it was found that the study population between 26 to 40 years were most commonly diagnosed with generalised chronic gingivitis. The patients in the age group of 11 to 25 years and 26 to 40 years did not report with periodontitis. The study population between 11 to 25 years were diagnosed with generalized chronic gingivitis (16.3%), 3.6% with localised chronic gingivitis and 5.4% had clinically healthy gingiva. In the study population between the age group of 41 to 60 years 14.5% of patients were diagnosed with generalised chronic gingivitis, 7.2% with generalised chronic periodontitis. In the age group of 26 to 40 years, 5.4% of patients were diagnosed with localised chronic gingivitis and 3.6% with clinically healthy gingiva [Figure 1].

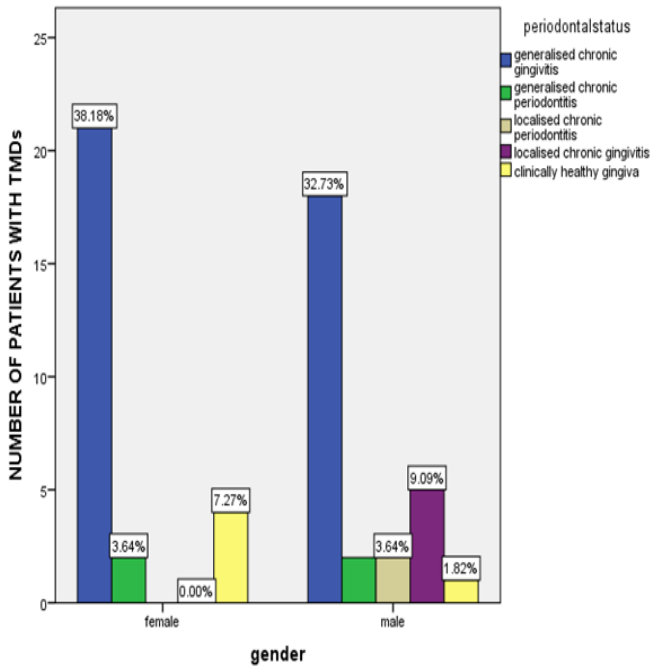

Figure 1: Bar chart represents the association of age and periodontal status in patients with TMD. X axis represents different age groups and Y axis represents the number of patients with TMDs Majority of patients in the age group of 26-40 years were diagnosed with generalised chronic gingivitis than other age groups. (Chi-square test): Pearson chi square value 20.303; p value-0.009 (p<0.05) which is statistically significant.

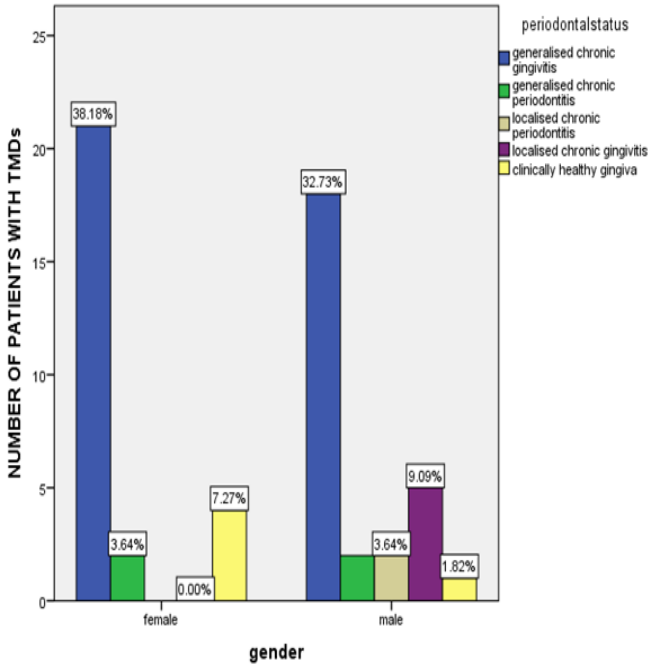

Figure 2: Bar chart represents the association of gender and periodontal status in patients with TMD. X axis represents the gender and Y axis represents periodontal status of the number of patients with TMDS. Majority of female patients were diagnosed with generalised chronic gingivitis than male patients. (Chi square test): Pearson chi square value 9.016; p value- 0.061 (p>0.05) which is not statically significant.

In the present study, 50.9% of males presented with temporomandibular disorders and 49.1% of females had temporomandibular disorders. The association between gender and periodontal status of TMD patients [Figure 2] 38% of females and 32% of males were diagnosed with generalised chronic gingivitis. 3.6% of males and females were diagnosed with generalised chronic periodontitis.

Discussion

From the case records of 86000 patients who had visited Saveetha Dental College and Hospitals were analyses. Various studies have been reported on association between chronic periodontitis and TMJ dysfunction. [46-48] The results of the present study showed that generalised chronic gingivitis was mostly experienced by the middle age group 26-40 years (40%), while generalised chronic periodontitis mostly occurred in the elderly age group (7.27%). [41-60] These results are in accordance with a study by Eke *et al.* that confirmed a high prevalence of periodontitis in US adults aged 30 years and older. [49]

Tadjoedin *et al.* did a study on comparison of age and periodontal disease and she concluded that periodontal disease tends to relate to age and this study is in accordance with our present study were 7.2% of the patients in the age group of 41-60 years were diagnosed with generalised chronic periodontitis ($p<0.05$). [50]

Schützer, did a study on influence of age, sex, plaque and smoking on periodontal conditions in a population from Bauru, Brazil, he concluded that the study population showed clinical loss of attachment most commonly in male than females. This study is in accordance with our present study were 8.2% of male patients were diagnosed with periodontitis ($p>0.05$). [51].

Table 1: Frequency distribution of periodontal status in patients with TMDs based on gender.

	Generalized chronic gingivitis	Generalized chronic periodontitis	Localised chronic gingivitis	Localised chronic periodontitis	Clinically healthy gingiva	Total
Males	18	2	5	2	1	28
Females	21	2	0	0	4	29
Total	39	4	5	2	5	55

kardine, did a study on prevalence and factors associated with alterations of the TMJ in institutional elderly and she concluded that women are most commonly affected and have periodontal problems. [52]

Kumar *et al.* did a study on association between periodontal disease TMD and rheumatoid arthritis among patients visiting rheumatology centres. He stated that periodontitis is most commonly present in the study population. [53] Our institution is passionate about high quality evidence based research and has excelled in various fields. [54-57] We hope this study adds to this rich legacy.

Comparing the above two studies we concluded that, generalised chronic periodontitis was most commonly diagnosed in the age group of 41-60 years, generalised chronic gingivitis was most commonly diagnosed in the age group of 25-40 years. The present study had a smaller sample size and it was a single-centered study and geographical limitations. Future studies may be needed to analyse the type of TMDs and its association with periodontal disease and understanding its pathophysiology [Table 1].

Conclusion

Within the limitation of the current study, we observed that generalised chronic gingivitis was more common in the age group of 21 to 40 years whereas generalised chronic periodontitis was more common in the age group of 41- 60 years in patients with temporomandibular disorders. This study emphasizes the importance of frequent scaling oral hygiene reinforcement in these patients and health education to prevent periodontal disease.

The present study establishes a preliminary baseline value for intercanthal distance, inter-alar width, inter commissural width and maxillary inter-canine distance in adult Saudis.

The study can be a foundation for further studies that can assist in future analysis, diagnosis, and planning of correction of different deformities, orthognathic surgery or orthodontic treatment, malformations or posttraumatic disfigurements in Saudi adults.

Conflict of Interest

The authors and planners have disclosed no potential conflicts of interest, financial or otherwise.

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