



Full Length Research Article

EVALUATION OF TEMPOROMANDIBULAR JOINT DISORDERS IN PARTIALLY EDENTULOUS PATIENTS

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ABSTRACT

Background: Temporomandibular disorders (TMD) are a collective term given to a number of clinical problems that involve the masticatory musculature, the temporomandibular joints and associated structures, or both. Aim: to assess various TMJ dysfunction signs among the partially edentulous patients.

Methodology: Temporomandibular disorders investigation was performed on 300 partially edentulous individuals, (162 females and 138 males) aged between 25-60 years, the study conducted by clinical examination of temporomandibular joint and associated structure.

Result: Among 300 subjects; 94 (31.33%) patient suffer from one or more signs of TMDs. Female showed more TMJ dysfunction signs. Clicking were most common sign (62.7%), TMJ pain was (54.2%), reduced mouth opening was (27.6%), masticatory muscle pain (17%), and mandibular deviation on mouth opening was (14.89%) of patients.

Conclusion: There is a relation between TMJ dysfunction and partial edentulism, females had a higher prevalence of TMJ dysfunction signs than males, as well as the span and time of edentulousness.

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INTRODUCTION

Temporomandibular disorders (TMD) are defined by the American Academy of Orofacial Pain as “a collective term that embraces a number of clinical problems that involve the masticatory muscles, the TMJ [temporomandibular joint], and the associated structures.” (Temporomandibular disorders, 2008) Temporomandibular disorders TMDs are recognized as the most common chronic orofacial pain condition confronting dentists and other health care providers (Dwarkim *et al.*, 1990). In terms of relation between TMDs and age, high prevalence of such signs and symptoms have reported among adults (Melkino, 1974) Different movements created by the supporting tissues – teeth and mucosa made the designing of a free-end removable partial denture, a complex matter. Thus, the larger the edentulous area, the greater the saddle movement will be and the greater the torque on the abutment teeth (Feingold *et al.*, 1986).

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Therefore, when back teeth are lost, the effect on the stomatognathic system gives rise to contradictory opinions (Kayser, 1981). Edentulous persons who have had long standing edentulous period and have not worn any dentures. In spite of the overclosure of edentulous jaws during mastication they seldom develop Temporomandibular Joint disorders. Likewise patients having complete dentures with reduced vertical dimension generally do not manifest Temporomandibular Joint problems. It is not understood as to why the closure of jaws in edentulous individuals can predispose to Temporomandibular Joint problems, while the same etiology in edentulous subjects does not cause any concern (Costen, 1934). There are conflicting figures related to the incidence of the signs and symptoms of TMD in relation to partial edentulism. Epidemiological surveys reported that 50-70% of population have signs of a disorder at some stage during their life. Whereas an estimated 20-25% of population have symptoms of a TMD. However, those who seek treatments represent approximately 2-7% of the population (Carlsson, 1999). A higher figure of TMD sign in dentate individuals were seen when compared with completely

edentulous patient (Choy and Smith, 1980). The aim of this study is to assess various TMJ dysfunction signs among the partially edentulous patient, also to determine the association between TMJ dysfunction signs, edentulous span and its location.

Subject and Method

The present cross-sectional study was conducted on 300 (162 females and 138 males) subjects that were selected from a group of population of sulaimani city. Those individuals having partially edentulism for at least one year and more. And their age range between 25-60 years, with no previous history of trauma or muscle disorder. The clinical investigation were carried out with the help of a mouth mirror, a metal ruler and a stethoscope. Clicking or crepitation were assessed with a stethoscope. Deviation along the opening path of mandible was stated if it was 2 mm or more horizontally (Melkino, 1974). The TMJs were palpated on both sides laterally and posteriorly throw external auditory meatuses. Masticatory muscles were examined by digital palpation. The maximum jaw opening was measured using a millimeter scale, less than 40 mm was regarded as reduced opening capacity (Okasan, 1985). The patient examined intra orally to discover whether the missing tooth or teeth is anterior or posterior, and whether the posterior missing teeth is unilaterally or bilaterally (Garcia et al., 2008).

RESULTS

The results of this study showed that out of 300 patients that included the criteria of this study were 206 (68.66%) did not have any signs of temporomandibular disorders, while 94 (31.33) patients had one or more signs of temporomandibular joint disorders. Table 1 shows the frequency of TMJ dysfunction signs, in which clicking sound counted the most common sign in 59 (62.7%) of patients. TMJ pain was found in 51(54.2%) of patients, reduced mouth opening was found in 26(27.6%) of patients, masticatory muscle pain was in 16(17%)of patients, and mandibular deviation on mouth opening was found in 14(14.89%) of patients. Also table 1 demonstrates that various TMJ dysfunction signs in relation to gender, which shows that, female were more prone to TMJ dysfunction. Table 2 shows the TMJ dysfunction signs in relation to duration of edentulous span. Temporomandibular joint dysfunction signs were more common in individuals how were edentulous for more than three years. Table 3 showed that TMDs were found in patient with unilateral edentulism were more than bilateral edentulous patient. Joint pain has been reported more frequently on the side with most missing teeth. And increased risk of joint disorders were found in subjects without any molar support.

Table 1. distribution of objective signs according to gender that having one or more disorders

Disorder	Male	Female	Total
Clicking	23	36	59
TMJ pain	22	29	51
Reduced opening	15	11	26
Masticatory muscle pain	7	9	16
Deviation with mouth opening	6	8	14

Table 2. Various TMD signs in relation to duration of edentulous span

Edentulous span	Male	Female
<3 years	11	20
>3 years	25	38

Table 3. various TMD signs in relation to edentulous type

Edentulous type	Male	Female
Unilateral	20	39
Bilateral	16	19

DISCUSSION

It has been documented that patients with few remaining natural teeth may have a higher incidence of TMJ dysfunction signs (Agerberg, 1972). However there is no sufficient evidence of association between TMJ dysfunction and partially edentulism (Pullinger et al., 1990). In this study total 300 individual were examined among them 162 female and 138 male, this study have found more frequent TMJ dysfunction signs in female than in male. And this supported by (Hiltunem et al., 2003), (Shet et al., 2013). This has been interpreted as a reflect of biological, psychological, and hormonal differences between two groups (Dao and Le Resche, 2000). There are other epidemiological surveys show that sign and symptom of TMJ dysfunction are present in both sexes in equal proportion (Grey et al., 1994). The most common sign in this study was TMJ clicking, this is in agreement with other studies (Costen, 1934), and TMJ pain was the second most common sign this disagrees with study carried out by (Carlsson). This study shows high prevalence of TMJ dysfunction signs in individuals with edentulous span of more than 3 years. This is in agreement with (Shet et al., 2013). This study showed that the higher incidence of TMJ dysfunction signs was found in unilateral partially edentulous patients in the edentulous side, this finding is in agreement with (Pullinger et al., 1993). Also in agreement with (Mohl et al., 1988) who stated that the absence of posterior support result in overloading of TMJ structures.

Conclusion

The present study showed that there is an association between temporomandibular joint dysfunction and partial edentulism, the incidence and intensity of TMDs higher in the edentulous side, also individuals with long duration of edentulous span shows higher range of TMDs. Females found more prone to TMDs than males.

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