

Temporomandibular Joint Dysfunction: From Risk Factors To Prevention

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Abstract

Background: Temporomandibular joint dysfunction (TMJD) is widespread. About 60-70% of the general population is aware of symptoms. Aim of the study is to investigate the main risk factors involved in TMJD.

Methods: 68 consecutive patients admitted for surgical procedures were enrolled. Before surgical procedure, they were clinically evaluated for TMJD, according to accepted criteria. A logistic regression model step-wise was used to evaluate the correlation between single risk factors and TMJD.

Results: 47 out of 68 patient (69.12%) presented at least one sign or symptom of TMJD. Among all evaluated risk factors, only the presence of dental caries was significantly associated with TMJD (OR=6.13; $p<0.05$).

Conclusions: Dental caries, inappropriate caries obturations and/or caries mistreated by reconstructive materials may lead to occlusal disorder, one of the most common factors involved in the pathogenesis of TMJD.

Clinical Implications: Our data suggest a major role of the dentist in the prevention and treatment of TMJD.

INTRODUCTION

Temporomandibular joint dysfunction (TMJD) is a collective term used to describe a number of related disorders involving the TMJ, masticatory muscles, and associated structures.

The three cardinal features of temporomandibular disorders are orofacial pain, joint noises, and restricted jaw function.

About 60-70% of the general population has at least one sign of TMJD, yet only one out of four individuals with these signs is actually aware of them, or reports any symptom.¹

The aetiology and the risk factors of the most common types of temporomandibular disorders are complex and are still largely unresolved.^{2,3,4,5,6,7,8,9,10,11,12}

MATERIALS AND METHODS

The purpose of this study was to investigate the main risk factors of TMJD in a study group population.

68 consecutive patients (41 F; 27 M; mean age: 51, range:

35-60), admitted for surgical procedures at the "Campus Bio-Medico University" of Rome between November and December 2002, were enrolled. Informed consent was obtained from all subjects who participated in the study. Before surgical procedure, all patients were evaluated for possible TMJD by history and clinical examination. The most important risk factors, according to the medical literature (2), were evaluated (Table 1).

Figure 1

Table 1: Risk factors of temporomandibular joint dysfunction

Risk Factors	Questions
Facial Trauma	Have you ever been hit, had a car accident, a sports injury or other accident where you received a hard blow or bang to your jaw or face?
Orthodontic Treatment	Have you ever used orthodontic appliances?
Molar Removal or Recent Dental Treatment	Have you been recently submitted to dental treatment?
Articular Pathologies	Do you suffer from any articular pathology such as rheumatoid arthritis, spondylarthritis, osteoporosis, athrosis, etc.?
Caries	Do you suffer from caries? Have you recently undergone dental treatment for caries? Have you got obturations for previous caries?
Dental Prosthesis	Do you use dental prostheses?
Clenching	Do you hold your teeth together, even lightly, or clench your jaw?

RESULTS

47 out of 68 patients (69.12%) presented at least one sign or symptom of TMJD (Table 2). The prevalence of risk factors among the study population is shown in Table 3.

Using a logistic regression model step-wise to evaluate the correlation between single risk factors and TMJD, only the presence of dental caries was significantly associated with TMJD (OR=6.13; $p<0.05$).

Figure 2

Table 2: TMJD signs and symptoms in the study population

TMJD signs and symptoms	Cases (%)	[95% Conf. Interval]
Impaired movement of the mandible	17/55 (30.91)	[19.14%-44.81%]
Headaches and jaw pain on function	25/55 (45.45)	[31.97%-59.45%]
TMJ sounds	26/55 (47.27)	[33.65%-61.29%]

Figure 3

Table 3: Frequency of TMJD risk factors among the study population

RISK FACTORS	Number of TMJD patients (%) [95% Conf. Interval]	Number of non-TMJD patients (%) [95% Conf. Interval]
Facial Trauma	8.33 [0.22%-16.44%]	9.09 [1.01%-22.14%]
Orthodontic Treatment	27.08 [14.04%-40.12%]	45.45 [22.86%-68.05%]
Articular Pathologies	22.92 [10.58%-35.25%]	22.73 [3.71%-41.75%]
Molar Removal or Recent Dental Treatment	31.25 [17.65%-44.85%]	13.64 [1.94%-29.21%]
Caries	47.92 [33.26%-62.58%]	13.64 [1.94%-29.21%]

DISCUSSION

Temporomandibular joint disorder embraces a number of clinical problems involving the masticatory musculature, temporomandibular joint and associated structures.¹ Therefore a multidisciplinary approach is necessary when treating patients affected by TMJD.

Dental caries, as much as inappropriate caries obturations and/or caries mistreated by reconstructive materials (metallic and composite) are possible causes of occlusal disorder, one of the most common factors involved in the pathogenesis of TMJD.¹⁰

Our experience suggests a major role of the dentist in the prevention of TMJD. In particular, an appropriate management of caries helps preventing TMJD; the healing effect is probably attributed to stabilization of the occlusion, redistribution of occlusal forces, and reduction of joint loading.⁹

CONCLUSIONS

Preventing TMJD is of a great importance, since the treatment of a well established TMJ impairment is frequently unsuccessful and its related symptoms, such as tinnitus and dizziness¹³, often affect patient's quality of life¹⁴ and represent an additional cost to society.¹⁵

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