

Influence of Psychopathologies on Craniomandibular Disorders

Priscila Pitta PENNA
Mário RECUPERO
Carlos GIL

Department of Prosthodontics, Dental School, University of São Paulo, São Paulo, SP, Brazil

Psychopathologies play a role in the etiology and maintenance of craniomandibular disorders (CMD). In this study, the craniomandibular index was applied to evaluate signs and symptoms of CMD in 60 dentate patients, who were assigned to 2 groups: symptomatic (n=35) and asymptomatic (n=25). An interview on psychopathologies was carried out with the aim to detect the presence of some mood disorders, such as depression, dysthymic and bipolar I disorders. Among these disturbances, depression was the most significant aspect to be reported ($p<0.05$) since it was present in most symptomatic patients. This important interaction was also significantly correlated ($p<0.05$) with the Palpation Index. These results suggest that psychopathological aspects could increase muscle tenderness and pain in addition to sleep dysfunctions and other physical complaints. Therefore, psychopathologies should be regarded as an important aspect in patients with orofacial pains.

Key Words: craniomandibular disorders, psychopathologies, mood disorders.

INTRODUCTION

Craniomandibular disorders (CMD) are considered as a result of changes in the stomatognathic system involving the masticatory muscles, as well as the cervical muscles that are responsible for the head postural position and/or temporomandibular joint (TMJ). All these anatomic structures may be subjected to morphological alterations that occur as an adaptative response to eventual modifications in the functionality of the masticatory system (1,2).

Such modifications may be caused by occlusal disturbances due to loss of teeth, presence of premature contacts or other interferences leading to a mandible unstabilization against the maxilla, originating eccentric positions and movements (3-5). Moreover, situations of personal emotional stress of varied origin may also be the underlying cause of muscle tenderness and/or pain, often related with orofacial parafunctional habits and/or gnashing of teeth (6-9).

The individual response to an external stimulus

could be considered as extremely particular and related to the development of some psychopathologies such as depression, anxiety and adjustment disorders (9-11). These disturbances could cause either mental or physical alterations, represented by changes in mood, appetite, stress, fatigue, psychomotor agitation, irritability, sleeping dysfunctions, and muscle tenderness, among other characteristic symptoms (12).

Psychopathologies can lead to an increase of somatic tension, which could, in turn, be the cause of development or increase of orofacial painful symptoms (7,9,13). Therefore, it could be expected that patients presenting both abnormal occlusion and psychopathologies would be more frequently subjected to development of orofacial disorders, including the cases of chronic pain (1,3-5).

Based on these considerations, the purpose of the present study was to determine the existence of a relationship between some psychopathological disturbances and the occurrence of painful symptoms in the orofacial region.

MATERIAL AND METHODS

Sixty individuals (mean age = 33 years) were selected. All patients presented normal occlusion with complete dentition or short fixed partial dentures, good periodontal health, absence of active carious lesions, occasional presence of small diastemas, absence of open bite, anterior and posterior crossbite or any other characteristic related to evident malocclusion.

The individuals were divided according to the presence or lack of CMD signs and symptoms, thus forming an asymptomatic control group (n=25) and a symptomatic group (n=35). Men and women were equally represented in the control group, while women represented 80% of the symptomatic group.

CMD signs and symptoms were identified by applying the Craniomandibular Index (CMI) (14). It represents the sum of the Dysfunction Index (DI), which includes items related to limits in range of motion, deviation and/or pain in movement, TMJ noise during movement, and TMJ tenderness, with the Palpation Index (PI), which reflects muscle tenderness at distinct anatomical sites during intra-oral palpation of jaw muscles and extraoral palpation of jaw and neck muscles.

Further analysis of psychopathologies was made by clinical interviews elaborated following the 4th edition of the Manual of Statistics and Diagnosis of Mental Disorders (SCID). This psychiatric test allows the detection of a depressive disorder (major depressive episode), a bipolar I disorder and/or a dysthymic disorder (12).

Data were analyzed statistically by Mann-Whitney

and Student's t tests at a significance level of 5%.

RESULTS

As shown in Table 1, the manifestation of an existing major depressive episode was positively correlated with the symptomatic group ($p < 0.05$; non-parametric Mann-Whitney test). Likewise, depression was significantly ($p < 0.001$) associated with the Palpation Index (PI = 0.664), and also with the Craniomandibular Index (CMI = 0.486) (Table 2; Student's t test). On the other hand, past depression reports showed no significant correlation (Tables 1 and 2) with CMD.

Table 1. Comparison between symptomatic (pain) and asymptomatic (no pain) groups, regarding the presence of psychopathologies (mood disorders).

Groups	Depression	Past depression	Dysthymic disorder	Bipolar I disorder
Pain (n=35)	10 28.6%	14 40.0%	4 11.4%	1 2.9%
No pain (n=25)	0 0.0%	5 20.0%	0 0.0%	0 0.0%
p value	0.004	0.103	0.083	0.398

Table 2. Comparison of psychopathologies (mood disorders) according to dysfunction index (DI), palpation index (PI) and craniomandibular index (CMI).

Variable	Depression	Past depression	Dysthymic disorder	Bipolar I disorder
	n=10	n=19	n=4	n=1
Mean value	DI 0.308	0.233	0.346	0.423
	PI 0.664	0.443	0.653	0.917
	CMI 0.486	0.324	0.4995	0.670
p value	DI 0.019	0.227	0.063	0.176
	PI < 0.001	0.158	0.043	0.060
	CMI < 0.001	0.127	0.038	0.089

Dysthymic disorder was positively ($p < 0.05$) associated with PI and CMI (Table 2). Although present only in the symptomatic group (Table 1), dysthymia did not reach a significant level ($p = 0.083$). Another psychiatric disorder, the bipolar I disorder, demonstrated significantly higher scores for signs and symptoms of CMD (Table 2), but this disturbance was not common ($n = 1$; Table 1).

DISCUSSION

Mood disorders are clinical manifestations of major depressive episodes such as dysthymic and bipolar I disorders (alternate co-existence between depression and manic) (12). According to the results (Table 1), by analyzing the sample as a whole, the current major depressive episode demonstrated an extremely significant relationship ($p < 0.001$) with the CMD. This condition of mood disorders was statistically significant only in the symptomatic group ($p < 0.005$) where as many as 28.6% of the patients presented this kind of psychopathology and were suffering from depression that persisted at least 15 days in a row throughout long-lasting periods (7-9,15,16).

During the psychical tests (SCID) these patients reported 5 or more characteristic symptoms of major depressive episodes such as the permanent presence of a depressed mood during most part of the day, and markedly diminished interest in once considered pleasant activities. Other reported symptoms were either gain or natural loss of weight, insomnia or hypersomnia, psychomotor agitation or retardation, fatigue or loss of energy, feelings of either worthlessness or inappropriate guilt, diminished ability of thinking or attentiveness, indecisiveness, as well as recurrent thoughts of death. In more serious cases, it is expected that these symptoms have an impact on the social and occupational activities in important areas of the individuals' personal lives (12). On this regard, it was observed that, by interfering with basic physiological functions like nutrition, and probable lack of appetite and sleep, depression would generally harm these patients health (11,13). The insomnia usually reported by the patients during their major depressive episodes could result in impairment of the immunological and restoring functions of the organism, since some important substances with a role in these functions are known to be released during sleep (9,16-18).

All together, the negative effects of mood dis-

orders, which interfere with the individual's physical, mental and social balance, and consequently originate psychological stress, would establish a vicious cycle, where sensibility to pain, and its intensity and severity, would be augmented as to take over the daily life of these persons (11,13,14). The resulting increase of emotional stress, reflected as anxiety associated with depression, would contribute to the maintenance of the pain, then closing the vicious cycle (7,8,15,16,19).

The analysis of PI in depressive patients did reveal high levels of somatization (Table 2) as well as the occurrence of bipolar I disturbance, a mental disorder marked by alternating extremes of excitement and depression (Table 2). In comparison to the control group, the patients with a major depressive episode ($n = 10$) presented an exacerbation of muscle tenderness and pain ($p < 0.001$), and high mean PI (approximately 0.664) (Table 2). Likewise, bipolar I disturbance, although occurring less frequently than depression ($n = 1$), presented the highest PI (Table 2). It is interesting to point out that all patients suffering from depression and bipolar I disturbance, also presented a related symptom of anxiety. Nevertheless, this anxiety cannot be regarded as the main psychopathology, since it would be a result of the emotional distress generated by depression associated with physical and psychosocial complains (12). This scenario arose from detailed analysis of the patient's data collected during the psychiatric tests, necessary to diagnose the current psychopathologies.

Therefore, the high PI would be the clinical representation of the emotional distress, originated by a depressive disorder somatized in the jaw and neck muscles, which could in turn result in tension headache (7,8,11,13,17). This information depicted from the present study gains force with data collected by other authors relating depression with CMD of muscular origin, and not with articular problems (2,9,15,20).

This relation would be better understood comparing the DI in Table 2, which reflects TMJ tenderness and functioning problems (14). According to Table 2, depression presents a significant association ($p < 0.05$) with DI. However, its association with the etiology of articular problems could not be confirmed, once they usually involve TMJ morphological alterations, sometimes permanent (1,2,9,20). Therefore, in order to establish a relation between depression and DI, the patients with past experienced depression should present a statically significant DI, which do not occur ($p > 0.05$) (Table 2).

In the same way, data on Table 2 show that past major depressive episodes did not have an important relation either ($p>0.05$) with the development of muscle pain symptoms concerning CMD. Even so, the past major depressive episodes may play an important role in the etiology of psychopathologies, since regardless the presence of symptoms, as many as 68% of the patients reporting priory depression experiences also presented current psychopathology by the time of this survey (11,15,19).

This analysis confirms the need of investigating past depressive episodes as a factor that could expose some subjects to future psychopathologies. This would occur due to permanent biological alterations in their brains, making them vulnerable to external stressing agents (12).

The depressive disorder consists of strong manifestation of depression symptoms. However, we have a dysthymic disturbance when these symptoms appear in a milder and chronic way, lasting for years. In this study, the dysthymic disorder was positively although weakly associated with CMD (Table 1). Nonetheless, the coexistence of this disturbance with a major depressive episode could be considered as very common, and so resulting in a double depression, generally leading to a bad diagnosis (12).

In the present study, the general sampling showed the presence of dysthymia in 6.7% of the patients that were sensitive to CMD, presenting a statistically significant association with CMI ($p<0.05$) (Table 2). Despite finding a positive correlation between PI and CMI with dysthymic disorder (Table 2), the only feasible conclusion is that these patients would probably present a CDM chronic manifestation. This conclusion is based on the data presented herein concerning the influence exerted by depression on CMD painful symptoms (Table 2). Therefore, a chronic manifestation of typical depression symptoms together with anxiety would be associated with the occurrence of long-lasting pain (11,15,19). This clinical condition could harm the stomatognathic system, as observed in the patients in this study by their high mean DI (Table 2).

Overall, the findings of this study suggest that the presence of a major depressive episode is strongly correlated with the increase of muscle painful tenderness in patients with CMD symptoms. Furthermore, the other psychopathologies evaluated in the present study, namely dysthymic and bipolar I disorders, showed a

direct influence on the CMI values.

RESUMO

Os transtornos psíquicos podem desempenhar um importante papel na etiologia e manutenção das desordens craniomandibulares (DCM). Desta forma, neste estudo, foi aplicado o índice craniomandibular (ICM), o qual permite detectar a presença de sinais e sintomas de DCM em 60 pacientes totalmente dentados. Estes pacientes foram divididos em dois grupos: sintomáticos ($n=35$) e assintomáticos ($n=25$). Um teste psiquiátrico foi administrado para diagnosticar patologias psíquicas pertencentes ao DSM-IV, como a depressão e os transtornos distímico e bipolar I. Das patologias psíquicas relacionadas aos transtornos de humor, a depressão mostrou uma relação estatisticamente significativa ($p<0,05$) com os pacientes sintomáticos para DCM. Ao analisar o índice de palpação separadamente, essa relação se manteve significativa ($p<0,05$) numa escala crescente de valores, demonstrando a ação destes transtornos sobre a sintomatologia dolorosa muscular. Assim sendo, os transtornos mentais exerceriam uma influência considerável na etiologia da DCM, na medida em que potencializariam a dor. Isso ocorreria em função do aumento da tensão muscular, dos distúrbios do sono e de outras alterações fisiológicas advindas destes transtornos.

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