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EVALUATION OF PSYCHOSOCIAL ASPECTS IN PATIENTS WITH TMD: CATASTROPHIC PAIN, ANXIETY AND DEPRESSION - LITERATURE REVIEW

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ABSTRACT

The temporomandibular joint (TMJ) is certainly one of the most complex joints of the human body and, as part of the stomatognathic system, is directly related to general physiological functions. It is a structure that undergoes continuous structural changes, being able to be by modeling or bone remodeling and are responsible for the adaptation of the articular tissue in front of the continuous forces that act on this one. Thus, the surgeon-dentist must be aware of the involvement of psychological, emotional and social factors in these patients, since many organic symptoms have an emotional substrate. It can be said that most of the symptoms of TMD are of a mild nature, fluctuate over time and do not constitute functional impotence for patient. However, some individuals evolve to chronic pain and tend to potentiate pain perception at the expense of unfavorable emotional manifestations.

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INTRODUCTION

The temporomandibular joint (TMJ) is certainly one of the most complex joints of the human body and, as part of the stomatognathic system, is directly related to general physiological functions. It interconnects independent tissues, maintaining the efficiency of movements and stability of the mandible, is responsible for masticatory movements and functional activities, such as talking, chewing and swallowing, in addition to parafunctional activities, which escape its normal functioning, are performed without a specific objective and unconsciously (1). It is a structure that undergoes continuous structural changes, being able to be by modeling or bone remodeling and are responsible for the adaptation of the articular tissue in front of the continuous forces that act on this one. When changes exceed the physiological limit of this joint, of the associated muscles and tissues, situations represented in the form of pain, alteration and / or movement restriction, lead to the clinical picture that we call Temporomandibular Disorders (TMD) (1,2). The American Academy of Orofacial Pain defines TMD as a set of disorders involving masticatory muscles, TMJ and associated structures. It is also pointed out as the main cause of non-dental pain in the orofacial region, including head, face and related structures (3). Pain from these regions is considered musculoskeletal, and may be of muscular origin, joint origin or both (mixed TMD). The term TMD is generic and involves several subgroups of musculoskeletal pain, whether acute or chronic, often related to mandibular activity (3,4). Thus, the surgeon-dentist must be aware of the involvement of psychological, emotional and social factors in these patients, since many organic symptoms have an emotional substrate (10). It can be said that most of the symptoms of TMD are of a mild nature, fluctuate over time and do not constitute functional impotence for patients (11).

However, some individuals evolve to chronic pain and tend to potentiate pain perception at the expense of unfavorable emotional manifestations (12,13).

METHODS

Experimental and clinical studies were included (case reports, retrospective, prospective and randomized trials) with qualitative and / or quantitative analysis. Initially, the key words were determined by searching the DeCS tool (Descriptors in Health Sciences, BIREME base) and later verified and validated by MeSh system (Medical Subject Headings, the US National Library of Medicine) in order to achieve consistent search.

Mesh Terms

The words were included. For further specification, the "Psychosocial aspects; Tempero-mandibular dysfunction; Catastrophic Pain, Anxiety and Depression." description for refinement was added during searches. The literature search was conducted through online databases: Pubmed, Periodicos.com and Google Scholar. It was stipulated deadline, and the related search covering all available literature on virtual libraries.

Series of Articles and Eligibility

A total of 125 articles were found involving temporomandibular dysfunction. Initially, it was held the exclusion existing title and duplications in accordance with the interest described this work. After this process, the summaries were evaluated and a new exclusion was held. A total of 96 articles were evaluated in full, and 83 were included and discussed in this study.

Literature Review

Orofacial pain is considered a significant group of disorders characterized by the presence of pain between the orbitomeatal line and the inferior margin of the anterior triangle of the neck. It includes conditions that appear in high prevalence in the general population, such as pulpal or periodontal processes, sinusitis, trigeminal neuralgia, muscle pain and temporomandibular disorders (TMD) (2,3). Some authors consider chronic pain, those that persist for more than 12 months (4,5). However, the International Association for the Study of Pain (IASP, 1986) advocates that pain is considered chronic when it persists for at least 3 to 6 months, which is widely followed in clinical research (5,6). One of the frequently found subtypes of Orofacial Pain, TMD, is defined according to the American Dental Association (ADA), as a result of changes affecting temporomandibular joint (TMJ), masticatory muscles and / or associated structures (6-9 , 15-19), being manifested as pain in the pre-auricular region, the temporomandibular joint or the masticatory muscles, limitation or deviation of mandibular movements, articular noises during mandibular function and palpation (20-26).

DTM is one of the main causes of non-dental pain in the orofacial region. Some epidemiological studies show that TMD affects 10% to 15% of the adult population (27-32), with a higher incidence in women between the ages of 20 and 40 years (33,34), occupying the third place in the prevalence of chronic pain after headache and neck pain.

Other studies show that the three main clinical indicators of TMD (pain, limitations in opening of the jaw and joint noises) are present in 5 to 50% of the population at any particular moment of their lives, but they are not always related to the presence of dysfunction (35). TMD is understood as an entity belonging to multisystem problems, with overlapping comorbidities of physical signs and symptoms, as well as behavioral changes in the emotional environment and in social interactions recognized as manifestations of central nervous system dysregulation (37-41), capable of generate health expenditures of up to 60% more than normal subjects (42,43), affecting the subject's quality of life in relation to psychological or social / financial aspects (44-48).

Studies in Brazil have evaluated the impact of orofacial pain on the quality of life of patients with temporomandibular disorder (TMD). For that, 83 individuals, of both genders, ranging from 15 to 70 years of age, were evaluated of orofacial pain compatible with TMD (49-53). Patients were interviewed by a single examiner using the OHIP 14 form, which was calculated by the standard method, assigning specific weights to each question (54-57). The OHIP 14, which can present values between 0 and 28, presented a variation from 0 to 23,24 points and an average of 11.44 points. The OHIP 14 dimensions that presented the highest averages were physical pain and psychological discomfort (2.66 and 2.60), respectively (58-62). The lowest averages were 1.02 and 1.08, corresponding respectively to the functional limitations and disability dimensions. Only in the functional limitations dimension, women had a significantly higher impact on quality of life than men (63-65). Patients with group I (muscle) and group III (arthralgia, arthritis and arthrosis) disorders of the RDC / TMD index presented greater impacts on quality of life than patients who did not present these diagnoses. Patients with diagnosis of group II (disc displacement) reported impact on quality of life similar to those without disc displacement. Therefore, the author concluded that orofacial pain was capable of generating a great impact on the quality of life of patients with TMD (66-69).

In addition, it is known that chronic pain generates costs, sometimes high, for both the patient and the public health service. They underwent a randomized clinical trial to assess the cost of a biopsychosocial intervention with patients who were at high risk of progressing from acute pain to chronic TMD (70-73). 96 patients with acute TMD (duration less than six months), with the risk of progression according to the predictive and randomized algorithm for early intervention (IP (patients undergoing chiropractic treatment, massage therapists, physician, oral surgeon, physiotherapist, or ophthalmologist)) or non-intervention (NI) in the group (73). The NI group received biopsychosocial treatment, which includes cognitive training of behavioral skills and biofeedback. During one year, the groups were followed up and DTM cost data were collected. In terms of values (dollars) spent on health care related to treatment with pain in the jaw region, only the PI group presented a significant reduction compared to the first visit (768.27 average / dollars until the one-year follow-up visit (131.67 mean The authors suggest that a biopsychosocial intervention is an effective method of treating TMD-related pain, which often involves high and unnecessary costs. It is now believed that stress is the sum of biological reactions to any adverse physical, mental, emotional, internal or external stimulus that tends to disrupt the body's homeostasis. Pain in the temporomandibular region

and chronic pain related to TMDs (78-80). They are more prevalent in young adults, who show high levels of somatic symptomatology and decrease in frequency in the elderly (81). Neither recent norms have shown that there is an interference of emotional factors in the TMD symptomatology. The study by Okino *et al*. (53) evaluated 48 patients diagnosed with TMD and observed that 89.6% of these patients required psychological care, leading to the belief that there is a strong relationship between psychological aspects and chronic pain such as TMD. Others published a study where the group of younger patients (18-35 years) showed a higher incidence of chronic orofacial pain when compared to the older group (64-75 years). This can be explained by the difference caused by the difference in pain perception at different ages (75-79). There is a strong relationship between the degree of disability caused by pain in patients with TMD and the levels of depression and somatization, and the patients who are most incapacitated by pain are those with the highest levels of depression and somatization (80).

Contrary studies also found no coefficient of interaction between the scales used to measure chronic pain, somatization, and depression (81). Similarly, the duration of pain for more than or less than six months did not influence the degree of depression or somatization, only the level of pain-related disability was influenced, demonstrating that chronic pain becomes more incapacitating with time, being more patients with more than 6 months of pain were incapacitated when compared to patients with pain less time, through the application of specific questionnaires in 207 patients diagnosed with TMD. These aspects were analyzed in isolation in patients with chronic TMD and patients with acute TMD (81).When analyzed in a multidimensional manner, depression, anxiety, somatization and comorbidities presented significant differences between the pain groups, as well as depression and somatization alone. No significant differences were found for anxiety and comorbidities alone, suggesting that both may influence pain processes with less expression than depression and somatization processes (82). Psychosocial factors were associated with chronic pain in general and TMD. 1633 control subjects and 185 TMD patients were evaluated through several instruments, evaluating personality, affective suffering, psychosocial stress, somatic awareness, catastrophic and pain coping, so that the probability of the onset of TMD was associated with higher levels of alterations psychosocial, affective distress, catastrophic and somatic pain awareness (1-4). The authors concluded that psychosocial factors are significantly present in TMD subjects when compared to controls, but future prospective analyzes will determine whether the presence of these factors predicts an increased risk of developing TMD (4-7).

As early as 2013, the same author researched the risk factors for TMD and, also if catastrophic, perceived stress and previous negative experiences predicted the onset of TMD. The authors found that general psychological and somatic symptoms (somatization, hypochondriasis, hypervigilance and somatic perception) were considered the greatest predictors of TMD. The presence of general psychological and somatic symptomatology was the major predisposing factor for the appearance of TMD in the two younger groups studied (18-24 years and 25-34 years). However, the oldest group (35-44 years) was the group with the highest incidence of TMD. Stress and negative psychological conditions only reached the level of significance in the appearance of TMDs in situations where general psychological and somatic symptoms were low but not moderate or high. These results indicate that stress and negative psychological conditions are potential risk factors for the onset of TMD, only in the absence of global symptomatology (5,6). One study evaluated the association between psychological and socio-demographic factors (somatization, depression, stress, anxiety, daytime sleepiness, optimism, gender and age) and pain in patients with TMD, through the follow-up of 320 patients. The psychological status of each patient was assessed with questionnaires, including the Symptom Checklist-90 (SCL-90), Epworth Sleeping Scale (ESS), stress questionnaire and Life-Orientation Test-Revised (LOT-R). Pain related to TMD, including pain-related disability intensity, was assessed with characteristicpainintensity (CPI) and disability score scales. The level of pain intensity was significantly associated with severe anxiety ($p = 0.004$), more severe somatization ($p < 0.001$), severe depression ($P < 0.001$), higher levels of stress ($P = 0.001$), and lower optimism ($P = 0.025$). However, a multiple regression analysis showed that only somatization was significantly associated with pain intensity ($p < 0.001$). Concerning the level of pain-related disability, this was significantly associated with severe anxiety ($p < 0.001$), severe somatization ($p < 0.001$), severe depression ($p < 0001$), high stress levels ($p < 0.001$), and optimism ($p = 0.003$). However, in multiple regression analysis, only depression was significantly associated with pain-related disability ($p = 0.003$). Among the psychological and sociodemographic factors in this study, somatization was the greatest predictor of pain intensity, whereas depression was the greatest predictor of pain-related disability (7).

In addition, studies show that suicidal thoughts are also present in patients with TMD, such as where 1241 patients diagnosed with muscle or joint TMD were evaluated by specific demographic and psychometric instruments for association with suicidal ideation, depression and anxiety. The prevalence of suicidal ideation was 8.4% for "thoughts of ending their life", 28.5% for "feeling hopeless about the future" and 20.5% for "having thoughts of death". The overall prevalence of depression was 30.4% and the overall prevalence of anxiety was 28.9%. Patients with muscular TMD had the highest prevalence of suicidal ideation, just as they were more depressed and anxious than patients with joint TMD and mixed TMD. To conclude, the authors emphasized the need for follow-up of these patients with chronic TMD and suicidal ideals, in addition to other comorbidities associated with TMD (8). A study in China assessed the relationship between psychic suffering and TMD, as well as sleep disorders and psychological distress as predictors of risk for such dysfunction. A number of specific instruments were used to assess the 755 patients with participating TMDs who were divided according to the RDC / TMD diagnostic groups. The prevalence of moderate to extremely severe psychological distress and psychological distress was significantly higher in the myofascial pain group (27.1%, 28.7%, 60.8% and 32.0%) than in the non-myofascial pain group (disc displacement and arthralgia or degenerative joint disease, 11.1%, 10.1%, 27.4% and 11.0%, $p < 0.05$). Self-reported sleep disturbance and psychological distress was significantly higher in patients with myofascial pain than those without myofascial pain ($p < 0.05$) (12). A progressive analysis of the logistic regression showed that subjective sleep quality and sleep disturbance, anxiety and stress were possible risk indicators for myofascial pain and the

results were still significant, even after controlling for age, sex, level ($p < 0.05$), respectively ($P < 0.05$).

DISCUSSION

The temporomandibular joint (TMJ), as part of the stomatognathic system, is considered a complex joint of the human body, being responsible for stability. When changes arise, the physiological limit can lead to pain, alteration and / or movement restriction, generating a clinical condition called Temporomandibular Disorders (TMD) (14). The American Academy of Orofacial Pain defines TMD as a set of disorders involving masticatory muscles, TMJ and associated structures (15,16). Pain from these regions is considered musculoskeletal, and may be of muscular origin, joint origin or both (mixed TMD). It presents difficult diagnosis, since it has a multifactorial origin, and may be related to postural alterations, muscular hyperactivity, occlusal interference, traumatic and / or degenerative TMJ injuries, psycho-behavioral or psychosocial factors such as anxiety, stress and depression (17-22). It is estimated that the three main clinical indicators of TMD (pain, limitations in jaw opening and joint noise) are present in 5.0 to 50.0% of the population at any particular time in their lives, but they are not always related to the presence of dysfunction (23). Other studies show that 75.0% of the population have at least one TMD signal, the simplest being the lack of coordination in mandibular movements or articular noises and 35.0% at least one symptom, such as the presence of pain in the orofacial region or associated structures , limitation in mandibular movements and difficulty in masticatory function (24). In Brazil, the most recent study regarding the prevalence of these disorders, performed in significant community samples, pointed out a prevalence of 36.2% of painful TMD (27).

Chronic TMD has a considerable negative impact on the psychosocial function and well-being of the subjects involved (40,41), as demonstrated by Barros *et al*. (2009), where the orofacial pain was able to generate a significant impact on the subjects' quality of life (n = 83) assessed through OHIP-14 (mean score = 11.44). In the same way, using OHIP version 49 questionnaires, comparing four different conditions of orthopedic pain: TMD, acute dental pain (DDA), trigeminal neuralgia (NT) and persistent dentoalveolar pain disorder (DPDD) observed that DPDD and TMD had higher levels of impact on quality of life, 69.8 and 62.3, respectively (42). Many explanations for differences in pain with regard to genders have been proposed and supported by evidence ranging from experimental (eg, because women present a different perception of "worse possible pain" than men, which would affect the use of EVA for both in the same study) to sociocultural (referring for example to the moral principles of man, where he must be stronger to tolerate pain) (4) and the purely biological, involving a differentiated activation of the system of endogenous analgesia between men and women and in the central processing of nociceptive stimuli (5). Generally, men demonstrate strong activation of cognitive areas, central sympathetic area and inhibition of the limbic region, while women exhibit great activation of the affective region and autonomic regions (6). Fluctuations in sex hormone levels play a role in pain sensitivity. Estrogen is considered a risk factor for TMD and other conditions of craniofacial pain, and may have peripheral and central action on pain modulation (10-14). The literature suggests that fluctuating levels of this hormone intensifies musculoskeletal pain. In addition, a probable influence of the immune system has been proposed (15). It is still important to relate aspects such as catastrophic pain and kinesiophobia, where studies show that patients with a high tendency to catastrophize pain may present higher levels of kinesiophobia, aggravating the individual's fear and behavior in relation to the condition (4,5) and some authors also observed that catastrophizing and kinesiophobia may, in addition to aggravate, act as predictors of chronic pain (12-15). However, it is believed that more controlled studies with long-term follow-up are necessary, evaluating the causal relationship between the biopsychosocial factors discussed and the painful TMD pictures, even to better describe the role of these factors in the transition between acute and chronic pain.

Conclusion

The involvement of psychosocial factors as predictors, perpetuating and / or aggravating painful TMD pictures seems to be indisputable, and it is necessary to improve the acting professional, to distinguish the biological mechanism of pain and the involvement of these aspects, often involving the performance of a multiprofessional team for diagnosis and treatment of psychosocial factors, seeking success in the treatment for pain relief.

Conflict of interest

There is no conflict of interest between authors.

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