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Analysis of pain and painless symptoms in temporomandibular joints dysfunction in adult patients

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Abstract: Recent years have shown an increase in the number of patients reporting for treatment of pain due to musculoskeletal joint, associated with temporomandibular joint dysfunction. Therefore, studies were undertaken, aimed at analyzing the symptoms of the dysfunction, because of which patients come to the prosthetic treatment.

Aim of the thesis: The aim of the study was a retrospective analysis of symptoms of temporomandibular joint dysfunction reported by patients diagnosed with this problem.

Material and methods: The research material was a retrospective medical records of 120 patients, aged 19 to 45 years who have taken prosthetic treatment due to temporomandibular joint dysfunction in the Consulting Room in Prosthetics Department in Kraków, from June 2015 to December 2016. During the test patients, in addition to interviewing a physician, completed a personal survey in their own study. The material has been divided into I group of patients who reported pain form of dysfunction and II group, who had no symptoms of pain within the stomatognathic system.

The analysis covered type of symptoms, the share of local factors (para-functions) and systemic, as well as the time after which the patients reported for the treatment of functional disorders since the appearance of the first symptoms.

Results and conclusions: Analysis of the research material showed that the main reason for reporting patients was pain in one or both temporal joints of significant intensity (5 to 8 in VAS scale,) accompanied by acoustic symptoms. A large group of questioners reported problems with the range of

jaw movement and head and face pain, as well as subjective symptoms from the auditory, sight, neck, neck and shoulder areas.

Key words: temporomandibular joint dysfunction, temporomandibular joint pain, acoustic symptoms, crackling.

Introduction

The incidence of temporomandibular joint dysfunction among adults is systematically increasing. Pain in the temporomandibular joints is predominant, but they are not the only reason for patients seeking medical help [1–3]. Among symptoms of dysfunction, the dominant group is localized, painless and painless disorders, localized within the face and/or head and distal — located within the neck, shoulder, upper spine, upper extremity and thorax [1–5]. Local pain symptoms of dysfunction may manifest as pain of varying nature and severity and range from the slightest impression of muscularity of the chewing muscles to feelings of intense discomfort [2–4]. Patients most often report feeling tension and / or spontaneous or jaw-induced muscular chewing pain. The temporomandibular joint pain occurs spontaneously at rest or appears during jaw movements. These symptoms may be accompanied by persistent headaches [3], especially in the temporal and occipital areas [4–6]. Stabbing pain is a result of irritation or permanent damage to the proprioceptors located within the temporomandibular joints, caused by compression of the articular head, pathologically advanced to the back of the articular pits [7].

The painless symptoms of temporomandibular joint dysfunction occurring locally are primarily hypertonia of ruminal muscles [8, 9], feeling of stiffness and numbness of muscles, asymmetry of their action and paraesthesia in the area of trigger points. It is also a disorder of the jaw function, especially its limited and abnormal abduction due to dislocation of the joint. This leads to the non-synchronized operation of both temporomandibular joints [10].

Very prominent symptoms are temporomandibular clicks that occur during the abduction and adduction movement of the mandible and occur during protuberance and lateral movement [11, 12]. A click, called the final click, is a single acoustic symptom present in the final phase of the mandibular abduction caused by a anterior dislocation of the joint disk. Clicks called return are characteristic symptoms of disc displacement and may occur in the initial, middle or final phase of lowering and raising the jaw [13].

Clicks is an acoustic symptom that usually occurs in degenerative diseases that occur in the temporo-mandibular joints [14, 15].

The distant symptoms manifest themselves as pain in the neck and upper spine, upper and lower limbs, and even as vegetative and neurological symptoms [16–20]. In advanced states, some patients complain of worsening of their overall mental and physical condition as a result of nagging headache [21, 22], sleep disorders or poor motor coordination [23].

Aim of the study

The aim of retrospective studies was to analyze the symptoms of dysfunction occurring in patients with pain and painless form of temporomandibular joint dysfunction.

Materials and Method

The material of the retrospective studies was the result of a subjective survey of 120 patients aged 19–45, including 105 women and 15 men who reported for prosthetic treatment at the Consulting Room of Temporomandibular Joints Dysfunction, Prosthodontic Department of Jagiellonian University in Kraków, in the period from 1 June 2015 to 31 December 2016.

The results of questionnaire examination as own elaboration (Appendix 1) were divided into two groups: group I — results of studies of patients with pain form of temporomandibular joint dysfunction, and group II are results of patients with a pain-free form.

The questionnaire survey was completed by the patient with the help of a physician. It was used to systematize general health information and symptoms suggestive of functional temporomandibular joint dysfunction. The questionnaire contains information about current health status, systematically taken medications, the reason for the patient to report for treatment, the occurrence of pain in the area of the chewing organ. Questions about pain included the nature, intensity (10-step VAS scale), and the symptoms in the past 12 weeks. Special attention was paid to information about the direction of the radiation and the frequency of occurrence, the factors affecting its intensification or relaxation. The questionnaire also included questions about headaches and other subjective symptoms in the head and neck. The patient also determined the activities that were difficult to do, due to the severity of the condition (chewing problems, opening and closing the mouth). Questions also concerned the occurrence of parafunctional habits in the chewing organs in the form of knocking, grinding or clenching of the teeth. The survey asked about past orthodontic and / or prosthetic treatment.

Criteria for inclusion in the study: analysis of medical records of generally healthy patients, age of patients between 19 and 45 years, complete arching of teeth, history of

absence of other diseases (rheumatic disease, neurological disorders, connective tissue disorders) or operations in head and temporomandibular joints, patient's consent to participate in the study.

Criteria for exclusion from participation in the study: willingness to give up participation, general disease including connective tissue, rheumatic disease, neurological disorders that prevent further testing.

The results of the study were analyzed taking into account the division into group I patients with painful discomfort and group II patients without pain. A detailed analysis was performed of the mean values of the pain intensity results and the results of the tests obtained in a series of follow-up examinations. For measurements yielding continuous results, statistical analysis is based on classical calculation procedures: mean values, standard deviations, minimum and maximum values, and mean standard errors.

The research was approved by the Bioethics Commission of the Jagiellonian University No. 122.6120.43.2016 dated. 31/03/2016.

Results

Analysis of the results of the survey showed that the vast majority of people who reported for treatment of functional disorders of the chewing organs were women (105). The average age of patients was 32 years. In addition, patients with ailments (group I) are more likely to seek medical help beforehand. Among the symptoms of dysfunction reported by patients in group I were: pain in the area of one joint (50 persons), pain in both joints (20 persons), clicks in one temporomandibular joint (29 persons), joint pain in both joints (9 persons), muscular muscles tension (35 people), difficulty in jaw abduction (36 people) and chewing problems (33 persons), difficulty in swallowing food (5 persons), skin numbness (3 persons), tooth sensitivity (12 persons) dizziness (8 people), sudden hearing loss (5 people) (Fig. 1). The results are shown in Table 1.

Pain combined with clicks, disturbed adduction, and tones in the ears was the predominant component of subjective feelings (Fig. 2). Patients had it for about 1 year on average (Fig. 3). In a questionnaire, 5 people in group I indicated pain in the neck and face area. Most patients described the nature of the pain as blunt (52 people) or oppressive (47 people) (Fig. 4). At the 10-point VAS, the mean pain intensity was 5.6 and 5.57 in the last 8 weeks. One of the important symptoms of dysfunction were headaches covering the face and radiating to the neck and neck. They were reported by 32 patients in group I. The mean headache strength associated with dysfunction was 4.88 in the 10-step VAS scale. In addition to painful complaints, acoustic symptoms in one or both temporomandibular joints were a significant reason for patients to report.

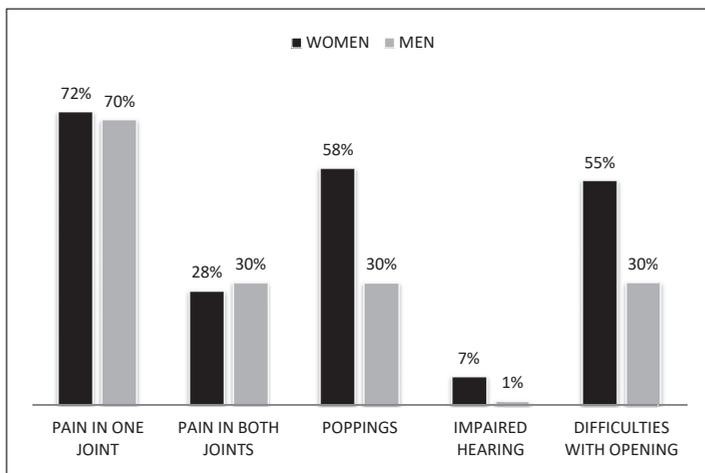


Fig. 1. The incidence of occurrence of the symptoms of temporomandibular disorders in a group I (patients with pain).

Table 1. Symptoms of functional disorders in group I patients (pain).

Symptoms of functional disorders		Sex	
		F	M
Quantity		60	10
Internal pain	One joint	43	7
	Both joints	17	3
Joint pain when chewing food or jaw movements		30	2
Difficulty swallowing		4	1
Radiation of pain		4	1
Clicks in temporomandibular joints	One joint	27	2
	Both joints	8	1
Feeling of increased muscle tension of the US		32	3
Limiting mouth opening		33	3
Difficult chewing food		31	2
Numbness of the skin of the face		3	0
Sudden hearing loss		4	1
Dizziness		7	1
Headaches		27	5
Hypersensitivity of teeth		10	2

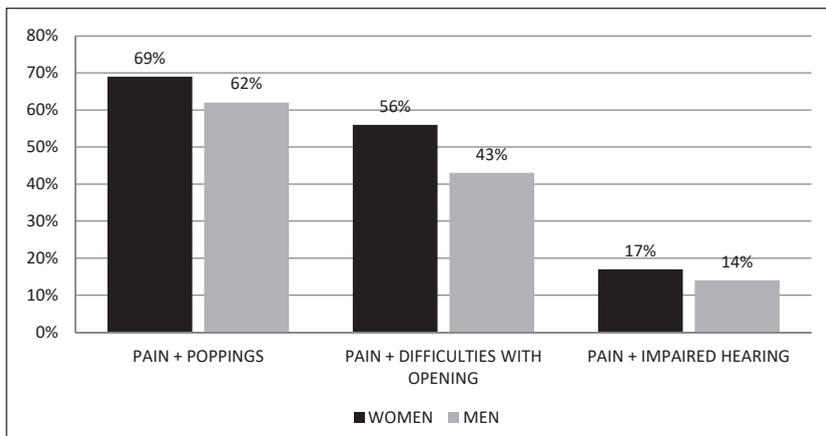


Fig. 2. The incidence of occurrence the symptoms of temporomandibular joint disorders, co-existing with pain in a group I (patients with pain).

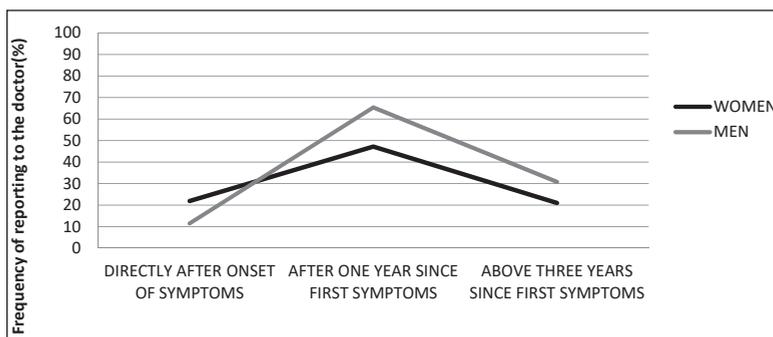


Fig. 3. Interval between the appearance of the first pain until reporting to the clinic in group I (pain).

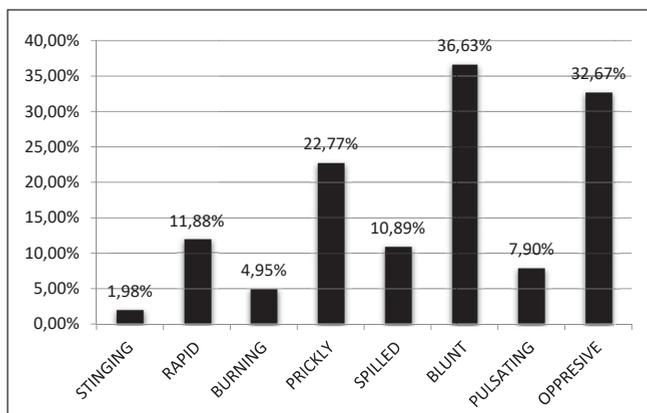


Fig. 4. Character of pain reported by patients in a group I questionnaire (pain form).

The predominant symptoms of dysfunction reported by patients in group II were as follows: feeling of increased muscular tension (29 people), clicks in one joint (17 persons), two joints (7 people), jaw abduction problems (30 persons) headaches radiating to cervix and neck (11 persons), difficulty in chewing food (8 persons), hearing impairment (4 persons), tooth sensitivity (3 persons) (Fig. 5). Results of the study are presented in Table 2. Patients enrolled in group II (painless form) reported later for treatment of dysfunctions (Fig. 6).

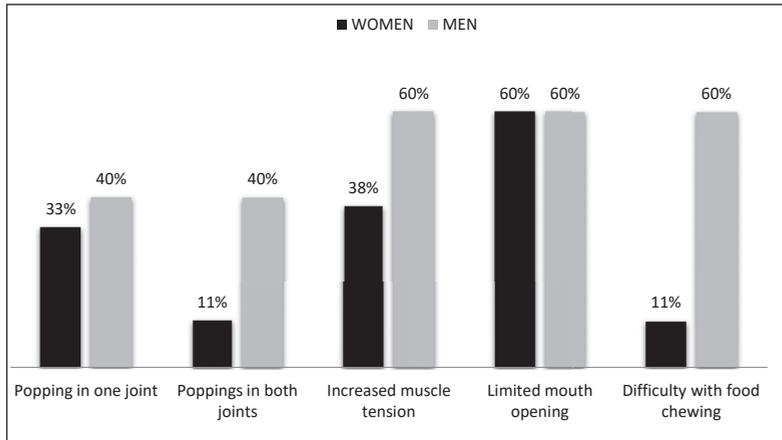


Fig. 5. The incidence of temporal and mandibular disorders in group II (painless form).

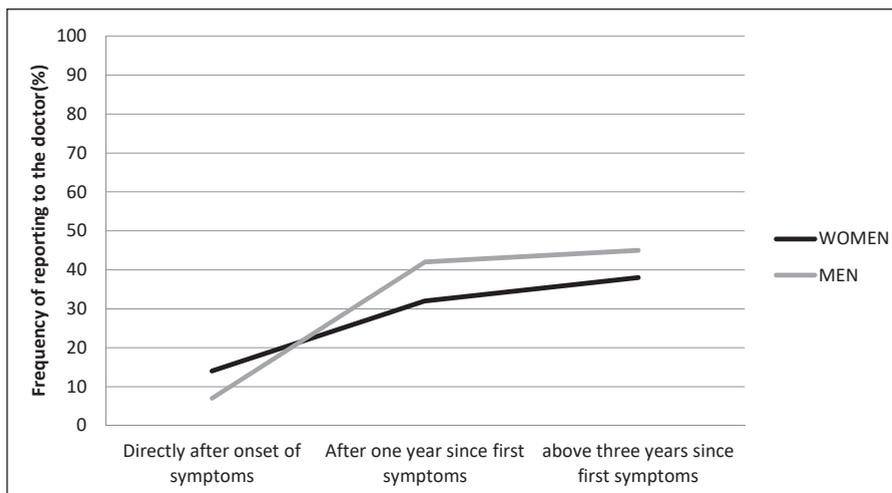


Fig. 6. Interval between appearance of the first symptoms of temporomandibular joint disorders until reporting to the clinic in group II (painless).

Table 2. Symptoms of functional disorders in group II patients (painless).

Symptoms of functional disorders		Sex	
		F	M
Quantity		45	5
Internal pain	One joint	0	0
	Both joints	0	0
Joint pain when chewing food or jaw movements		0	0
Difficulty swallowing		0	0
Radiation of pain		0	0
Clicks in temporomandibular joints	One joint	15	2
	Both joints	5	
Feeling of increased muscle tension of the US		26	3
Limiting mouth opening		27	3
Difficult chewing food		5	3
Numbness of the skin of the face		0	0
Sudden hearing loss		4	0
Dizziness		0	0
Headaches		9	2
Hypersensitivity of teeth		3	0

Discussion

Because of the increased incidence and diagnostic difficulties, temporomandibular joint disorders are an increasing health problem. The results of own research are consistent with those published by other authors who found that the temporomandibular joint disorders affects especially young patients, mostly women, during the most active periods, with a systematic decline of age [18–20]. From literature analysis available at Pub Med database, we can draw conclusions about the important role of stressors in the etiology of these disorders. They have a significant effect on the occurrence of parafunctional habits, leading to overload in the temporomandibular joints. In other studies, the average pain intensity in the 10-step VAS scale was 3.2, and own studies showed a higher pain index of 5.6, which significantly impedes daily functioning of the patients. Own clinical observations clearly suggest a link between headaches and temporomandibular joint dysfunction. Research conducted during this study allowed

us to conclude that temporomandibular joint dysfunction is an important cause of tension-type headache, also referred to as muscle spasm pain or psychological pain caused by various forms of stress. In the available literature, there is evidence of this dependence, and in addition to the occurrence of frequent and more intense pain in this group. There is a number of other researchers' opinions that patients with pain are usually affected by severe dysfunction requiring longer and more complex therapy [21–23], but the results of own research suggest that patients in group I (pain) report to the clinic much earlier than those in Group II, which may indicate that they were diagnosed more quickly and have started effective treatment earlier. Literature and own research indicate that the intensity of pain experienced by patients with temporomandibular joint dysfunction and degree of remission is an important parameter in assessing the effectiveness of dysfunctions.

Own clinical experience confirms that acoustic symptoms in one or both temporomandibular joints are the main reason for reporting patients who do not have pain. They are one of the objective symptoms of functional temporomandibular joint dysfunction. These studies are consistent with other authors, who suggest that a large group of patients over a long period of time are unaware of the presence of early dysfunction despite regular dental visits. This may indicate insufficient knowledge of the dentists or underestimation of the problem. Therefore, attention must be paid to the early diagnosis and treatment of painless forms of dysfunction, especially before planned orthodontic or prosthetic treatment, as negligence in this area may be the cause of difficult to cure temporomandibular joint dysfunctions.

Conclusions

The analysis of the results obtained in the course of this work allows us to draw up the following conclusions:

1. The main reason for the reporting of patients with pain form of temporomandibular joint dysfunction (group I) was pain in the area of one or both temporomandibular joints, increasing during jaw movement, with accompanying acoustic symptoms and headaches.
2. In contrast, in group II, there were clicks in one or both temporomandibular joints.
3. Dental diagnosis has confirmed the presence of increased muscular tension and difficult mandible abduction reported by the majority of patients in group I and II.

Conflict of interest

None declared.

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