

Prevalence of clinical manifestations of temporomandibular osteoarthritis

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Abstract

Introduction. The two compartments, disco-temporal and condilo-discal, which make up the temporomandibular joint, fulfill the functions of the stomatognathic system, namely: phonation, mastication and swallowing. The temporomandibular degenerative pathology is one of the 5 clinical entities given by the American Academy of Orofacial Pain in 1993. The symptoms are varied, dominated by pain, impaired joint mobility, cracks, sensation of muscle fatigue in the masseter and temporal muscles. Most cases benefit from conservative treatment, consisting of anti-allergic and anti-inflammatory medication, specific orthodontic treatment, electrotherapy (TENS, ultrasound, magnetodiaflux, laser), kinesiotherapy. 2-5% of patients require surgery. **Material and method.** We performed a retrospective study, over a 9-year period (January 2010-March 2019), in which we included 503 patients who went to the Timisoara Oro-Maxillofacial Surgery Clinic, with a definite diagnosis of temporomandibular algodysfunctional syndrome, of different etiologies, between the ages of 6 and 85 years. We evaluated the etiology of temporomandibular algodysfunctional syndrome, the prevalence of clinical manifestations in temporomandibular osteoarthritis and their evolution after 10 days of conservative treatment. **Results and discussions.** Pain is present in 100% of cases, the values obtained in these patients with temporomandibular osteoarthritis are between 10 and 40mm. Cracks are present in women in the percentage of 40.8% and 37.9% in men; mobility limitation is found in women in 11% of cases, and in men in 15% of cases. **Conclusions.** The existence of a protocol for the diagnosis of TM osteoarthritis is essential to establish the treatment plan and prognosis of the disease. The pain from osteoarthritis TM is low intensity, present in all patients; cracks and limiting mobility are present in comparable proportions, regardless of gender. The response to treatment was optimal at 21 days of treatment.

Key words: *temporomandibular osteoarthritis, clinical manifestations, prevalence,*

Introduction

The two compartments, superior and inferior, which make up the temporal-mandibular joint, fulfill the functions of the stomatognathic system, namely: phonation, mastication and swallowing. Temporomandibular algodysfunctional syndrome, with intraarticular interest, can be caused by inflammatory and degenerative disorders, disorders of the articular disc displacement, modification of the articular reports, dislocations, tumors. Temporomandibular degenerative pathology is one of 5 clinical entities provided by the American Academy of Orofacial Pain in 1993. The TM joint may undergo local degenerative changes at the joint tubercle, or extend to the entire joint (1). The symptomatology is varied, dominated by pain, affecting the joint mobility, cracks, sensation of

muscular fatigue in the masseter and temporal muscles (2). Extra-articular manifestations may occur, such as cervical, headache, even fibromyalgia, with psycho-social implications. Most cases benefit from conservative treatment (3), consisting of anti-allergic and anti-inflammatory medication, specific orthodontic treatment, electrotherapy (TENS, ultrasound, magnetodiaflux, laser), kinesiotherapy (4). 2-5% of patients require surgery.

Material and method.

We performed a retrospective study, over a 9-year period (January 2010-March 2019), in which we included 503 patients who went to the Timisoara Oro-Maxillofacial Surgery Clinic, with a definite diagnosis of temporomandibular algodysfunctional

syndrome, of different etiologies, between the ages of 6 and 85 years. We evaluated the etiology of temporomandibular algodysfunctional syndrome, the prevalence of clinical manifestations in temporomandibular osteoarthritis and their evolution after 10 days of conservative treatment.

Results and discussions. The mean age of the initial batch is 41.92 ± 16.52 . The studied group consists of 354 women, representing 70.38% of the total patients included in the study and 149 men, 29.62%. Distribution by age: we observe an increased incidence in the age group 21-30 years, a similar incidence in the age groups 31-40 and 41-50, respectively 51-60 and 61-70, as observed in fig. 1.

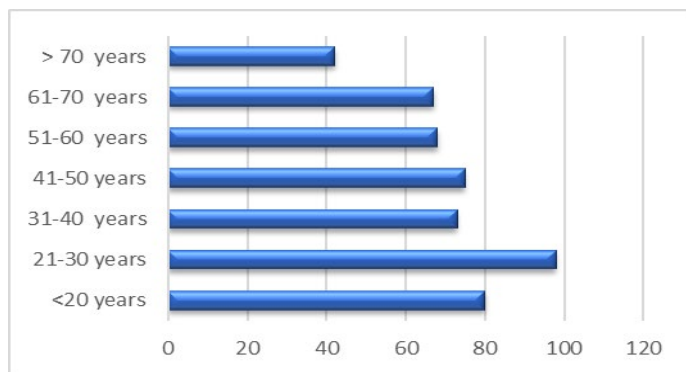


Fig.1. Distribution by age (N = 503)

Depending on the area of origin, we have a ratio of 1.7: 1 in favor of patients from urban areas. From the point of view of the clinical entities, we encountered the following distribution: 3 cases of TM arthritis, 2 cases of tumors, 2 cases of osteitis, 22 cases of post-traumatic disease, TM osteoarthritis 212 cases, unspecified etiology 262 cases. The 3 cases of TM arthritis represent the TM joint in the context of rheumatoid arthritis. Arthrosis TM represents 42%, the clinical entity with the highest incidence, which characterizes the age group over 45 years (table 1).

Table 1. Distribution of cases according to etiology (N = 503).

Diagnosis	women	men
TM dysfunction (arthralgia, unspecified etiology)	169	93
Arthrosis TM	167	45
Contusion, dislocation	12	10
Arthritis TM	3	0
Tumors, infections	3	1

Statistical processing of the incidence of clinical manifestations in patients with algodysfunctional syndrome (N = 503) shows that pain is present in 98.61% of cases, cracks and cracks occur in 82.5% of cases, limiting mobility and deviation of jaw movements are present in 13.52% of cases.

Table 2 shows the incidence of clinical manifestations in patients with TM osteoarthritis. We find that the pain is present in 100% of cases, the values obtained in these patients with temporomandibular arthrosis are between 10 and 40 mm, so we obtained low intensity values. Cracks are present in women in the percentage of 40.8% and 37.9% in men; mobility limitation is found in women in 11% of cases, and in men in 15% of cases. Cracking and limiting mobility are present in comparable proportions, regardless of gender.

Table 2. Distribution of clinical manifestations in osteoarthritis TM (N = 212).

Clinical manifestations	women	men
Pain	100%	100%
Crackles	40.8%	37.9%
Limitation of mobility	11%	15%

45% of the patients included in the study have bilateral TM joint damage. The correlation between osteoarthritis and unstable occlusion is known. Our study shows the presence of occlusion instability in 59.32% of cases.

All patients in the subtype diagnosed with osteoarthritis TM followed a conservative treatment, as appropriate, with non-steroidal anti-inflammatory, orthodontic, prosthetic, local infiltration, antiallergic electrotherapy, specific kinesiotherapy. Pain and mobility assessed at 7, 14, 21 days are shown in table 3. Favorable results are obtained after 21 days, in 61.23% of cases, 16.30% are stationary and without algal accuses and the limitation of mobility is found in 22.47% of cases.

Table 3. Clinical evolution of pain and mobility

Evaluation	7 days	14 days	21 days
Improved	34,79%	50,89%	61,23%
Stationary	65,21%	48,51%	16,30%
Cured	0%	0,60%	22,47%

Discussion.

Orofacial pain, commonly encountered, with a prevalence of 10-30% among the population (4), has rare clinical manifestations in childhood, but 2-3 times more commonly encountered in women, between the ages of 20-50 years. Studies show that only 3-7% of patients with TM disorders seek medical care (1). TM disorders can be classified into 3 groups: muscle disorders (group I), displacement of the disc (group II) and arthralgia, arthritis and osteoarthritis - group III (10). In order to establish exactly the etiology of the algodysfunctional syndrome and the therapeutic conduct, in addition to the clinical examination, paraclinical, laboratory and imaging investigations, radiographs, ultrasound or MRI are required. Osteoarthritis represents cartilage deterioration, joint space narrowing and bone production. It is the result of the action of mechanical and biological factors, (TNF α and other proinflammatory cytokines) (5), and its prevalence increases with the age and the action of mechanical factors, having a graphical representation similar to the Gaussian curve, with a peak in decades 5 and 6, with a decrease after 75 years (6). There are studies performed on patients aged 73-75 years, which shows radiological changes in about 70% of the patients enrolled in the study. From a symptomatic point of view, the percentages are 9.6% in men and 18% in women over 60 years. It is estimated that about 15-20% of the world's population suffers from osteoarthritis (7). The prevalence of TM osteoarthritis varies due to variations in diagnostic criteria. It is considered that the symptomatic rate would be similar to the osteoarthritis of the other joints. Studies show that 8-16% of the population suffers from TM, uni- or bilateral osteoarthritis, with a predilection for women; in this case, the alpha polymorphism of the estrogen receptor is incriminated (8). The American Academy of Orofacial Pain classifies TM osteoarthritis in the primary, when an etiologic and secondary factor cannot be identified, when a traumatic or inflammatory factor is identified. The evolution is generally favorable, with periods of remission and exacerbation. The initial phase has a variable duration, between 2 and 4 years; pain-associated synovitis appears (13), enhanced by NSAIDs, local heat or rest, with intermittent limitations of joint mobility, sounds during mobilization. The intermediate phase is characterized by destruction

joint, lasting 6 months-1 year, (9), clinically occurs spontaneous pain and mobilization, cracks and limiting mobility. In the last phase, remodeling of the facial skeleton may occur, with joint deviation, unstable occlusion, malocclusion, limiting mobility; the pain is of lower intensity, chronic, accentuated by the overload of the joint. Once the diagnosis of TM osteoarthritis is established, we will pursue the following treatment objectives: decrease of pain and inflammation, preservation or increase of joint mobility, prevention of deformities. Most cases benefit from conservative treatment. It is known that the education and counseling of the patient regarding the observance of "hygiene rules" is essential in any type of osteoarthritis. In this case we recommend a soft diet, avoiding the use of maximum angles, controlling parafunctions, use of relaxation techniques, etc., along with anti-inflammatories, local topics, physical therapy, local infiltration with hyaluronic acid solutions, to reduce pain and increase mobility. Intra-articular injection of mesenchymal stem cells slows the progression of osteoarthritis TM, and chondrogenic induction in vitro could enhance therapeutic effects (11). From our study results the increased incidence of degenerative pathology among women, similar to similar studies (12). We found an increased incidence of osteoarthritis, 40.1% of the cases diagnosed with algodysfunctional TM syndrome. International studies describe a prevalence of osteoarthritis of 24.6% (9). The discrepancy of the results can be given on the one hand by the low addressability mentioned above, of 3-7% for this type of affections; on the other hand, the lack of diagnostic algorithms (14). The main reason for which the patients of the Gold-Maxillofacial Surgery were addressed is the pain, of low intensity (10-40 mm), present in 100% of the cases. The incidence of osteoarthritis TM is higher in the age group over 55 years, resulting in age and sex being considered as two risk factors (16). Bilateral involvement of the TM joint is identified in 45% of cases. Unstable occlusion is present in 59.32% of cases. All cases of osteoarthritis were treated conservatively, the best results are obtained after an evaluation after 21 days.

Conclusions.

The existence of a protocol for the diagnosis of TM osteoarthritis is essential to establish the treatment plan and prognosis of the disease. The pain from osteoarthritis TM is low intensity, present in all patients; cracks and limiting mobility are present in comparable proportions, regardless of gender. The response to treatment was optimal at 21 days of treatment.

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