Tmj Arthralgia: a rarely described internal joint derangement and characterization regarding factors of age, pain description, and prevalence in craniomandibular disorders individuals (Cmds).

Artralgia da ATM: Um distúrbio interno raramente descrito. Caracterização em relação a fatores da idade, descrição da dor e prevalência em pacientes com distúrbios craniomandibulares (Dcms).

Artigo Original

Original Paper

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Key words:

Craniomandibular

Disorders

Arthralgia

Joint noises

Burning Pain

Abstract

Aims: Characterize Craniomandibular Disorders (CMDs) and arthralgia individuals regarding factors of age, joint noises, frequency of burning pain and severity of pain. **Material and Methods:** 25 CMD and arthralgia patients, 39 CMDs and capsulitis patients were retrieved from a large sample of CMD patients and were compared with a control Non CMD group. History of sign and symptoms, questionnaires, clinical examination, description of pain, diagnostic tests and criteria for CMDs were used.
Results: Mean age in the experimental (CMD+arthralgia group) was about 40.2 years old. The frequency of joint noises was about 72% in the CMDs+arthralgia group as compared to the other two control groups (56.4% and 40.6%) . Bilateral reciprocal click was also more frequently in the experimental group than in the controls and the difference was statistically significant. The frequency of severe pain was much higher in the CMD+arthralgia than in the CMD+capsulitis group (80% and 10.2% respectively). The description of burning pain was observed exclusively in the CMD+arthralgia group. Finally, the frequency of pain increased from the Non CMD to the CMD+capsulitis and to the CMD+arthralgia group. **Conclusions:** The results of this study indicate that arthralgia is a more chronic disorder characterized by burning pain, more severe pain and higher frequency of joint noises, specifically unilateral reciprocal click.

Resumo

Objetivos: *Caracterizar indivíduos com Distúrbios Craniomandibualares (DCMs) e artralgia em relação com fatores da idade, ruídos articulares, freqüência de dor que queima e severidade da dor.* ***Materiais e Métodos:*** *25 pacientes com artralgia da ATM e 39 pacientes com DCMs e capsulite foram selecionados de uma população grande de pacientes com Distúrbios Craniomandibulares. Os dois grupos foram comparados com um grupo controle de 32 indivíduos sem DCMs. História dos sinais e sintomas, questionários, exame clínico, descrição da dor, testes diagnósticos e critérios para DCMs, artralgia e capsulite,*

Palavras-chave:

Distúrbios

Craniomandibular

Artralgia

Ruídos articulares

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foram usados. ***Resultados:****A idade média no grupo experimental foi de 40.2 anos. As freqüências de ruídos articulares nos grupos com DCMs e artralgia, DCMs e capsulite e controle sem DCMs foram 72%, 56.4% e 40.6% respectivamente. O estalo recíproco unilateral foi mais freqüente no grupo experimental do que nos controles e a diferença foi estatisticamente significante. A freqüência de dor severa foi mais alta no grupo com artralgia (80%) do que no grupo com capsulite da ATM. A descrição da dor que queima ou arde foi observada exclusivamente no grupo com artralgia. A freqüência de dor aumentou do grupo controle para o grupo com capsulite e para o grupo com artralgia.* ***Conclusão:*** *Este estudo indica que a artralgia é um distúrbio mais crônico caracterizado por dor que queima ou arde, dor mais severa e prevalência mais alta de ruídos articulares, especificamente, estalo recíproco unilateral.*

1. Introduction

Pain in and around the temporomandibular joints (TMJs) and associated headache are common presenting complaints in patients with facial pain thought to be related to TMJ disorders. A perplexing clinical aspect of TMJ dysfunction is the wide variability in pain and headache between different patients (1). Because a wide variety of disorders in the temporomandibular joints can be described, the clinician who treats those problems must have an intimate knowledge of all conditions affecting such joints in order to achieve an accurate diagnosis (2). Temporomandibular joints Internal derangements (TMJ-IDs) may be defined as a disruption within the internal aspects of the TMJ in which there is a displacement of the disc from its normal functional relationship with the mandibular condyle and the articular portion of the temporal bone (3). The intra-articular components may be either deranged or degenerated (4). TMJ-IDs consists of sequential stages (5) and longitudinal studies have demonstrated that progression of TMJ-IDs is not observed in all individuals. Such phenomena have hampered epidemiological studies (6). TMJ-IDs involve progressive slipping or displacement of the joint disc. Because the deranged joint will continue to function, even in an impaired manner, TMJ-IDs often get progressively worse with time (7). In advanced stages of internal derangements, there are concurrent degenerative changes in the condyle and glenoid fossa (4).

2. Literature Review

TMDs can be classified as joint, muscular disorders or both. Joint disorders include internal derangements (disc displacement with and without reduction), dislocation, inflammatory conditions (synovitis, capsulitis, retrodiscitis), arthritides (osteoarthrosis and osteoarthritis), ankilosis (fibrous and bony) and deviation in form (8). Rasmussen (9) was probably one of the first researchers who described TMJ-IDs. He used 119 consecutive patients to described 6 stages in TMJ-IDs: Phase I was characterized by clicking, stage II by periodic locking, stage 3 by TMJ pain at rest, stage 4 by TMJ pain on function, phase 5 by residual symptoms other than pain and phase 6 by absence of symptoms. One study (5) described the mechanisms of closed-lock symptoms and suggested that TMJ-IDs consist of a sequential stages described as follows:

- Stage I is disc displacement with reduction
- Stage II is characterized by intermittent locking
- Stage III is disc displacement without reduction
- Stage IV is perforation of the disc or posterior attachment.

Pullinger and Seligman (10) evaluated TMJ osteoarthrosis and diagnostic subgroups by symptom history and demographics and reported that there are at least three distinct arthrosis populations that can be differentiated by age and sex. Such observation suggests

that different clinical characteristics can be found in a single category and/or that one category may present with different sub-stages. It is important to determine whether independent clinical subgroups can be differentiated to avoid incorrectly prediction that all derangement patients will progress along the same continuum symptom (10). Because description of some internal joint derangements leaves considerable variability within some groups, some individuals may go through a transitional stage before they reach the osteoarthritis stage. Thus there is increasing need to improve classification of internal joint derangements (11). Some studies about TMJ-IDs can be criticized as having heterogeneous patients and intra-articular pathosis pools (12.). TMJ-arthralgia is a rarely described TMJ internal derangement characterized by inflammation and tissue degeneration which precedes osteoarthritis in the internal derangement process (13).

Most investigations about TMJ-IDs have focused on general sign and symptoms, particularly in patients presenting pain and dysfunction without emphasizing other joint disorders which diagnoses may be important not only in relation to their representation in patients presenting CMD but also regarding their treatment (14). One study (14) emphasizes that the most difficult diagnosis to differentiate is ID without chronic reduction from other diagnosis, especially due to the heterogeneous clinical and tomographic presentation with this diagnosis. Once again such observation suggests that a different group/subgroup can be found in certain categories of TMJ-IDs. Because diagnosis is fundamental to the treatment of TMJ-IDs and classification of such disorders is distant to be complete the goal of this study is to characterize arthralgia clinically by testing the following hypothesis:

1. If CMD + Arthralgia is a more chronic TMJ-ID therefore patients should be younger as compared to Osteoarthritic individuals. Albeit older as compared to less progressive TMJ-IDs and to control Non-CMD individuals;
2. Joint noises or a particular type of joint noise occur more frequently in individuals presenting TMJ arthralgia;
3. If TMJ arthralgia is a more advanced TMJ-ID, thus pain should be reported as more severe. Additionally, “burning” should be a description exclusively used by patients presenting TMJ arthralgia.

3. Material and Methods

Information about the presence and frequency of specific TMJ-IDs including arthralgia and capsulitis was gathered from a population of 221 CMD patients referred consecutively to a Center for the Study of CMD and Facial Pain for diagnosis and treatment in the period of 2003-2010. From this group of 221 CMD patients, all patients presenting arthralgia (n=25) and capsulitis (n=39) were selected to form different subgroups. Control Non-CMD individuals were those presenting, to the same center, a specific complaint not sufficient to include individuals in the category of CMD. Such individuals constituted a second control group (Non-CMDs). There were 23 females and 2 males in the CMD-arthralgia group and the mean age was about 40.2 years old (SD=9.99, Range 23-75). There were 4 males and 35 females in the CMD+Capsulitis group and the mean age was about 30.4 years old, SD=11, Range=13-53. There were 12 males and 20 females in the control Non-CMD group, and the mean age was about 33 years old, SD=13.7 and Range 19-73 years. The CMD and arthralgia group and the CMD+capsulitis group presented a number of CMDs signs and symptoms and bruxing behavior that were determined by the use of a questionnaire, taking a history of sign and symptoms, clinical examination, evaluation of jaw movements, palpation for tenderness of the joints and masticatory muscles and use of established diagnostic criteria for specific TMJ-IDs. Panoramic, transcranial and tomographic images were requested when necessary to complement examination and diagnosis. The Non-CMD control group consisted of individuals who presented a specific stomatognathic complaint for diagnosis and treatment which was not sufficient to consider a specific individual as a CMD. Therefore, he or she would be assigned

to a Non-CMD control. Inclusion criteria to allocate an individual in the CMD+Arthralgia group included a complaint of pain in the masticatory system (TMJ and/or masticatory muscles), presence of joint noises, muscle tenderness, difficulties to perform normal jaw movements, a long history of TMJ-IDs, a burning description of the pain and seeking active treatment for their complaints. . Exclusion criteria for CMD patients presenting arthralgia and capsulitis included presence of neurological disorders, severe psychological disturbances, and a neurological/neuropathic description of the pain. Criteria to include CMD/Capsulitis patients in the group included presence of CMD signs and symptoms, pain on wide jaw opening, pain on palpation of the lateral and posterior aspect s of the capsule, pain following wide jaw opening could be arrested by pressing the teeth on the maximal intercuspal position (13) and absence of more advanced internal TMJ derangements, for instance, retrodiscal and disk-attachment pain. Specific criteria to include individuals in the Non-CMD control group included absence of pain in the masticatory muscles, no tenderness in such muscles and no restriction of jaw movements. Usually individuals in such group presented a complaint of headache, tooth wear, earache and other less disabling disorders.

CMD patients (Arthralgia and capsulitis) and controls were assessed using a comprehensive protocol: history of sign and symptoms, a questionnaire for bruxing behavior and CMDs, palpation of the masticatory muscles, description of the pain (particularly its quality), use of diagnostic test to assess the presence of specific internal joint derangements, description of joint noises using patients history and confirmation of such noises (when present) with the use of a stethoscope. As an additional information, CMD patients presenting a description of burning pain suggesting arthralgia were subjected to biomechanical tests including fast opening and jaw movements which produce pain indicating arthralgia (13).

We did not use more sophisticated imaging techniques such as routine use of invasive or expensive procedures like arthrography or MRI because it is not realistic. It is not practical to use such imaging tools in investigating a large population. Such techniques should be preserved for difficult or confusing diagnostic cases and for research purposes (11, 14). Furthermore, there is evidence that a thorough clinical exam, noting history, joint sounds and mandibular range of motion are the most accurate correlates to surgical findings (15).

Statistical methods: Basic statistics (mean, standard and range deviation), Umpaired t test, Fisher´s exact test and Chi-square for independence will be used to substantiate the hypothesis delineated previously in the current investigation.

4. Results

The results of this investigation are presented from tables I through IV.

Table I: Sociodemographic data in CMD individuals presenting CMD+arthralgia (experimental group), capsulitis (control A), and no CMDs (Control B).

	CMD/Arthralgia		CMD/capsulitis (A)		Non/CMDs (B)	
	N=25		N= 39		N=32	
GENRE	n	%	n	%	n	%
Males	2	8	4	10.3	12	37.5
Females	23	92	35	89.7	20	62.5
Total	25	100	39	100	32	100
Mean age	40.2		30.4		33	
SD	9.99		11		13.7	
Range	23-75		13-53		19-73	

Table II: Frequency of joint noises and burning pain description in Arthralgia individuals and controls.

	Arthralgia/CMD group		Capsulitis/CMD group		No CMDs group	
	N=25		N= 39		N=32	
	n	%	n	%	n	%
Joint noises	18	72	22	56.4	13	40.6*
No Joint noises	7	28	17	43.6	19	59.4
Total	25	100	39	100	32	100
Burning pain	25	100	0	0	0	0**
No Burning pain	0	0	39	100	32	100
Total	25	100	39	100	32	100

*Joint noises arthralgia group versus CMD/capsulitis group: p>0.3, non significant
Joint noises arthralgia group versus Non-CMD control group: p<0.03 considered statistically significant.
Joint noises CMD/capsulitis group versus control group: p>0.2, not significant difference.
** Burning pain was described exclusively in the CMD-Arthralgia group.

Table III: Joint noises type in the groups presenting CMD/arthralgia, CMD/capsulitis (Control A) and Controls (B).

Joint noise	CMD/arthralgia		CMD/capsulitis		Control B	
	N: 25		N:39		N:32	
	n	%	n	%	n	%
Unilateral single click	4	16	11	28.2	4	12.5*
Bilateral single click	0	0	4	10.3	2	6.3
Unilateral reciprocal click	0	0	0	0	2	6.3
Bilateral reciprocal click	12	48	7	17.9	6	18.8**
Unilateral crepitus	2	8	0	0	0	0
Bilateral crepitus	0	0	0	0	0	0
Total joint noises	18	72	22	56.4	14	43.8
No joint noises	7	28	17	43.6	18	56.2
Total	25	100	39	100	32	100

*Unilateral single click arthralgia group versus CMD/capsulitis group: p=0.36, considered statistically not significant.Unilateral single click arthralgia group versus control group: p>0.71, considered not significant. Unilateral single click CMD/capsulitis group versus Non-CMD control group: p>0.14, considered not significant.
**Bilateral reciprocal click arthralgia versus CMD-capsulitis group: p<0.01 considered statistically significant. Bilateral reciprocal click arthralgia versus Non-CMD control group: p<0.02 considered statistically significant. Bilateral reciprocal click CMD/capsulitis group versus control: p=1.0 considered not significant.

Table IV: Severity of joint pain in the CMD/arthralgia, CMD/capsulitis and non/CMD controls.

	CMD/arthralgia		CMD/capsulitis		No CMDs	
	N:25		N:39		N:32	
	n	%	n	%	n	%
Severe pain	20	80	4	10.2	0	0**
Moderate pain	5	20	15	38.5	4	12.5
Mild pain	0	0	15	38.5	3	9.4
Total with pain	25	100	34	87.2	7	21.8**
No Pain	0	0	5	12.8	25	78.2
Total	25	100	39	100	32	100

*Frequency of pain in the CMD/arthralgia versus CMD/capsulitis group: p=0.14, considered not significant. Frequency of pain comparing the CMD/arthralgia versus the Non-CMD control group: p<0.0001, considered extremely significant. Frequency of pain in the CMD/Capsulitis group versus the Non-CMD group: p<0.0001, considered extremely significant.
** Comparing severe pain in the arthralgia versus the CMD/capsulitis group: P<0.0001, considered extremely significant. Severe pain was not reported in the Non-CMD control group.

Table I demonstrates that the mean ages in the CMD/arthralgia, CMD/capsulitis and Non-CMD controls were about 40.2, 30.4 and 33 years, respectively (CMD+Arthralgia versus CMD+capsulitis, Umpaired t test p=0.0008 considered an extremely significant difference). Table II shows that the frequency of joint noises were about 72% in the CMD+arthralgia group, 56.4% in the CMD+capsulitis control group and 40.6% in the Non-CMD control group. The difference in such frequency between the CMD+Arthralgia and CMD+Capsulitis group was not statistically significant (Fisher´s exact test p>0.3), but such difference was statistically different and significant from the CMD+arthralgia group to the Non-CMD Control group (Fisher´exact test p<0.03). Burning pain was used exclusively by arthralgia patients to described their pain. Table III shows that the frequencies of unilateral single click were about 16%, 28.2% and 12.5% in the CMD+Arthralgia, CMD+capsulitis and Non-CMD Control respectively. When comparing the CMD+Arthralgia with the CMD+Capsulitis group, the CMD+Arthralgia with the Non-CMD group and the CMD+Capsulitis with the Non-CMD group, such differences were not statistically significant (Fisher´s exact test p>0.3, p>0.7 and p>0.1, respectively). The frequency of bilateral reciprocal click was about 48% in the CMD+Arthralgia group, 17.9% in the CMD+Capsulitis group and 18.8% in the Non-CMD Control group. Such frequency was statistically different and significant from the CMD+Arthralgia to the CMD+Capsulitis group (Fisher´s exact test p<0.01) and from the CMD+Arthralgia to the Non-CMD control group (Fisher´s exact test p<0.02). The frequency of bilateral reciprocal click was not different from the CMD+Capsulitis to the Non-CMD Control group (Fisher´s exact test p=1.0). Table IV demonstrates that the frequency of pain was 100% in the CMD+Arthralgia group, 87.2% in the CMD+Capsulitis group and 21.8% in the Non-CMD Control group. Such frequency was not different from the CMD+Arthralgia to the CMD+Capsulitis group (Fisher´s exact test p>0.1), but it was different and extremely significant from the CMD+Arthralgia to the Non-CMD Group (Fisher´s exact test p<0.0001). The frequency of severe pain was about 80% in the CMD+Arthralgia group and 10.2% in the CMD+Capsulitis group. This difference was extremely significant (Fisher´s exact test p<0.0001). Patients in the Non-CMD Control group did not report severe pain.

5. Discussion

1. The factor age in the CMD + Arthralgia group

One of the hypothesis of this study was that arthralgia patients would be older when compared to the control groups and to other CMD groups reported in literature. Arthralgia patients

should also be younger as compared to osteoarthritic groups reported in literature. Because mean age in the group of CMD+arthralgia individuals was about 40.2 years as compared to 30.4 years in the CMD+Capsulitis and 33 years in the Non-CMD controls, the results of our study are supported by one investigation (16) reporting a mean age of about 34 years in the CMDs group. Additional support for this current investigation comes from other studies reporting mean ages of about 47 years (16) and 45.8 years (10) in TMJ osteoarthritic patients. Data about age in the current investigation and in other studies provide support for the notion that arthralgia is a previous stage of osteoarthritis in the internal derangement process. Additional support for this point of view comes from one study (15) in TMJ-ID patients reporting that one of three osteoarthritic patients "had low grade pathosis that was noted only during surgical operation". One investigation (17) used MRI to evaluate 102 joints in 64 patients and reported a strong correlation between age and degenerative changes in the study group.

2. Joint noises, bilateral reciprocal clicking

The frequency of joint noises was about 72% in the CMD+arthralgia group, 56.4% in the CMD+Capsulitis group and 40.6% in the Non-CMD control group. The difference was not statistically significant from the CMD+Arthralgia to the CMD+Capsulitis group (P>0.3), but it was different and statistically significant from the CMD + Arthralgia group to the Non-CMD control group (p=0.03).

Although we contrasted only two TMJ internally deranged groups with a control without CMDs, the evidence points to a higher frequency of joint noises with the severity and/or progression of the disorder. However, because single unilateral click +bilateral reciprocal clicking (16/25=64%) indicating disk displacement with reduction (rather than disk displacement without reduction) and severe pain were reported by 80% in such an advanced internal derangement, the results of this investigation are in accordance to a study (18) indicating that the degree of disk displacement do not seem to be related to the degree of mandibular dysfunction and that significant levels of mandibular pain can exist without significant pain and dysfunction.

In the progression of internal derangement from arthralgia and osteoarthrosis not only the position but also, to a considerable extent, the configuration of the disk might be involved (19). Clinical and radiographic observations extending over a decade have revealed that degenerative arthritis of the TMJ is a natural consequence of derangement of the disc and condyle (20).

The frequencies of single unilateral click were about 16%, 28.2% and 12.5% in the CMD+arthralgia, CMD+Capsulitis and Non-CMD control group respectively. The differences from the arthralgia to capsulitis, from the arthralgia to the Non-CMD group and from the Capsulitis to the Non-CMD control group were not statistically significant (p=0.36, p=0.14 and p=0.7) respectively.

The frequencies of reciprocal bilateral click were about 48%, 17.9% and 18.8% in the CMD+Arthralgia, CMD+Capsulitis and Non-CMD Control respectively. There was a statistically significant difference from the CMD+Arthralgia to the CMD+Capsulitis group (p=0.01) and from the CMD+Arthralgia to the Non-CMD Control group (p=0.02). Because we observed a higher frequency of bilateral reciprocal click in the arthralgia group the results of this investigation are partially supported by one study (21) reporting that reciprocal clicks were more frequent in joint with slight, early or no OA, whereas crepitus was more frequent in joints with advanced OA. It may be that many TMJ-ID patients progress to arthralgia and radiographically detectable hard tissue signs of osteoarthritis are late manifestations of a complex process of internal joint derangement. Increased frequency of bilateral reciprocal click is associated with higher frequency of abnormality in both disk position and configuration and also with functional impairment in both joints. It also indicates progression of the disorder. Disks in partial or complete anterior position are associated with advanced internal joint derangements (19).

Single and reciprocal clicks (16%, 48% respectively) indicating disk displacement with reduction were observed relatively frequently in the CMD + arthralgia group. Such

findings indicate that disk displacement with and without reduction are found in arthralgia patients. Such observation is supported at least in part by one research (22), studying the morphology of the disc, indicating that 17% of the joints that had previously displaced disc with reduction also had degenerative joint disease. Indirect support for the results in the current investigation comes from other study (1) indicating that 50% of the non reducing meniscus group had reached the stage of osteoarthritis. It may be that some patients of such group may present characteristics of arthralgia, the previous stage in the internal derangement process. The combined frequency of single click and reciprocal click in the CMD+arthralgia group was about 64%. Such finding suggests that there are many patients in this group presenting partial disk displacement with reduction. In other words, even though arthralgia is considered an advanced internal joint derangement, it is not necessarily equated with disk displacement without reduction. Because we consider arthralgia an early stage of osteoarthritis findings in the current investigation are supported at least in part by one study (19), in necropsy specimens reporting that osteoarthrosis was associated with partially anterior and completely anterior disk positions. Bean and associates (23) proposed that the definition of osteoarthrosis for the temporomandibular joint should be broadened to include the state of the subchondral change occurring simultaneously with intact articulating surfaces.

28% individuals with arthralgia presented no joint noises yet the prevalence of severe pain in this group was about 80% . It may be that some of these individuals with arthralgia presented with disk displacement without reduction and had not reached the stage of osteoarthritis to report the presence of crepitus. Supporting this point of view one study (24) evaluated 29 advanced /severe cases of internal TMJ derangements with a similar mean age and reported a frequency of 20.7% silent joints, a figure which is similar to that we report in the current study.

Because crepitus was noted in only 2 patients (2/25=8%) in the painful joint, who based in the description of burning pain, their internal derangement was diagnosed as “arthragia”. The results of this study are supported at least in part by one investigation (25) reporting that crepitus was reported in both arthritic and non-arthritic joints implying that crepitus does not occur exclusively in osteoarthritic joints. Rasmussen (9) reported that crepitus does not occur in the intermediate stage of internal TMJ derangements and an investigation (24) indicates that crepitus is a rather unreliable sign of arthrosis. Because in the current investigation we report two cases describing crepitus in the population of arthralgia individuals the results of this investigation are further substantiated by a study (26) indicating that in type 3 internal joint derangements preceding osteoarthritis crepitus may be auscultated and tomograms may or may not show evidence of early degenerative changes. Rasmussen (9) reported that crepitus does not occur in the intermediate stage of internal TMJ, however he may be referring to disk displacement with reciprocal clicking and probably intermittent locking.

3. Frequency of pain, burning pain and severe pain

The frequencies of pain were about 100% in the CMD+arthralgia group, 87.2% in the CMD+Capsulitis group and 21.8% in the Non-CMD Control group. This difference was not statistically significant from the CMD+Arthralgia to the CMD+Capsulitis group (p=0.14), but it was extremely significant from the CMD+Arthralgia to the Non-CMD control group (p=0.0001) and from the CMD+Capsulitis to the Non-CMD Control group (p=0.0001).

The frequency of severe pain was 80% in the CMD+arthralgia group and 10.2% in the CMD+Capsulitis group and this difference was extremely significant (p=0.0001). Individuals in the Non-CMD control group did not report severe pain. The results of the current investigation are supported by a study in patients presenting very chronic TMJ arthritis (27) reporting a frequency of severe pain in 100% of the cases. Another investigation (24) evaluated 29 patients in the same age range and reported a frequency of 100% severe pain. The results of this investigation are in agreement with another study (16) reporting that the severity of pain increased with the severity of

internal joint derangement. Lobbezzo-Scholte and associates (16) assessed CMD patients presenting different internal joint derangements and reported that OA patients presented a higher prevalence of steady increase in pain when compared to patients with disk displacement with and without reduction. They also reported that the intensity of pain increased in the group presenting disk displacement with and without reduction to the OA group. It may be that as the internal derangement process continues the biomechanical conditions into the joint favors the development of an inflammatory process. Supporting this line of evidence an investigation (17) reported that painful temporomandibular joints were more likely to demonstrate joint effusion indicating inflammation. The degree of joint pain correlates well with nitric oxide concentration, a mediator of inflammation and pain (28). Because TMJ-ID arthralgia is very closely related to Osteoarthritis the results of our study are also reinforced by another investigation (29) reporting that severer pain on chewing was observed in the 40 joints with osteoarthritis as compared with the 156 joints without. Furthermore, researchers reported that higher degrees of pain correlated with higher signal intensity suggesting inflammation.

Burning pain was reported solely by individuals in the CMD+Arthralgia group (100%). One investigation (7) reported that TMJ pain is normally described as deep, dull and sometimes aching or throbbing. On the other hand, deep tissue joint pain is diffuse, aching or burning, often triggered in response to innocuous stimuli and may be referred to skin sites. Burning joint pain does not occur exclusively in the TMJ joint as such pain description is a characteristic of knee pain caused by inflammation (7). Because we observed that many arthralgia patients also described their pain as "throbbing" which is a common but not an exclusive description in cases of bone, pathosis, such description provides additional support that arthralgia is a separate internal derangement very closely related to osteoarthritis. The key symptom of pain ranging from aching and burning to sharp and stabbing may assist the clinician in the diagnosis of temporomandibular disorders (30). Signs and symptoms of osteoarthritis usually include dull, aching pain with occasional burning of the joint and palpable joint tenderness sometimes accompanied by swelling (31). Bell (13) used the terms "arthritic pain or inflammatory arthritis" to denote inflammation of the articular surfaces of the joint. Normally, these surfaces are nonvascularized and noninnervated so than an inflammatory reaction cannot occur. In order to get the joint surfaces inflamed, fundamental arthropatic changes must occur (7). It may be that such changes including severe pain, pain on movement, and pain described as burning, precedes the development of osteoarthritis. This assumption is strongly substantiated by one investigation (31) indicating that pain in more advances stages of TM- ID can be described occasionally as burning.

Because severe pain and burning pain were characteristics of the group presenting arthralgia as compared to the CMD+Capsulitis and to the Non-CMD controls, the results of this study are substantiated by another investigation (11) indicating that the description of some internal joint derangement leaves variability within some groups, some individuals may go through a transitional stage before they reach the osteoarthritic stage. To conclude, there is strong evidence in this study to suggest that arthralgia is a relatively common internal TMJ derangement which precedes or is very similar to osteoarthritis. Additionally, arthralgia is a chronic disorder characterized by a higher frequency of joint noises, and more severe pain described as "burning".

6. References

4. Roberts, C.A.; Tallents, R.H.; Katzberg, R.W.; Sanchez-Woodworth, R.E.; Manzione, J.V.; Speland, M.A.; Handelman,S.L.Clinicalandarthrographic evaluation of temporomandibular joint sounds. Oral Surgery, Oral Medicine, Oral Pathology, v.62, p. 373-376, 1986.

5. Kreutziger KL, Mahan PM. Temporomandibular degenerative joint disease: Anatomy, pathophysiology and clinical description. Oral Surgery, Oral Medicine, Oral Pathology, v.40, p.165-182, 1975.

6. Barkin, S.; Weinberg, S. Internal derangements of the temporomandibular joint: The role of arthroscopic surgery and arthrocentesis. Journal of The Canadian Dental Association, v.66, p.199-203, 2000.

7. Rosenberg, I.; Goss, A.N. The outcome of arthroscopic treatment of temporomandibular joint arthropathy. Australian Dental Journal, v.44, p.106-111, 1999.

8. Nitzan, D.; Dolwick, F.W. An alternative explanation for the genesis of closed – lock symptoms in the internal derangement process. Journal of Oral and Maxillofacial Surgery, v. 49, p.810-815, 1991.

9. Magnusson, T.; Egermark-Eriksson, I.; Carlsson, G.E. Changes in subjective symptoms of craniomandibular disorders in children and adolescents during a 10-year period. Journal of Orofacial Pain, v.7, p. 76-82, 1993.

10. New York Presbyterian Hospital: Internal derangements of the temporomandibular joint. No volume, p.1-2, 2000.

11. Yap, A.U. Temporomandibular disorders: An overview. SMJ, v.40, p.1-9, 1999.

12. Rasmussen, O.C. Description of population and progress of symptoms in a longitudinal study of temporomandibular arthropathy. Scandinavian Journal of Dental Research, v.89, p.196-203, 1981.

13. Pullinger, A.G.; Seligman, D.A. TMJ osteoarthrosis: A differentiation of diagnostic subgroups by symptom history and demographics. Journal of Craniomandibular Disorders Facial and Oral Pain, Journal of Craniomandibular Disorders, Facial and Oral Pain, v.1, p.251-256, 1987.

14. Stegenga, B.; de Bont, L.; der Kuijl, B.; Boering, G. Classification of temporomandibular joint osteoarthrosis and internal derangement. Part 1: Diagnostic significance of clinical and radiographic symptoms and signs. Journal of Craniomandibular Practice, v. 10, p. 95-106, 1992.

15. Miyamoto, H.; Sakashitas H.; Miyata, M.; Goss, A.N.; Okabe, K.; Miyaji, Y.;Sakuma, K. Arthroscopic management of temporomandibular closed lock. Australian Dental Journal, v. 43, p. 301-304, 1998.

16. Bell, W.E. Orofacial pains: Diagnostic and management. 1.ed. Chicago: The Year Book Publishing Company, 1985.

17. Schiffman, E. Diagnostic criteria for intraarticular temporomandibulasr disorders. Community Dental Oral Epidemiology, v. 17, p. 252-257, 1989.

18. Donlon, W.C.; Moon, K.L. Comparison of magnetic resonance imaging, arthrotomography and clinical ad surgical findings in temporomandibular joint internal derangements. Oral Surgery, Oral Medicine, Oral Pathology, v.64, p.2-5, 1987.

19. Lobbezoo-Scholte, A.M.; de Leeuw, J.R.; Steenks, M.H.; Bosman, F.; Buchner, R.; Olthoff, L.W.Diagnostic subgroups of craniomandibulasr disorders Part I: Self-report data and clinical findings. Journal of Orofac Pain, v.9, p.24-36, 1995.

20. Güler, N.; Yatmaz, P.I.; Ataoglu, H.; Emlik, D.; Uckan, S. Temporomandibulr internal derangement: Correlation of MRI findings with clinical symptoms of pain and joint sounds in patients with bruxing behavior. Dentomaxillofacial Radiology, v.32, p.304-310, 2003.

21. Schiffman, E.L.; Anderson, G.C.; Fricton, J.R.; Lindgren, B.R. The relationship between the level of mandibular pain and dysfunction and stage of temporomandibular joint internal derangement. Journal of Dental Research, v.71, p.1812-1815, 1992.Dent Res 1992; 71: 1812-1815.

22. Westesson, P.L.; Rohlin, M. Internal derangement related to osteoarthrosis in temporomandibular joint autopsy specimens. Oral Surgery, v. 57, p. 17-21, 1984.

23. Farrar, B. Characteristics of the condylar path in internal derangements of the TMJ. Journal of Prosthetic Dentistry, v. 39, p. 319-323, 1975.

24. Holmlund, A.; Helssing, G.; Axelsson, S. The temporomandibular joint: A comparison of clinical and arthrographic findings. Journal of Prosthetic Dentistry, v.62, p. 61-65, 1989.

25. Helms CA, Kahan L, McNeil C, Dotson T: Temporomandibular joint MRI morphology and signal characteristics of the disc. Radiology 172: 817-820, 1989.

26. Bean, W.R.; Omnell, K.A.; Oberg, T. Comparison between radiographic observations and macroscopic tissue changes in temporomandibular joints. Dentomaxillofacial Radiology, v.6, p.90-106, 1977.

27. Eriksson, L.; Westesson, P.L.; Rohlin, M. Temporomandibular joint sounds in patients with disc displacement. International Journal of Oral Surgery, v.14, p.428-436, 1985.

28. Chowdary, U.V.; Rajesh, P.; Neelakandan, R.S.; Nandagopal, C.M. Correlation of clinical and MRI findings in temporomandibular joint internal derangements. Indian Journal of Dental Research, v.13, p.22-26, 2006.

29. Eversole, L.R.; Machado, L. Temporomandibular joint internal derangements and associated neuromuscular disorders. Journal of The American Dental Association, v.110, p.69-79, 1985.

30. Alstergren, P.; Kopp, S. Pain and synovial fluid concentration of serotonin in arthritic temporomandibular joints. Pain, v.72, p. 137-143, 1999.

31. Suenagas, S.; Abeyama, K.; Hamasaki, A.; Mimura, T.; Noikura, T. Temporomandibular disorders: Relationship between joint pain and effusion and nitric oxide concentration in the joint fluid. Dentomaxilofacial Radiology, v.30, p.214-218, 2001.

32. Yajima, A.; Sano, T.; Otonari-Yamamoto, M.; Otonari, T.; Ohkubo, M.; Harada, T.; Wakoh, M. MR evidence of characteristics in symptomatic osteoarthritis of the Temporomandibular joint: Increased signal intensity ratio on proton density-weighted images of bone marrow in the mandibular condyle. Journal of Craniomandibular Practice, v.25, p. 250-256, 2007.

33. Nelson, D.A.; Landau, W.M. Jaws: diversities of gnathological history and temporomandibular joint enterprise. Journal of Neurology, Neurosurgery and Psychiatry, v.67, p.141-147, 1999.

34. Pertes, R.A. Differential diagnosis of orofacial pain. Mount Sinai Journal of Medicine, v.65, p.348-354, 1998.

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Informações bibliográficas:
Conforme a NBR 6023:2002 da Associação Brasileira de Normas Técnicas (ABNT), este texto científico publicado em periódico eletrônico deve ser citado da seguinte forma: MOLINA, Omar Franklin; AQUILINO, Raphael Navarro, CÉSAR, Ed Wilson; CURY, Sérgio Elias; MARÇAL, Ricardo Léllis; MIRANDA, Margarida M de. Tmj Arthralgia: a rarely described internal joint derangement and characterization regarding factors of age, pain description, and prevalence in craniomandibular disorders individuals (CMDS). **Cadernos UniFOA**. Volta Redonda, Ano V, n. 14, dezembro 2010. Disponível em: <http://www.unifoa.edu.br/cadernos/edicao/14/71.pdf>