149 - COMPARISON OF RANGE OF MOTION AND HEADACHE IN INDIVIDUALS WITH TEMPOROMANDIBULAR DISORDER AND ASYMPTOMATIC

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INTRODUCTION

The Temporomandibular Joint (TMJ) is an element of the stomatognathic system formed by various internal and external structures, such as TMJ, jaw muscle, oral floor muscles, ligaments, tongue, lips, salivary glands, teeth, motor and sensory nerves and jaws capable to perform complex movements. The chewing, swallowing, phonation and posture, rely heavily on function, health and stability of this order to function properly (OLIVEIRA, 2002, Pereira et al, 2005).

When there is any change in this articulation is what we call a temporomandibular disorder (TMD), which is defined as a collection of medical, dental or facial abnormalities associated with the stomatognathic system, which trigger dysfunction in the temporomandibular joint (Pereira et al., 2005).

It is estimated that 50-70% of the population is showing signs of dysfunction at some stage during the life (PASINATO, 2010). The distribution of cases of TMD in the general population shows a predominance of women in a ratio of 5:1 compared to males, aged 20 to 40 years (MALUF, 2006).

The etiology of TMD is multifactorial, not showing, so a single cause, where various aspects such as: changes in occlusion (tooth loss, tooth wear, poorly fitted dentures, cavities, restorations and other inadequate); traumatic injury or degenerative TMJ; skeletal problems, psychological factors (causing tension and muscular activity, causing spasms and fatigue) and parafunctional habits (nail biting, hand grip jaw, jaw improper posture, smoking, biting objects, thumb sucking or pacifier, bruxism among others) can be detrimental and can lead to imbalance and disharmony ATM around the stomatognatic (GOMES, 2010).

The classic signs and symptoms of temporomandibular joint dysfunction are pain and tenderness in the masticatory muscles and / or TMJ, joint noises (clicks, squeaks or crackles), limitation and / or asymmetry in the movements. The pain may appear from the suboccipital area and esternocleidomastóidea until the temporal region and angle of the mandible. However it is most frequently occur in the pre-auricular region. This symptom may occur irradiation for head, shoulder, arm or even interscapular region (ZANINI, 1999).

Headache is a symptom frequently observed in patients with temporomandibular disorder which represents any referred pain in the head, in the case of an extremely common manifestation. In the general population, during the course of life, the prevalence of headache is higher than 90%, representing the third most common diagnosis (10.3%) in medical clinics (GOMES, 2010).

Following head, the face of chronic musculoskeletal pain associated with temporomandibular disorder (TMD) and headache are the conditions that seem to occur with considerable frequency in the same individual. There TMD patients who have headache as one of their main symptoms, if not the only (GONÇALVES, 2009).

In Brazil there are few studies that correlate the measured maximum jaw opening and temporomandibular joint dysfunction, and this dysfunction to the prevalence of headache. This work comes the need to expand the studies on the effects of TMD, such as restriction of movement of ATM and increased incidence of headaches. From the results observed disclose to health professionals what measures to be taken and what the prognosis of treatment to be targeted to the patient.

The objective of the research was to analyze the range of motion of the TMJ and headache in asymptomatic individuals with TMD.

MATERIALS AND METHODS

The study showed how the research design observational case-control, cross-sectional.

Inclusion criteria for the TMD group individuals should be older than 18 years, presenting scores greater than 20 points in the index Fonseca and should not be performing orthodontic treatment.

Inclusion criteria for the control group individuals need to be over 18, present in the index score below 20 points Fonseca and should not be performing orthodontic treatment.

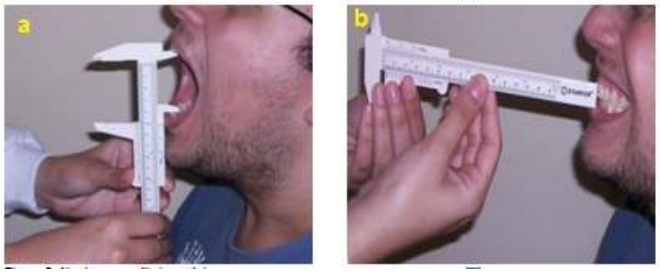
The recruitment of volunteers was conducted through verbal invitation, which were explained the procedures to which the individual would be subject and purpose of work. The individual who took part in the study received a term of consent form containing all necessary information about the survey, as well as the anonymity and confidentiality of information provided.

The assessment for both the TMD group as for the control group, was conducted by questionnaire anamnesis of Fonseca second KEYS et al (2008), and a plug for the identification, containing the demographics of individuals as age, gender and BMI.

The questionnaire was administered without time limit, not to lead the student to hasty answers, and after its completion was measured mobility TMJ as maximum mandibular opening and horizontal overlapping length according to the figures below. Any assessment procedure was performed by a single reviewer, and this remained in place for any doubt in understanding the same.

Data were collected maximum jaw opening and horizontal overlapping length in mm. Was carried out three measurements for each item assessed by caliper to obtain an overall average after three measurements, according to figure 1.

Figure 1- a) assessment of maximum mandibular opening, b) assessment of horizontal overlapping length.



For the verification of individuals who had headache, there was the question of the number four Fonseca Questionnaire, which asks the individual about the presence of headache as a symptom of TMD. To answer "Yes" was considered that the person has headache ever, and for individuals who indicated "No", it was considered that the individual never had headaches.

To assess the normality of the data was used the Shapiro-Wilk. To compare the variables between TMD and control groups were used the Mann Whitney nonparametric independent, independent t test and nonparametric chi-square test for gender category variable. The value of significance was $p < 0.05$. All testing performed using SPSS 13.0 software.

RESULTS AND DISCUSSION

According to Table 1 shows that the variables age, BMI, gender, index Fonseca, maximum mandibular opening, horizontal overlapping length between groups. In the variable age was not a significant difference in the groups ($p = 0.1$), as the variable BMI data were homogenous groups ($p = 0.1$). In accordance with the ratio of males and females between groups showed a significant difference ($p = 0.02$). As for the overlapping length horizontal no significant difference between groups ($p = 0.26$). In variable maximum aperture mandibular found a significant difference ($p = 0.001$) between the groups, also shown in the following figure.

Table 1 - Demographic Characteristics of individuals between groups

	TMD Group(n=52)	Control Group (n=20)	*P* Value
	Mean ± SD	Mean ± SD	
Age (years)	20.4 ± 1.73	22.25 ± 2.29	0.1
BMI (Kg/m^2)	22.6 ± 2.87	23.88 ± 3.01	0.1
Women/Men (n)	35 / 17	7 / 13	0.02*
Fonseca Index (%)	48.75 ± 15.43	0 ± 0 (0-0)	Not applicable
Opening mandibular max (mm)	43.6 ± 6.8	49.2 ± 7.4	0.001*
Overlapping lenght horiz. (mm)	1.7± 0.9	2.0 ± 0.8	0.26

* significant difference, mean ± (SD) standard deviation

Kitsoulis (2011) related to temporomandibular dysfunction and hearing loss, which evaluated 464 subjects, 308 females and 156 males, aged between 18 and 26 years (mean age 19.6 years), which verified the maximum jaw opening . The results were an average of 44.59 mm to 46.45 mm group DTM and for the asymptomatic group. Observing a inhomogeneity in relation to gender and a significant difference between the groups in maximum jaw opening TMD and asymptomatic, as also observed in this study.

In a study by Celic (2004) at the University of Zagreb in Croatia, which evaluated the movements of the TMJ in TMD patients and asymptomatic, with a sample of 180 individuals in 90 individuals being distributed to the TMD group and 90 asymptomatic individuals for the control group. All subjects were male. In this study, the age range used was 19 to 28 years, achieving an average age similar to the present study. The data of maximum mandibular opening the control group were on average 49.89 mm and the TMD group was 46.47 mm. The results of this study also demonstrated significant clinical differences between patients with TMD and control, to the extent of opening ($p = 0.016$), also corroborating with this research that showed a significant difference even between groups ($p = 0.001$).

According to figure 6, it is observed that the TMD percentage of individuals who had headache, totaling 69%, with the highest percentage of individuals who were sometimes present headache, 40%.

It is not yet well understood the relationship between the DTM and the different types of headaches, however there are clinical signs suggestive extremely approaching these two conditions. Some authors showed headache in over 60% of patients with TMD. It was demonstrated in a study conducted with 1000 individuals with TMD, a significant presence of headache in almost all age groups. The evaluation of the signs and symptoms pointed to as a major headache complaints, 70.1% (Rocha et al. 2002; Gomes, 2006).

Ozkan (2011) researched the relationship of TMD in subjects with headache, University of Gaziosmanpasa in Turkey. Their sample consisted of 40 subjects, 36 women and 4 men, with a mean age of 29.9 years. The percentage of patients who reported headache and TMD was presented (66.6%), showing therefore a high level of respect, similar to the present study.

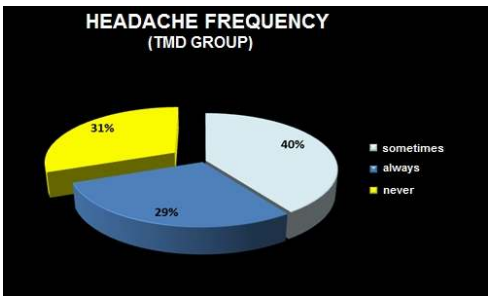


Figure 2- Frequency of headache in TMD group

Limitations of this study were: absence of a complete clinical evaluation in the individual, as quoted Szuminski (1999), reporting that the professional must evaluate the occlusions watching: tooth loss, and the general condition of the teeth, jaw movements, reports that it is still important to check for midline shift at rest or moves retrusion, propulsion and during mastication, swallowing and speech.

CONCLUSION

We conclude that the difference of the measure of maximum mandibular opening was statistically significant between the two groups (TMD group and control group), showing significantly lower in individuals with TMD.

As there was a significant difference in the maximum open measurement mandibular, it is believed that this is a crucial variable in assessing an individual for confirmation of TMD, but can not only be used for the confirmation of this, it is necessary, therefore, a complete clinical examination .

It was found that the frequency of headache is high in individuals who present the DTM. But despite being a symptom that is frequently associated with TMD, the interaction between TMD and headache has not been fully elucidated.

It is suggested the continuation and publication of further studies with a larger sample, a proportion similar between genders, greater similarity between the age and use of tools for accurate assessment of DTM.

REFERENCES

CELIC A.S. Measurement of mandibular movements in patients with temporomandibular disorders and in asymptomatic subjects mandibular movements and TMD. Coll. Antropol, v. 27, n. 2, p. 43–49, 2004.

CHAVES, T.C.; OLIVEIRA, A.S.; GROSSI, D.B. Principais instrumentos para avaliação da disfunção temporomandibular, parte I: índices e questionários; uma contribuição para a prática clínica e de pesquisa. Fisioter Pesq, vol.15, n.1, p. 92-100, 2008.

GOMES L.B. Limiar de dor à pressão em pacientes com cefaléia tensional e disfunção temporomandibular. Cienc Odontol Bras, v. 9, n. 4, p. 84-91, 2006.

GONÇALVES, D.A.G. Headache and Symptoms of Temporomandibular Disorder: an Epidemiological Study. Tese, Universidade Estadual Paulista Araraquara, 2009.

KITSOULIS, P. Signs and symptoms of temporomandibular joint disorders related to the degree of mouth opening and hearing loss. BMC Ear Nose Throat Disord, v. 11, n. 5, 2011.

MALUF, S.A. O efeito da reeducação postural global e do alongamento estático segmentar em portadores de disfunção temporomandibular: um estudo comparativo. Tese, Faculdade de Medicina da Universidade de São Paulo, 2006.

OLIVEIRA, S.L.S.; CARVALHO, D.S. Cefaléia e Articulação Temporomandibular (ATM). Rev. Neurociências, v. 10, n. 3, p. 141-152, 2002.

ÖZKAN N.C. The relationship of temporomandibular disorders with headaches: a retrospective analysis. The J Turks Soc Algology. v. 23, n. 2, p.13-17, 2011.

PASINATO, F. Disfunção têmporo-mandibular e hipermobilidade articular generalizada: aplicação de critérios diagnósticos. Braz. j. otorhinolaryngol, v. 77, n. 4, 2010.

PEREIRA, K.N.F. Sinais e sintomas de pacientes com disfunção temporomandibular. Rev CEFAC, v. 7, n. 2, P. 221-8, 2005.

SZUMINSKI, Stela Maris. A fonoaudiologia e as disfunções da articulação temporomandibular. Dissertação, CEFAC, São Paulo, 1999.

ZANINI, C.F.C. Os hábitos parafuncionais na disfunção da articulação têmporo-mandibular. Dissertação, CEFAC, Porto Alegre, 1999.

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COMPARISON OF RANGE OF MOTION AND HEADACHE IN INDIVIDUALS WITH TEMPOROMANDIBULAR DISORDER AND ASYMPTOMATIC

ABSTRACT

The Temporomandibular Disorder (TMD) is a heterogeneous syndrome consisting of symptoms and relevant dental and neurotology, and how it causes dysfunction of the temporomandibular joint (TMJ). It is estimated that 50-70% of the population shows signs of dysfunction at some stage during their life, so that there is predominance in women aged 20 to 40 years. The relationship with TMD headache is very narrow, and it is known that there is a greater prevalence in people with TMD. The aim was to assess the prevalence of TMD associated with headache in university courses in Physical Education and Physiotherapy and check the difference in range of motion of the TMJ in TMD patients and asymptomatic. The sample consisted of 72 individuals, distributed in TMD group (n = 52), and control group (n = 20). Individuals responded to the questionnaire for distribution groups Fonseca and after, there was a maximum mandibular opening (mm) to overlap the horizontal (mm) between the incisors of both groups. There was significant difference between the measurement of maximum mandibular opening between the two groups (p = 0.001) and a high frequency of headache in individuals TMD group (69%). In future studies we suggest the use of more accurate tools for diagnosis of TMD and recruitment of a sample with proportions of similar age and gender between groups.

KEYWORDS: Temporomandibular disorders, headaches, maximum mandibular opening.

COMPARAISON DE GAMME DE MOUVEMENT ET JOINT MAUX DE TETE CHEZ LES PERSONNES SOUFFRANT DE TROUBLES TEMPORO-MANDIBULAIRE ET ASYMPTOMATIQUES

RÉSUMÉ

Temporo-Trouble (TMD) est un syndrome hétérogène constitué des symptômes et de la pertinence dentaire et otoneurologie, causée par un dysfonctionnement de l'articulation temporo-mandibulaire (ATM). On estime que 50-70% de la population présente des signes de dysfonctionnement à un certain moment au cours de leur vie, de sorte que prédomine chez les femmes âgées de 20 à 40 ans. Le rapport de DTM avec le mal de tête est très étroite, et il est connu qu'il ya une plus grande prévalence chez les personnes présentant des DTM. L'objectif de la recherche était d'analyser la prévalence des TMD dans céphalées associées à des étudiants universitaires de l'Education Physique et de Kinésithérapie et de vérifier la différence de

l'amplitude des mouvements de l'articulation temporo-mandibulaire chez les patients asymptomatiques et TMD. L'échantillon était composé de 72 personnes réparties en DTM groupe (n = 52) et groupe témoin (n = 20). Les sujets ont répondu aux groupes Fonseca pour la distribution et après il a été constaté l'ouverture de la mâchoire maximale (mm), la longueur horizontale qui se chevauchent (mm) entre les incisives des deux groupes. Il n'y avait de différence significative entre l'ouverture mâchoire maximale mesurée entre les deux groupes (p = 0,001) et une fréquence élevée de maux de tête chez les sujets du groupe TMD (69%). Dans les études futures, nous suggérons l'utilisation d'instruments pour un diagnostic plus précis du TMD et le recrutement d'un échantillon avec des proportions du même âge et du sexe entre les groupes.

MOTS-CLÉS: troubles temporo, maux de tête, l'ouverture mandibulaire maximale.

COMPARACIÓN DE RANGO DE MOVIMIENTO Y CONJUNTO DOLOR DE CABEZA EN LAS PERSONAS CON TRASTORNO TEMPOROMANDIBULAR Y ASINTOMÁTICOS

RESUMEN

El trastorno temporomandibular (TTM) es un síndrome heterogéneo que consiste de los síntomas y la importancia dental y neurotología, causada por la disfunción de la articulación temporomandibular (ATM). Se estima que el 50-70% de la población muestra signos de disfunción en algún momento de sus vidas, por lo que predomina en las mujeres de 20 a 40 años. La relación de DTM con el dolor de cabeza es muy estrecha, y se sabe que hay una mayor prevalencia en individuos que presentaban DTM. El objetivo de la investigación fue analizar la prevalencia de los TTM en la cefalea asociada con los estudiantes universitarios de Educación Física y Fisioterapia y marque la diferencia en el rango de movimiento de la articulación temporomandibular en pacientes con TTM y asintomáticos. La muestra estuvo conformada por 72 personas distribuidas en DTM Group (n = 52) y grupo control (n = 20). Los sujetos respondieron a los grupos de Fonseca para la distribución y después se encontró la máxima apertura de la mandíbula (mm), la longitud horizontal de solapamiento (mm) entre los incisivos de ambos grupos. No hubo diferencia significativa entre la abertura máxima mordaza entre los dos grupos (p = 0,001) y una alta frecuencia de dolor de cabeza en sujetos del grupo TMD (69%). En futuros estudios se sugiere el uso de instrumentos de diagnóstico más preciso de la DTM y el reclutamiento de una muestra con las proporciones de la misma edad y sexo entre los grupos.

PALABRAS CLAVE: trastornos temporomandibulares, dolores de cabeza, la apertura mandibular máxima.

COMPARAÇÃO DA AMPLITUDE DE MOVIMENTO ARTICULAR E CEFALEIA EM INDIVÍDUOS COM DISFUNÇÃO TEMPOROMANDIBULAR E ASSINTOMÁTICOS

RESUMO

A Disfunção Temporomandibular (DTM), é uma síndrome constituída de sintomas heterogêneos e de pertinência odontológica e otoneurológica, tendo como causa a disfunção da Articulação Temporomandibular (ATM). Estima-se que 50-70% da população apresenta sinais da disfunção em algum estágio durante a vida, de forma que há predominância em mulheres, com idade entre os 20 a 40 anos. A relação da DTM com a cefaleia é muito estreita, e sabe-se que existe uma maior prevalência desta em indivíduos que apresentam DTM. O objetivo da pesquisa foi analisar a prevalência de DTM associado com cefaleia em universitários dos cursos de Fisioterapia e de Educação Física e verificar a diferença de amplitude de movimento da ATM em indivíduos com DTM e assintomáticos. A amostra foi composta de 72 indivíduos, distribuídos em Grupo DTM (n=52) e Grupo Controle (n=20). Os indivíduos responderam ao Questionário de Fonseca para distribuição dos grupos e após, verificou-se a abertura mandibular máxima (mm) o transpasse horizontal (mm) entre os incisivos de ambos os grupos. Houve diferença significativa entre a medida de abertura mandibular máxima entre os dois grupos (p= 0.001) e uma frequência alta de cefaleia em indivíduos do grupo DTM (69%). Para futuros estudos sugere-se a utilização de instrumentos mais acurados para diagnóstico da DTM e recrutamento de uma amostra com proporções de faixa etária e gêneros semelhantes entre os grupos.

PALAVRAS-CHAVE: Disfunção temporomandibular, cefaléia, abertura mandibular máxima.