

Assessment of changes in the classification of craniomandibular dysfunction severity in patients with muscular pain treated with occlusal splints

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ABSTRACT

The aim of this study was to assess the result of treatment in patients with craniomandibular disorders (CMD) performed in the clinic of Temporomandibular Disorders (TMD) from the dentistry graduation course at University of the Sacred Heart.

Patients with muscle involvement treated with miorelaxant splint therapy were reevaluated after six months by using a CMD anamnestic questionnaire, according to changes in the symptoms. From this point onwards they were classified again according to the level of dysfunction (severe, moderate, mild and none) and the results were compared to the findings before the treatment.

Results showed that miorelaxant splint therapy improves the status of dysfunction, taking into account that the patients need periodical control.

Key Words: TMJ, craniomandibular disorders, miorelaxant splint therapy, muscle involvement.

INTRODUCTION

Oral and facial pain of non-dental origin is mostly due to dysfunction of the masticatory muscles. This sort of facial pain is classified as cepha-

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lea of secondary origin associated to disturb of skull, neck, eyes, nose, sinus, teeth, mouth or other structures of the face or skull. Pain related to orofacial region, described as cephalgia, earache or in the region of the face is, most of the time, enhanced by the mandibular function. Besides the muscles, it can involve also the temporomandibular joint. Therefore, the craniomandibular dysfunction (CMD) is a muscle-skeletal condition that involves the muscles and the joint in a conjoint or isolated way.

Among the different proposed therapies for CMD there are stabilizing and repositioning occlusal splints. Glass; Glaros; McGlynn (1993) report that, in an evaluation of 10 thousand members of the American Dentistry Association, the use of occlusal splints was the choice treatment for muscle pain among experts in this area.

Many studies have been conducted aiming to understand the physiology of TMJ as well as the pain symptomatology related to this joint. At the same time, the number of patients seeking treatment for CMD has considerably increased.

Common symptoms for CMD are:

- headache;
- pain at the TMJ; strange sounds such as clicking, etc;
- difficulty to open the mouth;
- facial pain; facial tension;
- neck-pain; rigidity; noise while in movement;
- pain in the arm with weakness and twinkling of fingers;
- ear pain with hum, sensation of obstructed ear canal; dizziness;
- eye pain; pressure behind the eyeball; blurred and out of focus vision;
- modification of bite; inability to chew, painful chewing and tooth pain.

Factors that increase the risk for CMD are structural and genetic, such as the lack of teeth, parafunction or functions that may affect the adaptability. Some diseases that increase tension may affect the ability of individuals to cope with problems and conflicts of the daily life. Factors that may break out CMD could be masticatory trauma, head and neck trauma; moderate or severe parafunctional activity; sudden modification in the relation between maxillaries, sudden strong physical or psychological tension and clinical conditions that lead to structural disarrangement. Factors that interfere with the process of healing are nutrition, environment, posture, occlusion and psychosocial causes.

Loss of muscular tonus due to the lack of exercise or loss of function that lead to a permanent weakness are main reasons for the patients' impossibility to recover without treatment. The control of the painful symptomatology and of the discomfort is the objective of the treatment for CMD.

Different therapies can be used due to the multifactorial character of CMD. In CMD involving muscles and with the presence of parafunctional habit, the occlusal splints are frequently indicated, since they are re-

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versible and non-invasive. Despite the high rate of success with occlusal splints there is a group of cases that do not improve with this treatment. Besides that, few studies are conducted to evaluate the effectivity and the follow-up of the treatment of both muscular and joint pathologies.

In a study by Leib and Alden (1996) these authors support the benefits of full coverage occlusal splints in the treatment of CMD and bruxism. They stress that such splints must be used prior to invasive and costly procedures.

MATERIAL AND METHODS

Information for the present study was obtained from the data bank of the discipline of CMD of the University of the Sacred Heart during the second semester of 2000, based on data from the clinical form. Only the cases treated with occlusal splints due to diagnosis of muscular pain were selected. Total number of cases was 27 (20 female and 7 male) with age ranging from 16 to 68 years. The anamnesis form, used before the diagnosis and after 6 months, included 10 questions. Affirmative answers awarded 10 points and negative - zero points. Answers such as "sometimes" were awarded 5 points. The total of points led to the "anamnetic index" for each individual. This index may classify the CMD in mild, moderate, severe or no CMD at all as can be seen in FIGURE 1. The questionnaire included the following questions:

- 1 - Is there any difficulty to open your mouth? () Y () N () ST¹
- 2 - Do you have any difficulty to move your maxillary sideways? () Y () N () ST
- 3 - Is there pain or fatigue while chewing? () Y () N () ST
- 4 - Is there headache often? () Y () N () ST
- 5 - Is there earache or in the region of TMJ? () Y () N () ST
- 6 - Is there neck pain or stiff neck? () Y () N () ST
- 7 - Did you noticed noise in the TMJ while biting or opening the month? () Y () N () ST
- 8 - Did you notice if you have an habit of crunching or gnashing teeth? () Y () N () ST
- 9 - Do you feel that you teeth do not articulate well? () Y () N () ST
- 10 - Do you think you are a nervous person, or tense? () Y () N () ST

In the last question the patient rates himself from 0 to 10.

¹ Y - yes; N - no;
ST - sometimes

Result of the anamnetic index	Grade
0 - 19	No CMD
20 - 44	Mild CMD
45 - 69	Moderate CMD
70 - 100	Severe CMD

FIGURE 1 - Classification of patients

After six months the patient answered again the questionnaire and the results of the anamnetic index were compared with those of the initial visit. In this phase, it was also asked to the patients to rate their sleeping: quite sleep, restless sleep, snoring or no - snoring.

RESULTS

According to the anamnetic form, patients were allocated in groups. Group A with two cases (7.4%) with severe CMD which remained severe; group B with five cases (18.5%) with severe CMD that became moderate; group C with 11 cases (40.7%) with moderate CMD that became mild and group D with four cases (14.8%) with mild CMD that resulted in no CMD at all. There were also two cases (7.4%) in which the splints were prepared but not used and three cases (11.1%) were defaulters.

In group A, although with persistent severe CMD, one patient reduced this score in 15 points and another in 25 points after six months. In group B, three patients (11.1%) reduced 30 points, among them one case used the splint just for four months and two cases reduced the score in 25 points. In group C, three patients (11.1%) reduced the score in 25 points, four (14.8%) reduced 30 points, among them one case used the splint only for five months and four cases (14.8%) reduced the score in 15 points. In group D, three cases (11.1%) reduced the score in 25 points and one (3.7%) reduced in 10 points. This last case has abandoned the use of the splint.

Two cases (7.4%) with moderate CMD did not return to collect their splints. Three cases (11.1%) with moderate CMD did not show up for control (FIGURE 2).

Regarding sleeping, 16 patients (59.2%) reported quite sleep, 8 cases (29.6%) reported restless sleep and 3 cases (11.1%) did not report on their condition of sleep. Out of these cases, 12 (44.4%) did not report snoring, eight (29.6%) referred snoring, one case (3.7%) referred no more snoring and six cases (22.2%) did not have a precise idea on this subject.

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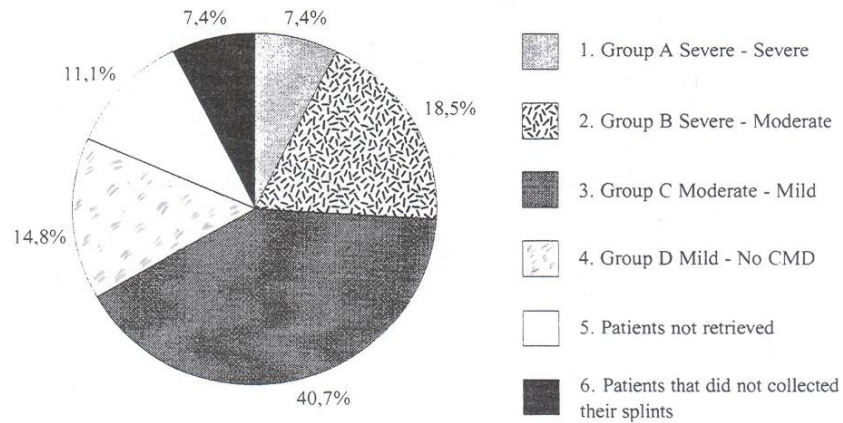


FIGURE 2 – distribution of cases according to the classification.

DISCUSSION

After six months of treatment with the miorelaxant splints and a new evaluation it was observed that the patients did not give negative answers to all the questions (zero points) since there was at least one question on the emotional factor (tension and stress) as a contributing factor to grade the CMD.

Presently, emotional stress is a common factor in the daily-life of individuals. Bruxism has a close relation with emotional stress, the increase in the muscular activity and, therefore, with CMD.

All the evaluated cases reported improvement in their symptoms in the first two months. However, this improvement decreased in time; no case with severe CMD improved to mild or no CMD at all. In summary severe cases just improved until a moderate degree and those with moderated to mild CMD. Only cases with initially mild CMD improved to no CMD at all.

One patient in group 2 and another in group 3 discontinued the use of the splint since the device was squeezing the teeth and leading to pain. A broken splint prevented one case in group D to continue its use. As a result, after applying the splint, it is important to proceed to some adjustments to avoid discomfort and even damage to the splint.

CONCLUSION

After six months of treatment with miorelaxant splints patients showed improvement in symptoms. This is confirmed by the reduction in the anamnetic index.

Regarding the condition of patient sleeping results are not conclusive. However, it was possible to observe that patient with pain or dysfunc-

tion in the TMJ could present problems associated to the quality of sleep. In this sense, studies should be encouraged since bruxism, depending on its intensity and frequency, may lead to fragmentation of sleep. It is also possible that, being a sleep disorder, it may be associated to snoring or sleep apnea.

Headache may be due to sleep obstructive apnea syndrome (SOAS). Patients that complain of morning facial pain may show SOAS and CMD.

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