

## POLIPHARMACOTHERAPY IN TEMPORO-MANDIBOLAR DISORDERS (TMD): FOCUS ON PSYCHOTROPIC DRUGS

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### Abstract

Purpose of the study is the evaluation of pain in patients affected by Temporo-Mandibolar Disorders (TMD) with dysfunctional algic symptoms in order to identify the efficacious therapy for non responders to conventional treatment, so that an alternative pharmacological approach with psychotropic drugs might be indicated. This prospective observational study included 9 patients recruited in the period between 1<sup>st</sup> and 31<sup>th</sup> October 2015. To all patient, after obtaining informed consent, diagnosis was established with the aid of a 16 item structured clinical interview, the Oral Health Impact Profile and each patient furnished relevant data, regarding the quality of life – the Flanagan clinic scale (QOLS). The patients sample was composed by 67% of females and 33% of males with a mean age of 34.1 yo. The diagnosis was of one case of temporo-mandibular joint (TMJ) disease, four cases of muscular disease and four cases of combined TMJ disease and muscular disease. Two patients underwent physical therapy, three combination therapy and four pharmacological therapy (NSAIDs, corticosteroids and/or psychotropic drugs). Higher scores (according to Flanagan scale) correspond to a better quality of life; we found these scores in young women with joint and muscular disease treated also with psychotropic drugs for short time. Temporo-mandibular disorders in patients with dysfunctional algic symptoms can be treated with physical and pharmacological conventional therapies but also alternative pharmacological approaches such as antidepressants and/or anxiolytics. The origin of these diseases have a psychological correlate which would explain the efficacy of psychotropic drugs, even in the absence of an underlying psychiatric pathology or concomitant.

**Keywords:** temporo-mandibolar disorders, cranio-facial algic pain, psychotropic drugs

## Introduction

Temporo-mandibular disorders (TMD) are among the most common conditions of non-odontogenic chronic pain, localized in oro-facial district related to different etiologic factors and comorbid conditions [1]. TMD include diseases of temporo-mandibular joint (TMJ) and/or masticatory muscles (MM) and surrounding tissues. Clinically, TMD are characterized by: preauricular, TMJ and MM pain; altered mandibular function; functional articular clatter (for example, clicking, popping etc.). Common related symptoms are headache, otalgia, ocular, cheek and neck pain [2]. In some studies, 75% of population presented at least one of these clinical signs, and 1/3 of general population referred one or more symptoms [3].

Nevertheless, the first cause of a specialistic consultation is pain. This pathology requires a team work and a multidisciplinary approach, timely detection of causes and a meticulous selection of treatment procedures, which can be very demanding in terms of differential diagnosis in orofacial pain. Even if physical therapy could be useful in the treatment of these disorders, it has been demonstrated that drug therapy is efficacy in non responders [4]. Loser et al. recommended amitriptyline (75 mg daily, in the evening) and in a second instance fluphenazine (1 mg daily) [5,6].

Other authors recommend the use of carbamazepine (200-1200 mg daily) associated with vigabatrin that enhances the efficacy and reduces side effects or the use of phenytoin (50-600 mg daily) [7]. In addition, these anti-epileptic drugs may also be associated with a benzodiazepine, such as chlordiazepoxide, that shows anxiolytic, sedatives and hypnotics effects. The use of an antidepressant associated with anxiolytic can be effective in case of pain combined with depressed mood or anxiety, if treatment with NSAIDs has failed [8]. Aim of the study is the evaluation of the chronic pain in patients with temporo-mandibular disorders (TMD) with dysfunctional algic symptoms, to improve the quality of life. Through the identification of an efficient pharmacological therapy, especially in non-responders to conventional treatments, psychotropic drugs could be a valid alternative approach.

## Material and Methods

This prospective observational study included 9 patients, recruited in the period between 1<sup>st</sup> and 31<sup>th</sup> October 2015. Informed consent was obtained from all participants included in the study.

*Exclusion criteria:* familiarity for mental illnesses

and a concomitant psychiatric disorder associated with chronic cranio-facial pain. Each patient furnished anamnestic data regarding personal, physiological and clinical history. To all patient the diagnosis was established with the aid of a structured clinical interview, the Oral Health Impact Profile [9], to measure the level of dysfunction, discomfort and disability associated with oral disorders.

All patient furnished relevant data regarding the quality of life through 16 items - Flanagan clinic scale (QOLS), in order to define the potential benefits of a specific therapy [10].

## Results

The patients sample was composed by 6 females (67%) and 3 males (33%) with an age ranging between 28-41 y.o., with a mean age of about 34 y. o. (SD 4.3). The diagnosis was in one case of TMJ disease, four cases of muscular disease and four cases of TMJ and muscular disease codiagnosed.

Each patient underwent different therapies according to the manifestation of the algic symptoms. Two cases underwent physical therapy, which included intraoral devices [GROUP P], three cases underwent physical-drugs combination therapy [GROUP A] and four cases underwent pharmacotherapy (NSAIDs, corticosteroids and/or psychotropic drugs) [GROUP D]. Higher scores (according to the Flanagan scale) correspond to a better quality of life. High scores were detected in 3/4 women of GROUP D with. The highest score (93) was found in the most young woman (aged 32 years) between those which have joint and muscular disease. These three women underwent a pain therapy for one month with antidepressant and/or anxiolytic drugs. This confirms that in the origin of these diseases could be a psychological correlation, sex dependent, that may justify the use and the positive short-time effect of psychotropic drugs, despite the absence of a primary or concomitant psychiatric disorder.

## Conclusions

Over the years, functional disorders of the masticatory system have been described in different terms which resulted in certain misunderstandings and confusion. These disorders, in fact, only as a part of today's idea of TMDs, are mentioned as Costen's syndrome, and they refer to symptoms in the region of the ear and temporo-mandibular joints [4]. Shore introduced the term temporo-mandibular joint dysfunction syndrome [5]; Ramfjord and Ash introduced the term functional temporo-mandibular joint disturbances [6].

Some of the terms suggest putative etiologic factors related to the symptoms, such as occluso-mandibular disturbance [7], myoarthropathy of the temporo-mandibular joint [8], temporo-mandibular pain-dysfunction syndrome [9] and myofascial pain dysfunction syndrome [10]. Since the signs and symptoms are not localized only in the joints or masticatory muscles, some authors considered such terms too narrow so they introduced the term craniomandibular disorders [11]. Finally, Bell introduced the term temporomandibular disorders which has, since then, become widely used [12].

It is a general belief that the etiology of TMDs is multicausal, although it is still not completely clarified. Also, the role of certain often mentioned etiologic factors has not still been recognized as indisputable. TMDs are often of complex nature and affected by many factors. The role of systemic and local factors is reported in the etiology. Among different etiologic factors, the following five main factors related to TMDs have been reported in relevant literature: occlusion, trauma, deep pain stimulus, emotional stress and parafunctional activities [2,3]. Reversible and irreversible therapies are performed in TMDs treatment. The reversible, conservative treatment is performed as initial therapy in almost all the cases of TMDs. The initial therapy includes patient's education, patient's self-treatment, cognitive behavioral intervention and elimination of maladaptive habits, physical therapy (occlusal splints), pharmacotherapy.

Irreversible, aggressive, procedures such as extensive occlusal and surgical procedures should be avoided in an early stage of treatment [13]. Among analgesic drugs, it is preferable to use a non narcotic non steroidal painkiller, towards the kind of the patient and the kind of painful disease. The administration of non steroidal anti-inflammatory drugs (NSAIDs) as analgesic treatment originates from many clinical studies that validate efficacy and manageability; therefore, NSAIDs can be considered the first choice drugs in therapeutic approach of acute pain, like facial pain. The most common classification can differentiate NSAIDs in major or classics and new generation drugs. NSAIDs can be also classified in relation to plasma half-life that, even if influenced by variables like age, kind of pharmacological preparation, simultaneous administration of other drugs, can influence the choice of the drug in relation to the disease. NSAIDs have a good analgesic activity for odontoiatric pain symptomatology; odontalgia, especially because of its intensity, is generally considered a useful model for the evaluation of antalgic effect of non narcotic

analgesic drugs [14]. Corticosteroid drugs present antiinflammatory and anti-edema action with indirect analgesic activity. These effects can be referred to the stabilization of lysosomal and cellular membranes and to the inhibition of the synthesis of prostaglandins, that can enhance the action of proinflammatory factors. The most important activity of corticosteroid drugs in algological field is correlated to phospholipase inhibition, that can reduce the production of algogenic elements, such as free radicals. NSAIDs and corticosteroidal drugs have inadequate efficacy in some kind of facial pain, especially neoplastic ones; in these cases it is useful to associate major and minor narcotic drugs [15]. Codeine and dextropropoxyphene present a good synergism with NSAIDs; morphine and natural opium alkaloids can be used for advanced neoplastic pain [16]. Pain in TMD is located in the jaw, temporo-mandibular joint, and masticatory muscles. Stress, in turn, has been shown to be associated with repeated behaviors such as jaw clenching and teeth grinding that tend to contribute to the triggering of temporo-mandibular problems. Therefore, it is suggested that there may be differences in the psychological profile of patients with muscle complaints and joint disorders. Apparently, patients with muscle complaints, especially women, are more sensitive to pain and more prone to psychological stress than patients with joint complaints. One of the most important factors in TMDs is certainly the elevated level of emotional stress, that can affect muscular function either by increasing muscular activity in physiologic rest position (the so-called protective co-contraction) or by development of bruxism and both can occur simultaneously. The elevated level of emotional distress can activate the sympathetic nervous system and cause muscular pain. Activation of the sympathetic nervous system can also be related to some other psychophysical disorders, which are often related to TMDs.

Pain is a complex experience that involves instinctive-emotional and feelings area; targeted use of psychotropic drugs, especially antidepressants, can usually allow a significant reduction in painkiller administration. The effect enhancement does not originate in pharmacological synergism, but in the action of these psychotropic drugs on central threshold pain and on processing mechanism. The complexity of pain pathway and of physiologic control mechanism justifies a pharmacological therapy with neuroleptic, antidepressant drugs and minor tranquilizers [13]. However, in our study, treatment plans with pharmacotherapy in association with CNS drugs and physical therapy (splint therapy) improve pain

symptoms, jaw alignment and reduce unwanted muscle movements, including clenching of the jaw. In conclusion, temporo-mandibular disorders can be treated with different therapies not always successfully: physical therapy, physical-drug combination therapy, and polypharmacy with psychotropic drugs, that is most efficient choice in this heterogeneous group of patients with a chronic dysfunctional algic disease.

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