Is migraine a complicating factor for evidence-based therapy for masticatory myofascial pain? A case-control study

Paula Furlan Bavia, DDS,[a] Cynthia Vanessa Müller, DDS,[b] Lis Meirelles, DDS,[a] Larissa Soares Reis Vilanova, DDS,[a] and Rafael dos Santos Silva, PhD[c]
State University of Campinas, Piracicaba, São Paulo, and State University of Maringá, Maringá, Paraná, Brazil

Objective. This study aimed to assess the response to conservative treatment of pain in patients diagnosed with masticatory myofascial pain (MMP) with or without migraine.
Study Design. A total of 61 patients were evaluated and divided into 2 groups: Group 1 (G1), patients with MMP (n = 34); Group 2 (G2), patients with MMP and migraine (n = 27). Pain was assessed subjectively by visual analog scale (VAS) and objectively through masticatory muscle palpation at baseline and after 3 treatment visits. Treatment included occlusal appliances, medication, and self-care exercises.
Results. G2 reported greater discomfort subjectively and objectively at all evaluation visits; however, significant difference between groups was noted objectively only at baseline ($P = .0052$). Regardless of group, pain levels decreased significantly over time as measured by VAS analyses (G1 $P = .0033$; G2 $P = .0031$) and muscle palpation (G1 $P < .0001$; G2 $P < .0001$).
Conclusions. Evidence-based therapy improved pain scores over time in MMP patients regardless of the presence of migraine.
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Temporomandibular disorders (TMD) are the major cause of nondental pain in the orofacial region, which has a negative effect on quality of life. The term *TMD* encompasses several masticatory system disorders, with the most common symptom being pain localized to the muscles of mastication or the preauricular area.[1] Masticatory muscle pain is the most common complaint in the population seeking TMD treatment[2-5] and within the facial and cervical muscle disorders. Myofascial pain is defined as a chronic muscle disorder, characterized by the presence of trigger points, which are points of sensitivity in the skeletal muscles, and by local or referred pain, which can be exacerbated by palpation.[2-5]

Individuals with TMD also commonly report headaches,[1,6,7] being 1.8 to 2 times more likely to have primary headaches than are control subjects.[8,9] Furthermore, the prevalence of headaches, including migraine, is between 48% and 77% in TMD patients.[7,12,22,29] Migraine is the most studied primary headache, and it is a prevalent and disabling condition, affecting 35 million individuals in the United States alone.[10] Migraine is a recurrent disorder that interferes with activities of daily living, substantially affecting quality of life. Migraine attacks can occur at any time, usually developing gradually, and often lasting 1 to 3 days. They are characterized by unilateral, throbbing, moderate to severe pain, usually associated with nausea, vomiting, photophobia, phonophobia, and aura.[11] Despite having varied causative mechanisms, headache is a symptom often found in TMD patients with similar symptoms as reported by patients diagnosed with tension-type headache or migraine.[7]

The temporomandibular joint (TMJ) and the muscles of mastication both receive trigeminal sensory innervation, which is also responsible for conducting nociceptive input from the cranial blood vessels that are involved in the pathogenesis of migraine. The presence of TMD symptoms seems to cause an excitatory reaction on migraine, and vice versa, particularly in patients with severe or chronic pain that are expected to be more susceptible to the phenomenon of central sensitization.[4,12] Although headache is commonly found among TMD patients,[13] there is a lack of evidence on the influence of migraine on the treatment outcome of patients with masticatory myofascial pain (MMP). Therefore, the aim of this study was to compare both subjective and objective pain scores in patients with MMP with and without migraine, before and after conventional evidence-based therapy.

MATERIALS AND METHODS

Sample selection

The present study followed the Declaration of Helsinki. The consent forms were approved by the Ethics

Statement of Clinical Relevance

Migraine headache, as a comorbidity of temporomandibular pain, did not appear to influence the clinical response to conservative therapy.

[a]Department of Prosthodontics and Periodontology, Piracicaba Dental School, State University of Campinas, Piracicaba, São Paulo, Brazil.
[b]Department of Dentistry, State University of Maringá, Maringá, Paraná, Brazil.
[c]Adjunct Professor, Department of Dentistry, State University of Maringá, Maringá, Paraná, Brazil.
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Committee of the State University of Maringá (process 426/2011), Maringá, Paraná, Brazil. Of all the patients who sought care for a primary complaint of facial pain at the Orofacial Pain Clinic (Department of Dentistry, State University of Maringá) between 2010 and 2011, 61 patients were recruited and consented to participate in the study. After inclusion/exclusion criteria were applied, the patients were divided into 2 groups: patients diagnosed with MMP only (Group 1) and patients diagnosed with MMP and migraine (Group 2).

Inclusion and exclusion criteria

Inclusion criteria were a history of pain for a minimum of 6 months, characterized as chronic; no history of TMD treatment; no analgesic use in the 24 hours before baseline examination; and MMP as the primary diagnosis with or without the additional diagnosis of migraine. Primary diagnosis was based on the chief complaint and the familiar painful sensation during the examination. Exclusion criteria were neuropathic pain; other diagnoses of primary headaches (e.g., cluster or chronic paroxysmal headaches); diagnosis of secondary headaches; and diagnosis of a systemic disease, such as rheumatoid arthritis, fibromyalgia, or psychiatric or neurologic disorders.

Diagnosis of MMP

A diagnosis of MMP was made according to the guidelines of the American Academy of Orofacial Pain[1] and included (1) the presence of trigger points, which are hypersensitive spots in a taut band of a skeletal muscle capable of reproducing the patients' pain or causing referred pain during examination; and (2) the presence of deep and diffuse pain aggravated by using the masticatory muscles.

Diagnosis of migraine

Despite several subdivisions, migraine was considered a unique entity, with its diagnosis made according to the International Headache Society[11] criteria, which included at least 5 previous attacks with the following characteristics:

- Attacks of 4 to 72 hours' duration (without treatment or unsuccessfully treated);
- Pain should present with at least 2 of the following characteristics: (1) unilateral, (2) throbbing in nature, (3) moderate to severe intensity, (4) aggravated by or made more uncomfortable by physical activity;
- During the attack the patient should report at least one of the following symptoms: (1) nausea or vomiting, (2) photophobia or phonophobia.

Subjective pain assessment

A visual analog scale (VAS) was used to subjectively evaluate pain levels. It is a 100-mm-long horizontal line, anchored by word descriptors at each end, where the left side reads "no pain" and the right side reads "worst pain imaginable."[14] Patients drew a vertical mark on the line at the point that best represented their perception of their current pain level.

Muscle palpation

Pain levels were measured objectively via muscle palpation by 2 previously calibrated examiners. The calibration process was supervised by an experienced orofacial pain specialist and included the use of an algometer to achieve an optimal and standardized palpation pressure (intra-examiner and interexaminer) and to ensure the correct palpation sites.

The muscles included were the anterior temporalis, superficial masseter, sternocleidomastoid, and trapezius. A total of 8 palpation sites were included, 2 pairs of facial and 2 pairs of cervical muscles. The examination was performed according to the recommendations of the American Academy of Orofacial Pain.[1] A palpation score was then recorded at each point, as follows: (0) no pain; (1) mild pain or discomfort; (2) moderate pain; (3) severe pain with eyelid reflex or other severe pain signal; (4) severe pain with referral. To be diagnosed with myofascial pain, each patient should report at least one trigger point with referred pain; therefore, at least one of the 8 palpation sites should produce a score of 4. The final score, which represented the objective pain intensity on palpation experienced by each patient, was obtained using the arithmetic mean of all muscle palpation sites. Both the subjective and objective pain scores were recorded and compared at baseline (T0) and at 3 treatment visits (T1, T2, and T3) during a 26-week period.

Treatment approach

The treatment protocol included standard and evidence-based reversible therapy. All patients received behavioral guidance (regarding avoiding parafunctional habits, eating a soft diet, and so forth); occlusal splints; medication as required (including muscle relaxants such as cyclobenzaprine or tizanidine, nonsteroidal anti-inflammatory drugs, and tricyclic antidepressants); and self-care exercises, including moist heat and muscle stretching. Lidocaine injections (0.5%) were performed during the study if trigger points were found to be resistant to the initial approach. The patients in group 2 were concurrently treated for migraine using preventative (amitriptyline and nortriptyline) and abortive (triptans) medications, as required.