PRACTITIONER FORUM

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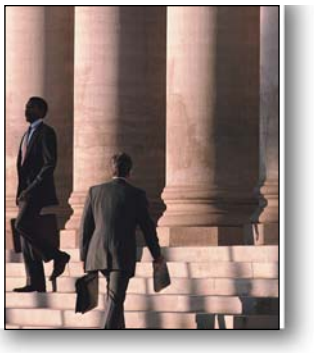

Reevaluating the Management of Chronic Temporomandibular Pain

Are We Treating PTSD with Debridement and Lavage?

In 2002, researchers from the Houston VA Medical Center, Houston, TX published findings from their randomized, controlled trial demonstrating that sham arthroscopic surgery is as effective as arthroscopic lavage or arthroscopic debridement in treating osteoarthritis of the knee.[1] According to the researchers, the cost of such surgeries exceeds $3 billion a year in the United States alone.[1] Beyond the specific implications for patients with osteoarthritis of the knee, these findings highlight the importance of maintaining an ongoing dialogue between research and clinical practice in order to control health care costs and improve the health of both veterans and the general civilian population.

We believe such an evidence-based approach is needed in another area of health care: the management of temporomandibular disorders (TMDs). Although it's likely that TMDs rarely are inquired about or addressed by primary care physicians, these chronic pain disorders are second only to odontalgia (tooth or periodontal pain) as the most common problem patients report to their dentists.[2] In our experience, they are extremely common in both active-duty military personnel and veterans with posttraumatic stress disorder (PTSD)—especially the latter. According to a National Institutes of Health (NIH) Technology Assessment Conference Statement, however, no data from randomized clinical trials support any of the current dental interventions for TMDs.[3] While the overall cost of craniomaxillofacial and orthodontic procedures used to treat or prevent TMDs in the United States is unknown, it may well approach those for arthroscopic debridement and lavage of the osteoarthritic knee.

In this article, we suggest that the current prevailing approaches to TMD treatment may be misguided. To achieve optimal treatment, it may be necessary to change the way we view these disorders. In the following brief review, we endeavor to establish the need for more clinical research in this area in order to validate the emerging theories we present here and to translate them into practical clinical advice.

A TRADITIONAL APPROACH DISCREDITED

In the past, the constellation of conditions involving pain in the muscles of mastication, the temporomandibular joints, and other associated orofacial structures were known variously as Costen syndrome, temporomandibular joint dysfunction, or craniomandibular disorders. Because the muscles of mastication (the masseter and temporalis muscles)—rather than the temporomandibular joint—most commonly are involved in these conditions, however, the American Dental Association has adopted the more general term, temporomandibular disorders.[2,4,5]

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TMDs have been associated with jaw clenching and tooth grinding and with sleep bruxism, but the precise etiology of these disorders remains unclear. One theory that has had a substantial influence over approaches to preventing and treating these disorders in the past has been the idea that dental malocclusion plays a major role in their development.

Based on this hypothesis, costly occlusal adjustments frequently have been initiated after detection of clenching-grinding or bruxism in order to prevent progression to TMDs. In 2003, however, Koh and Robinson concluded by meta-analysis that such procedures are ineffective for treating or preventing TMDs.[6] Likewise, after a major literature review, Vanderas and Manetas concluded that early treatment of malocclusion to prevent clenching-grinding is not supported by longitudinal studies and is not scientifically justified.[7]

EMOTIONAL DISTRESS, ANXIETY, AND TMDs

Accumulating evidence supports a connection between anxiety disorders such as PTSD; the dental conditions of clenching-grinding, bruxism, and TMDs; and the difficult-to-classify illnesses of fibromyalgia (FM) and chronic fatigue syndrome (CFS).[5,8] Patients with these disorders share common key symptoms and underlying psychophysiologic mechanisms. Furthermore, as evidence supporting a temporal relationship between emotional distress, clenching-grinding, TMDs, FM, and CFS accumulates, the idea of a cascade of disorders with increasing severity becomes increasingly plausible.[5]

The best known disorder in the clenching-grinding spectrum is sleep bruxism. In one epidemiologic survey of about 13,000 Europeans aged 15 and older, 4.4% of the participants met the International Classification of Sleep Disorders' criteria for sleep bruxism and 8% met the less restrictive criteria for a diagnosis of tooth grinding.[9] This survey found an elevated risk of sleep bruxism among participants reporting anxiety, heavy alcohol consumption, or a "highly stressful life."[9] Sleep bruxism and presumably other clenching-grinding behaviors peak between the ages of 25 and 44 years,[9] which is similar to the peak prevalence of most anxiety and stress disorders. Moreover, recent research increasingly documents the role of neurobiological factors in the etiology of clenching-grinding, bruxism, and related disorders.[10,11]

Results from other recent studies strongly suggest that both extracapsular (muscular) and intracapsular (joint) TMDs share many clinical features with FM and CFS. For example, researchers working in hospital-based clinics have shown that patients diagnosed with TMDs, CFS, or FM share such common symptoms as heightened pain sensitivity and difficulties in concentration.[5] In addition, PTSD, irritable bowel syndrome, and chronic pelvic pain appear to coexist frequently with TMDs.[5]

BEYOND CURRENT MANAGEMENT OF TMDs

According to the NIH Technology Assessment Conference Statement, nonsteroidal anti-inflammatory drugs and opiates are "the mainstay of pharmacologic pain treatment" for this and other types of musculoskeletal pain. Benzodiazepines and, increasingly, very low dose antidepressants and anticonvulsants also are used.[4] Patients with TMDs, however, are being referred regularly to craniomaxillofacial surgeons for invasive therapies. These include injections of lubricants and corticosteroids into the joint, laser irradiation of the temporomandibular joint and muscles, temporomandibular joint lavage and debridement, and eventually bilateral total joint replacement. These invasive therapies have not proven efficacious in treating this condition.[12,13] When craniomaxillofacial surgical procedures fail or worsen the pain, opiates are used widely as salvage therapy.[4]

What is needed is a consensus to direct clinicians away from these invasive, irreversible procedures that are unsupported by hard scientific data and toward a more rational, evidence-based approach emphasizing conservative, nonsurgical interventions. Such an approach likely would have a substantial impact on health care in the federal system and worldwide, decreasing morbidity and mortality and reducing health care costs.

Recent studies have begun to build a foundation of evidence for this type of approach, but more research clearly is needed. Using well designed studies, investigators must probe further into the connections between the disorders described here as being part of a spectrum, the common role of premorbid emotional distress in the etiology of these pain disorders, and the optimal psychopharmacologic and psychotherapeutic treatments for these related disorders. As in the case of arthroscopic surgery for knee osteoarthritis, the VA health care system is uniquely suited to serve as a setting for this clinical research. ●

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REFERENCES

1. Moseley JB, O'Malley K, Petersen NJ, et al. A controlled trial of arthroscopic surgery for osteoarthritis of the knee. *N Engl J Med.* 2002;347: 81–88.
2. Imamura Y, Okeson JP. Diagnosis of chronic orofacial pain. In: Dionne RA, Phero JC, Becker DE, eds. *Management of Pain and Anxiety in the Dental Office.* Philadelphia, PA: W.B. Saunders Company; 2002:337–353.
3. NIH Technology Assess Statement. Management of temporomandibular disorders. National Institutes of Health Technology Assessment Conference Statement. *J Am Dent Assoc.* 1996;127: 1595–1606.
4. Ta LE, Neubert JK, Dionne RA. Pharmacologic treatments for temporomandibular disorders and other orofacial pain. In: Dionne RA, Phero JC, Becker DE, eds. *Management of Pain and Anxiety in the Dental Office.* Philadelphia, PA: W.B. Saunders Company; 2002:354–367.
5. Aaron LA, Herrell R, Ashton S, et al. Comorbid clinical conditions in chronic fatigue: A co-twin control study. *J Gen Intern Med.* 2001;16:24–31.
6. Koh H, Robinson PG. Occlusal adjustment for treating and preventing temporomandibular joint disorders. *Cochrane Database Syst Rev* [database online]. 2003;(1):CD003812.
7. Vanderas AP, Manetas KJ. Relationship between malocclusion and bruxism in children and adolescents: A review. *Pediatr Dent.* 1995;17:7–12.
8. Bracha HS, Ralston TC, Williams AE, Yamashita JM, Bracha AS. The clenching-grinding spectrum, and anxiety: Clinical and health-services insights from the neuroscience-paleopathology interface. *CNS Spectr.* In press.
9. Ohayon MM, Li KK, Guilleminault C. Risk factors for sleep bruxism in the general population. *Chest.* 2001;119:53–61.
10. Lobbezoo F, Naeije M. Bruxism is mainly regulated centrally, not peripherally. *J Oral Rehabil.* 2001;28:1085–1091.
11. Lavigne GJ, Kato T, Kolta A, Sessle BJ. Neurobiological mechanisms involved in sleep bruxism. *Crit Rev Oral Biol Med.* 2003;14:30–46.
12. Fricton JR, Look JO, Schiffman E, Swift J. Long-term study of temporomandibular joint surgery with alloplastic implants compared with nonimplant surgery and nonsurgical rehabilitation for painful temporomandibular joint disc displacement. *J Oral Maxillofac Surg.* 2002;60: 1400–1411.
13. Israel HA, Ward JD, Horrell B, Scrivani SJ. Oral and maxillofacial surgery in patients with chronic orofacial pain. *J Oral Maxillofac Surg.* 2003;61:662–667.