Regarding the association between sex and TMD, the prevalence in women is reportedly 2 to 5 times that in men. Moreover, the manifestation of temporomandibular symptoms, including clicking, jaw fatigue, trismus, and pain during mastication, is higher in women than in men.

II. Headache and TMD

Researchers have found high rates of medical comorbidities in patients with a wide range of chronic pain conditions, including fibromyalgia and headache. Headache occurs more frequently in patients with TMD symptoms (27.4% vs 15.2%) and can be divided into two main types: primary headache and secondary headache.

1. Primary headache

1) Migraine

Migraine is a common, disabling primary headache disorder that is currently ranked by the World Health Organization as number 19 among all debilitating diseases worldwide. It is subdivided into migraine without aura and migraine with aura. The former (International Classification of Headache Disorders [ICHD] code 1.1) was initially known as common migraine or hemicrania simplex. It is diagnosed on the basis of at least five attacks per month that last for 4 to 72 hours and are characterized by unilateral, throbbing, moderate or severe pain accompanied by nausea, vomiting, photopho-
unnecessary masticatory muscle activity can be decreased, which results in pain relief. Immobilization of fascia induces sensitization of free nerve endings, which are considered to be the cause of myofascial pain. Stretching of the fascia, including MTrP, through massage and passive stretching is believed to improve fascial mobility and relieve pain. Decreased pain thresholds have been noted in the extremities of TMD patients. Accordingly, exercise and massage increase the threshold of peripheral receptors in the affected muscles that generate nociceptive inputs, suppress pain processing, and modulate pain through the central nervous system.

III. Management of Headache Associated with TMD

The signs and symptoms of headache attributed to TMD (HATMD) can be significantly improved by physical therapy, and these improvements are associated with improvements in TMD signs and symptoms. ICHD-3 beta defines HATMD as headache caused by a disorder involving structures in the temporomandibular region that is diagnosed by its development in temporal relation to the onset of TMD. HATMD worsens in parallel with TMD progression and improves with TMD resolution. Unilateral headache occurs ipsilateral to the side of TMD, which is evidence of the pathological process affecting TMJ and the masticatory muscles. Researchers have found that an improvement in TMD signs and symptoms or their treatment can ameliorate headaches. The different treatment approaches for this condition are described below.

1. Patient education

TMD is a self-limiting disorder that primarily resolves within an average of 7 years. Explanations and assurances are helpful to eliminate fear and ameliorate symptoms in patients who should be advised to rest their masticatory system and avoid precipitating factors such as hard, chewy foods or chewing gum and parafunctional habits such as clenching and grinding.

2. Physical therapy

Physical therapy is a common first-line treatment for TMD-associated pain and dysfunction because it is simple, noninvasive, and inexpensive; can be easily implemented at home; and offers the opportunity for communication between
IV. Cases Report

1. Case 1

A 24-year-old man presented with a chief complaint of headache and bilateral TMJ discomfort. He had suddenly developed severe pain accompanied by trismus 2.5 years ago. Orthopedic medications were ineffective. His mouth opening was spontaneously restored, although pain was persistent. In addition, a crepitus sound was heard on the right side. The level of discomfort was highest after waking in the morning, and his headaches were severe and getting worse. He also reported a history of closed jaw locking. The left masseter and temporalis and both superior cervical muscles were tender on palpation. The patient felt a difference in his occlusion. He was initially diagnosed with TMD class 1, 3 (1: muscular pain, 3: disc dislocation, perforation, and sclerosis). Treatment was initiated, and at the first visit, impressions were recorded for the fabrication of casts to evaluate bruxism. Subsequently, single-photon emission computed tomography (SPECT) was performed, which revealed increased uptake on the right side, indicating the presence of inflammation. There were no signs of bruxism, and his diagnosis changed to TMD class 4 (bone changes around TMJ). Impressions were recorded for the fabrication of a splint, and medications were prescribed including avocado soya unsaponifiables (Imotun; Chong-Kun Dang Co., Seoul, Korea) for disc lubrication and naproxen (Naxen; Chong-Kun Dang Co.) for inflammation relief. Finally, the splint was delivered, and the patient was followed up. All symptoms, including headache, resolved completely 2 months after the initial examination.

2. Case 2

A 60-year-old man presented with a chief complaint of right-sided headache and facial pain during mastication. His headaches began 20 years ago, with no spontaneous pain or TMJ noise. There was no pain in the morning, and it generally started during mastication and became severe in the evenings. Furthermore, he experienced an abnormal sensation on the right side of the face, with right-sided shoulder pain that increased in the afternoon. His past medical history included depression, and he had been referred by his neurologist to the dental department. He was diagnosed with TMD type 1, 5 (1: muscular pain, 5: psychological pain). He was prescribed Ultracet (325 mg acetaminophen and 37.5 mg tramadol; Ortho-McNeil, Raritan, NJ, USA), a very strong pain relief medi-
cation, for a total of 4 weeks. However, although his pain was controlled after taking the drug, it increased after the effects wore off. Accordingly, we recorded impressions for splint fabrication. Following delivery of the splint, his pain decreased by 80%, with occasional pain in the right temporals muscle. Two months later, the patient lost his splint and requested a new one. At 2 months after delivery of the new splint, his pain had completely disappeared. The patient was advised to wear the splint through the night and was recalled after 3 months. He complained of occasional pain, and we provided instructions for self-managing the splint and asked him to visit the clinic if he experienced further pain.

V. Conclusion

In conclusion, the findings from this review and the two reported cases suggest that TMD encompasses a collection of clinical entities that are often very painful and disabling, with a major contribution of headache to patient symptoms. However, they are self-limiting and generally respond to conservative therapy. Basic management strategies for pain control and restoration of the range of motion can decrease the level of disability and often contribute to relief from primary headaches.

Conflict of Interest

No potential conflict of interest relevant to this article was reported.

ORCID

Amira Mokhtar Abouelhuda, http://orcid.org/0000-0002-1813-3528
Hyun-Seok Kim, http://orcid.org/0000-0001-7010-4153
Sang-Yun Kim, http://orcid.org/0000-0002-2952-5404
Young-Kyun Kim, http://orcid.org/0000-0002-7268-3870

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