

Third International Congress on Orofacial Pain and Temporomandibular Disorders

May 13–14, 2000
Seoul, South Korea

To improve the relationship between the sister academies supporting this journal, and to enhance the knowledge on how orofacial pain and temporomandibular disorders (TMD) are investigated, diagnosed, and managed in all parts of the world, a joint meeting of the academies is organized every fourth year. Following meetings in Chicago (1992) and Paris (1996), this year's gathering was held in Seoul, South Korea, and hosted by the Asian Academy of Cranio-mandibular Disorders. The congress was prepared meticulously and professionally by Prof Sung-Chang Chung (president of the AACMD), Dr Seok-Hoon Ko (program chairman), and Dr Youn-Joong Kim (chairman of the local organizing committee) and supported by a team of enthusiastic, motivated, and efficient colleagues.

During the first scientific session, the subject of central and peripheral motor control of mastication was tackled. Prof Morimoto (Osaka, Japan) reported on his group's experiments in rabbits, illustrating the role of periodontal receptors in the regulation of the build-up of masticatory force and the capacities of muscle spindles in the hardness-dependent regulation of mastication. Prof Bosman and his team (Utrecht, The Netherlands) studied these effects in humans, using a sophisticated experimental setup that allowed the introduction of load during different phases of the chewing cycle. It appears that in humans, an interplay exists between the periodontal receptors and muscle spindles. The movement trajectories of the mandible appeared almost unaffected by periodontal anesthesia until the last part of the cycle, where the external load is largest, suggesting that muscle spindles account for most of the regulation of the movement and that periodontal receptors come into play when the occlusal phase is reached. Prof Yamada (Niigata, Japan) added to the discussion by illustrating that the jaw-opening reflexes are tonically suppressed during chewing in freely moving rabbits and that this inhibition is modulated in a phase-linked manner. In addition, food consistency affects the central mechanisms involved in chewing, while the digastric reflex may contribute to

the regulation of masticatory forces, especially when hard food is chewed. In a second part of his lecture, Dr Yamada also illustrated how these reflexes were used to study the modulation of motor neuron excitability during sleep. A facilitation of the motor neuronal activity, originating apparently from hypothalamic areas, was evident and added to the understanding of the possible involvement of these structures in the genesis of bruxism.

A second session provided new knowledge on central and peripheral pain mechanisms. Dr Chung (Galveston, Texas, USA) introduced the audience to the topic of neuropathic pain, which may originate centrally or peripherally. When peripheral nerves are damaged, axotomized and intact fibers are intermingled, and different abnormalities may then develop (eg, ectopic spontaneous discharges), which are transmitted to the central nervous system (CNS) and may cause sensitization. Dr Chung's work is oriented toward a better understanding of the up-regulation of sodium channels accompanied by changes in the sympathetic nervous system, in which neurotrophins may play a role. Dr Fricton (Minneapolis, Minnesota, USA) tried to translate some of these basic findings to the genesis of myofascial pain: peripheral changes in the muscle itself, as well as central changes (such as depression or anxiety), may modulate the afferent nociceptive information on its course from dysfunctional muscles and joints into the CNS. Also, management strategies for myofascial pain should be guided by this bio-behavioral approach so that both peripheral and central factors are addressed. Dr Kang (Seoul, South Korea) introduced the basic principles of acupuncture treatment for orofacial pain, both from a Chinese philosophical standpoint and from a technical point of view. Both neural and humoral mechanisms may play a role in the working mechanism of acupuncture analgesia, involving endorphins, serotonin, and noradrenaline, as well as descending inhibitory mechanisms. Clinical studies, predominantly from western Europe, were used to illustrate the efficacy of acupuncture treatment.

The second day of this scientific event started with a session on the natural course of intracapsular TMD. From his research background on the basic biology of bone, Dr Findlay (Adelaide, Australia) reported on new developments regarding the regulation of the differentiation and activity of osteoclasts and osteoblasts. Membrane-bound members of the tumor necrosis factor ligand/receptor family, osteoclast differentiation factor (ODF) and its antagonist osteoprotegerin (OPG), appear to be central to physiologic osteoclast development. Overexpression of OPG or elimination of ODF in mice can lead to severe osteopetrosis, while conversely, OPG-knockout mice develop extensive osteoporosis, associated with an increased number of otherwise normal osteoclasts. In addition to this important role of osteoclasts, the osteoblasts produce the organic phase of bone, and their maturation and differentiated function are regulated by complex, environmental stimuli, produced both locally and systemically. In this respect, bone morphogenetic proteins offer exciting new possibilities in therapeutic bone reconstruction. Prof K on nen (Helsinki, Finland) illustrated, in a very elegant lecture, the natural benign course of temporomandibular joint (TMJ) clicking, one of the most common clinical findings or subjective symptoms in patients with TMD. From the current data, it is not clear that TMJ clicking should be considered a precursor to locking or major TMJ problems, since the symptom appears highly variable within subjects and very rarely progresses into permanent locking of the joint. In this respect, caution is suggested regarding even conservative treatment of non-problematic clicking. In patients who experience pain associated with clicking, the focus of treatment should be the pain, and not the sound. Dr Stegenga (Groningen, The Netherlands) elucidated the controversy on the relationship between TMJ articular disc displacement and osteoarthritis. Osteoarthritis is a disorder, occurring in joints with and without a disc, in which the delicate balance between anabolic and catabolic responses in the tissues is disturbed; this leads to degeneration and inflammation. The radiographic changes observed in osteoarthritis may be the result of remodeling associated with growth, recovery, or repair. A central factor appears to be the condition and adaptive capacity of the joint tissues. In this view, osteoarthritis may well be considered both a cause and a result of disc displacement disorders, since both the molecular processes involved in cartilage degeneration and the significant mechanical factors are taken into account. Future studies should focus especially on the distinction between adaptation and disease. To conclude the session, Prof Okeson (Lexington, Kentucky, USA) provided an in-depth literature review of the clinical studies evaluating the use of occlusal appliances in the management of intracapsular disorders. The overall conclusion was that appliance therapy was ineffective in managing disc displacement,

and that permanent alteration of the occlusion in accordance with early success obtained with an occlusal appliance is associated with poor outcomes in long-term studies. However, with regard to the pain associated with some intracapsular disorders, occlusal appliances may be substantially helpful.

The afternoon session featured a blend of speakers from the different academies. Dr M uller (Caracas, Venezuela) discussed the topic of pain in implant dentistry, a symptom that is still the major concern of patients considering implants as part of their treatment. Dr Steenks (Utrecht, The Netherlands) illustrated treatment strategies for myogenous TMD based on a randomized clinical trial: from his research, it became clear that, initially, counseling and physiotherapy are as effective as splint therapy, which, from a cost-efficiency standpoint, should be considered only as part of a second phase of therapy. Even if "major occlusal discrepancies" were taken into account, an occlusal adjustment did not result in better scores regarding pain and dysfunction, as compared to splint therapy. This confirms the need to use reversible psychosocial and behavioral treatment and to avoid irreversible changes. This important role of psychophysiology, both in the etiology and the management strategy of TMD, was also stressed in the lecture of Dr Reid (Rochester, Minnesota, USA). The relationship between psychophysiology, neuroplasticity, and TMD was illustrated in psychophysical studies. The apparent success of behavioral therapy in these disorders was extensively documented in the literature reviewed. Prof Onishi (Yamanashi, Japan), one of the pioneers of arthroscopy, showed how the technique was developed, its possibilities and limitations, and some newer developments regarding its use in problems like adhesion, perforation, and displacement of the TMJ disc. Finally, Prof Gerschman (Melbourne, Australia) reported on new developments in the use of intraoral appliances for sleep apnea and snoring. The lack of controlled studies supporting their effectiveness and safety was acknowledged, and a call was made to improve first the documentation in this regard before adding to the exponential growth in their popularity.

More than 100 posters were presented at the meeting, reflecting the growing interest in this field. Selected abstracts are included in this issue of the *Journal of Orofacial Pain*. Our Korean colleagues were excellent hosts, offering the participants the opportunity not only to sample their national culinary tradition but also their music and dances. Once again, this International meeting was a successful blend of science, culture, hospitality, interaction, learning, and friendship. Thanks and congratulations to all who made it possible, and best wishes for the same courage and enthusiasm for the organizers of the next international meeting in 2004 in Australia.

—Antoon De Laat, LDS, GHO