

The Fifth International Conference on Orofacial Pain and Temporomandibular Disorders–ICOT

August 26–30, 2009

Praia do Forte, Bahia, Brazil

The main theme of the meeting was the gap between basic research and clinical results. It was hosted by the Ibero-Latin Academy of Craniomandibular Disorders (ILACD) and sponsored by the four main academies in the field of orofacial pain and craniomandibular disorders: the American Academy of Orofacial Pain (AAOP), the European Academy of Craniomandibular Disorders (EACD), the Asian Academy of Craniomandibular Disorders (AACMD), and the Australian and New Zealand Academy of Orofacial Pain (ANZAOP). The meeting was perfectly organized by Dr Wilma Simões from São Paulo and her colleagues.

The conference was preceded by three preconference symposia: a symposium on the craniocervical centric relation concept (by Dr Mariano Rocabado), a symposium on the iatrogenic orofacial pain in adolescents and adults (by Dr Michael Gelb), and a comprehensive review course on orofacial pain with the participation of Drs Gary Heir (introduction to orofacial pain and TMJ biomechanics), Barry Sessle (history and mechanisms of orofacial pain), Rafael Benoliel (neuropathic pain, headache, and sleep), Davis Thomas (imaging of the TMJs), Jose de la Hoz (appliance therapy in TMD and orofacial pain), Cibele Nasri (burning mouth syndrome), Jeffery Mannheim (comprehensive patient management), and JTT de Siqueira (speciality in orofacial pain in Brazil).

The first session of the conference paid tribute to the late Dr Geoffrey Kronn. It concentrated on orofacial pain in children and adolescents. Drs Donald Seligman from the United States and Michel Steenks from the Netherlands comprehensively reviewed the literature evaluating the etiologic role or risk of a broad collection of factors in contributing to the onset of temporomandibular disorders (TMD), with emphasis on studies published since 1995. These included trauma factors (eg, macrotrauma, indirect trauma, microtrauma, iatrogenic trauma), and anatomic factors (eg, temporomandibular joint [TMJ] anatomy, craniofacial morphology, occlusion, and others). The lecture also covered various pathophysiologic factors in TMD, including demographics, behavioral factors, comorbidity, and psychological factors.

Dr Tom Wilkinson from Australia presented updated knowledge about the effect of age, gender, and genetics as risk factors in TMD. The lecture looked at the possible mechanisms in which estrogens affect pain experience and at the genetic determinants of pain sensitivity, with a specific discussion regarding candidate genes and their mechanisms.

Dr Mauro Farella from Italy discussed possible biases and confounding factors in the selection of study populations. He presented a critical review of the current literature indicating that most articles which support a possible occlusion/TMD relationship have mainly investigated study samples selected from clinical settings (ie, clinical-based sampling) and used case-control study designs. Conversely, other studies not supporting this association have mainly investigated large study samples, which were randomly selected from the general population (ie, community-based sampling). Due to a number of possible biases and confounding factors, both cases and controls selected from universities and/or other clinical settings may not be representative of their base population at large, thus threatening the external and internal validity of the findings arising from case-control studies. Dr Farella pointed out that these issues need to be carefully evaluated when interpreting the results of occlusion-related TMD research.

Dr Maria Beatriz Duarte Gavião from Brazil presented her insight on TMD in children and adolescents. Epidemiological studies have reported that signs and symptoms in children and adolescents can be diagnosed, with increasing incidence with age and a varying prevalence. The large frequency ranges for signs and symptoms of TMD, previously described in reviews and meta-analysis, are apparently based on different samples (eg, random versus nonrandom, patient versus nonpatient, different ages, age ranges, sample sizes, ratio of gender distribution) and different examination methods (eg, category of variable, method of data collection). Dr Gavião also presented a small, but clinically challenging, population of children and adolescents who become chronic pain patients reporting not only pain but also emotional distress and disability.

Dr Maria Nilner from Sweden presented the results of a long-term study of TMD in relation to orthodontic treatment. In view of the high prevalence of symptoms and signs of TMD in children and adolescents, it is likely that patients receiving orthodontic treatment could experience TMD before, during, or after their orthodontic treatment. A series of prospective studies analyzed symptoms and signs of TMD and occlusal changes in girls with a Class II malocclusion who received orthodontic treatment, untreated Class II malocclusion subjects, and subjects with normal occlusion (followed for 10 years). Individually, TMD symptoms and signs fluctuated substantially over time with no

predictable pattern. Dr Nilner concluded that orthodontic treatment does not increase the risk for TMD on a long-term basis and suggested a conservative treatment approach when treatment for TMD in children and adolescents is considered.

Dr Patrizia Defabianis from Italy presented cases of TMJ fractures in the growing patient and their impact on facial growth. In the young patient, TMJ fractures must be focused not only as a cause of direct damage to osseous structures, but also as a possible future disturbance to dentofacial development. Any disturbance of condylar cartilage can result in alteration of mandibular development; with the subsequent deformity of jaw and face depending not only on the type, intensity, extent, and chronology of the noxious agent, but also on the particular time of occurrence and growth activity. Dr Defabianis presented some cases of condylar fracture in children and discussed the available clinical data.

Dr Frank Lobbezoo from the Netherlands talked about the prevalence of bruxing in minors. As reviewed frequently, self-reported teeth grinding has an overall prevalence of about 8% in the general adult population. In young adults, this figure is slightly higher (around 13%). Unfortunately, the prevalence of bruxism in minors (ie, all children between 0 and 18 years) has seldom been reviewed. A systematic search of the available literature showed a total of 186 papers, of which about 20% were epidemiological studies, mainly on parental-reported or self-reported sleep bruxism. Large differences were found between the cross-sectional studies (ie, the vast majority of the epidemiological studies), with prevalence ranging from approximately 6% to almost 40%. Longitudinal studies suggested a steady increase in sleep bruxism from 2.5 to 6 years, followed by a decrease from 11 to 13 years. The strongest associative factors included, amongst others, anxiety and stress, parental bruxism, snoring, and poor academic results. Dr Lobbezoo also presented the results of three new studies from which it can be concluded that both sleep grinding and daytime clenching are common conditions in minors. Both conditions show a cyclic pattern towards adulthood, albeit with large interindividual differences in natural course. Increasing age, stress, depression, alcohol, and jaw pain are common associate factors for bruxism.

The final presentation in this session was by Dr Jean-Daniel Orthlieb from France, who presented the clinical aspect of TMD pain with regard to diagnosis and treatment.

The second day of the conference opened with a session on orofacial iatrogenic pain. Dr Antonio Sergio Guimarães from Brazil talked about iatrogenic errors of health professionals which can result in harm to the patient. He summarized various possible errors in diagnosis, in the administration of drugs, in the performance of surgical procedures, in the use of therapy, in the use of equipment, and in the interpretation of laboratory findings.

Dr Robert Delcanho from Australia presented a review of the literature concerning persistent pain after dental procedures and discussed some preoperative,

intraoperative, and postoperative factors as possible means to minimize the risk of chronic postsurgical pain.

Dr Leon Verhagen from the Netherlands comprehensively covered the topic of TMD and orthodontics. As TMD are most prevalent among patients in the age group 15- to 25-years old and as many people nowadays will receive orthodontic treatment that can last for 1 to 2 years, clinicians may encounter patients who complain about TMD after or during their treatment. These complaints may increase as the number of adult orthodontic patients grows. Similar to Dr Nilner (see above), his conclusion was that traditional orthodontic treatment does not increase or prevent TMD and that occlusal adjustments are not recommended.

On the other hand, Dr Vicente Jiménez-López from Spain presented his belief in the importance of occlusion, in his lecture on iatrogenic pain and dental implants. He stressed the importance of performing a diagnosis using the basic principles of occlusion when restoring the dental arch.

In the following session, on somatic and psychosocial aspects of chronic pain, Dr Jin Woo Chung from Seoul talked about orofacial pain of muscular origin. Myofascial pain syndrome is a regional myogenous pain condition characterized by local areas of firm, hypersensitive bands of muscle tissue known as trigger points. Because pain radiation and replication can be induced by palpation, which is considered to be an important diagnostic criterion, scientific interest in this phenomenon has persisted despite a general lack of convincing data regarding the nature of the phenomenon. However, electromyographic (EMG) studies of the myofascial trigger point phenomenon have produced conflicting results. Dr Chung suggested that in order to be more confident regarding the results of a validation study for the myofascial trigger point phenomena, a systematic and prudent analysis is needed. Most experts believe that appropriate treatment should be directed at the trigger point to restore normal muscle length and proper biomechanical orientation of myofascial elements, followed by treatment that includes strengthening and stretching of the affected muscle.

Dr Sandro Palla from Switzerland presented some new perspectives of masticatory muscle pain. Local tissue damages have been documented in muscles of patients with work-related myalgia as well as in the masseter muscle of rats after prolonged (≥ 2 hours) low-frequency stimulation. The tissue alterations include cytochrome-c oxidase deficiency, low capillary to fiber area ratio, impaired blood flow and reperfusion injury, Ca^{2+} accumulation, low ATP content, and the presence of mothetaten as well as ragged red fibers. The "Cinderella hypothesis" provides a plausible explanation for the generation of localized tissue damage after long-lasting, low-level muscle contractions and postulates that some motor units containing type I fibers ("Cinderella motor units") are contracting throughout the entire motor task, and may therefore become overloaded and damaged, leading to focal inflammation and, eventually, to nociceptor sensitization and muscle pain.

Motor unit territories in the human jaw muscles are focally distributed and provide the anatomical substrate for selective regional motor control. Preliminary results obtained by recording the surface EMG of the masseter muscle during different tasks have indicated that the intramuscle contraction pattern shifted between tasks. In addition, during a prolonged low-intensity muscle contraction lasting for 30 minutes, the contraction pattern did not change during the contraction task in the majority of the tested subjects. These observations could indicate individual contraction strategies with individuals with a more regionalized (eg, more stereotyped) contraction pattern being possibly more at risk to develop a regional masticatory muscle pain. Consequently, it is possible that during specific tasks, eg, parafunctional habits, selected muscle fibers contract for longer periods. Dr Palla presented data in which Cinderella motor units have been recorded in the masseter muscle during prolonged low-level clenching tasks. These motor units are therefore the most likely candidates for initiating a localized muscle pain. However, while it is likely that short-lasting muscle overuse can lead to tissue changes that lead to activation and sensitization of the muscle nociceptors eliciting localized muscle pain, tenderness to palpation, and motor function alterations, it is also evident that these tissue changes disappear within a few days. The mechanical overuse, therefore, cannot by itself lead to the development of chronic pain. Persistence of nociceptive barrage may lead to central sensitization and therefore to a state of enhanced pain sensitivity, increased temporal summation of painful stimuli, and psychological distress that all contribute to the development of chronic masticatory muscle pain.

Dr Jose T.T. de Siqueira from Brazil talked about persistent orofacial pain, reviewed the mechanisms and occurrence of persistent orofacial pain, and emphasized the need for the clinician to understand the level of complexity involved when treating the patient in pain.

Drs Katushi Tamaki and Hiroyuki Wake from Japan summarized the psychosomatic medical evaluation of chronic pain. They presented a psychiatric liaison clinic in Japan in which the condition of patients is assessed from several sides, including physical evaluation (eg, manipulation and percussion, diagnostic imaging) and psychiatric evaluation (eg, psychiatric medical interview). They reported a multi-axis diagnosis in which 66% of the patients are diagnosed as hypochondriasis, somatoform pain disorder, major depressive disorder, or psychosomatic disease. Treatment for the patients includes pharmacotherapy and psychotherapy.

Dr Ricardo Luiz Smith from Brazil talked about the psychosocial aspects of chronic pain and presented the biopsychosocial model of chronic pain, which acknowledges the complex influences of biological, psychological, cultural, and social variables on an individual's experience. Dr Smith presented Cochrane reviews and meta-analyses which provide evidence that intensive multidisciplinary rehabilitation with a functional restoration approach improves pain and function.

The last session of the conference dealt with a wider vision of pain modulators. Dr Josefina Bautista Martinez, a physical anthropologist from Mexico, talked about body modification tribute to the gods in the pre-Hispanic time, as can be seen in ceramic stamps, statuettes, skulls, tooth, and columnists' histories.

Dr Anton De Laat from Belgium presented a way for empowering the patient through placebo. In contrast to the previous assumption of being a non-active or fake comparison treatment used in controlled studies, the placebo effect now proves to have significant real efficacy in the management of pain. Several theories (focusing on conditioning, expectancy, and reward) and major progress in the understanding of the underlying neurobiology have indicated that especially the "sense of control" and the "active partnership" by the patient may be key factors when using the biological benefits of placebo, the psychosocial context or meaning response. Dr De Laat also discussed the applications of placebo in the clinical management of TMD and related pain.

Dr Paul Pionchon from France presented the role of the doctor as a therapeutic agent and talked about the placebo effect as a biologic mechanism induced by a psychological input. Beyond the patient's characteristics (expectancies, beliefs, psychological status), some studies have shown that the doctor-patient relationship is the underlying mechanism which drives this therapeutic effect. Conversely, a bad relationship might induce also some nocebo effects. The doctor's characteristics (expectancies, conceptualization of the disease, cognitive, behavioral, and emotional patterns of care providing) represent a major component of the healing process. Dr Pionchon pointed out recent studies about empathy that allow better understanding of how the interaction process is able to improve the affective component of pain.

The last lecture in this session was carried out by Dr Manoel Jacobsen Teixeira from Brazil, who talked about the recent advances and expectations in functional neurosurgical treatment of craniofacial pain. He highlighted the use of antidepressants, anticonvulsants, stimulation of the cerebral cortex motor area, and repetitive magnetic transcranial stimulation for the treatment of pain.

The entire convention was characterized by a vivid participation of professionals from around the world, with high-level presentations, interesting and stimulating discussions, and an excellent organization. It undoubtedly contributed significantly to our understanding of the mechanisms and clinical aspects of TMD and orofacial pain.

Ilana Eli
Associate Editor