

### The Society of Oral Physiology 27th Store Kro Club Conference May 27–29, 2011: Torino, Italy

The 27th scientific meeting of the Society of Oral Physiology (formerly the Store Kro Club) took place in Torino, Italy, from May 27–29, 2011. The Society of Oral Physiology brings together scientists interested in the physiology and pathophysiology of the masticatory system and related structures. The meeting, in which 82 delegates participated, consisted of 24 oral and 22 poster presentations. The following briefly outlines selected topics.

It is well known that a large proportion of people with temporomandibular disorder (TMD)/orofacial pain do not consult health care professionals. Pain severity is often believed to be the main reason for care seeking; however, the evidence for this is contradictory. A preliminary study reported that factors related to how a patient copes with his or her pain and lack of knowledge about pain etiology are important in determining whether a patient seeks treatment (A. Rollman).

Neuroimaging studies have greatly increased our understanding of chronic pain. For instance, they have revealed a number of structural and functional changes within cortical areas of people with chronic musculoskeletal pain and there is growing evidence that these changes, ie, a cortical reorganization, may contribute to the development and maintenance of the chronic pain state. In addition, neuroimaging studies have also shown neuroplastic changes occurring within the primary motor cortex following manipulations of sensory inputs from the limbs. It was therefore quite exciting to understand that such changes also occur following alterations within the masticatory system, as reported by B. Sessle and I. Klineberg. Sessle showed in electrophysiological experiments in animals that neuroplastic cortical changes take place in the face primary motor cortex following not only acute pain but also occlusal changes. Klineberg reported in humans that the insertion of an occlusal appliance led to activity changes both in the somatosensory and motor cortex. These findings may be of clinical relevance. For instance, we all know patients may have difficulties in adapting to occlusal changes. Maybe neuroimaging will one day tell us that these patients lack or have maladaptive neuroplastic cortical changes and are not “neurotics” as often stigmatized.

Mandibular protrusion by means of a mandibular advancement device (MAD) is a recognized approach to manage a mild to moderate obstructive sleep apnea (OSA), although several aspects still need to be elucidated: Which is the optimal design? What are the nega-

tive side effects? Does the effect last? Several presenters reported on MAD effects. Y.J. Chen proposed a “new” MAD with tongue support that seems to be superior to the “traditional” MAD in preventing the tongue from dropping dorsally while sleeping, thereby preventing airway collapse. The risk of developing a TMD with long-term use of a MAD is low, as shown in a randomized control study, and, if pain occurs, this is of transient nature (M.H.J. Doff). However, the long-term (2 years) use of a MAD increases the risk of dental arch alterations (A. Hoekema). Often, patients adapt to a device so that its therapeutic effect decreases with time. This seems not to be the case with a MAD. The improvement of the apnea-hypopnea index and the decrease in excessive daytime sleepiness lasted for up to 1 year, the study duration (G. Aarab). Lastly, a combination of a MAD with a CPAP (Continuous Positive Airway Pressure) mask may be an effective alternative to conventional CPAP in order to manage patients with severe OSA, but larger studies are needed to gain conclusive results (B. Stegenga).

The etiology of sleep bruxism is still poorly understood and several risk factors have been implicated. Preliminary data indicated that sleep bruxism might have a genetic component, as the presence of the rs6313 gene variation in the human HTR2A gene that codes for the 5-HT<sub>2A</sub> receptor is associated with sleep bruxism (K. Baba). With an odds ratio of 4.25 (95% CI = 1.6 to 11.3), this polymorphism may be a more relevant risk factor than those reported in an epidemiological study for bruxism in adolescents (female gender, stress, and facial pain for sleep bruxism and stress, facial pain, clicking joint, and smoking for wake-time bruxism) that combined explained only 4.5% of the variance (F. Lobbezoo). Thus, distinct genotypes are also expected for bruxism to “produce predictable effects on the stress-response system, including the launch of titrated sensory, affective, neuroendocrine, and autonomic messages characteristic for a given subject.”<sup>1</sup>

A group of studies dealt with the management of TMD. One of the modalities used is physiotherapy, which is often recommended although its efficacy is not proven. A long-term single-blind design in which a group of patients with myogenous TMD were randomly allocated either to education alone or education and physiotherapy showed that the patients improved in both groups in several outcome variables. Moreover, the improvement was similar in both groups, indicating that physiotherapy did not have an additional effect. This is

another study confirming that several therapeutic modalities advocated for the treatment of TMD, including occlusal appliances, occlusal equilibration, thermal pads, pharmacological interventions, orthodontics, relaxation training, acupuncture, biofeedback, and psychological interventions, do not have a specific therapeutic effect. Indeed, another study came to similar conclusions (J. Katsoulis). Unfortunately, these negative results (for the researchers) are seldom clearly stated in study conclusions; for example, “due to the low number of participants, no clear conclusion can be drawn....may be a treatment option for patients...”. This behavior makes it impossible to transfer sound scientific knowledge into clinical practice, with (financial) advantages for the clinician and patient’s safety concerns. The time has come for clinicians and researchers to recognize and practice a different approach to TMD, ie, admitting that the vast majority of patients can be treated simply by counseling and education and that TMD is a chronic pain state only in a minority of cases, as it is the case for the vast majority of musculoskeletal disorders. It is important to make this paradigm switch in the definition of TMD as, reading the literature, one gets the impression that all TMD cases are chronic in nature, as most of the studies include so-called chronic pain cases. However, although chronic by “study” definition, approximately 75% to 80% improve or are cured with simple, non-specific therapies, an extremely high success rate for chronic pain conditions!

In the following, I will summarize a few study conclusions that were presented and that may interest the Journal’s readers. Migraine sufferers often report pain exacerbation following weather changes, the evidence for this is, however, contradictory. By using a newly developed device that records several weather variables every 15 minutes, it was possible to show that weather changes are likely associated with pain variations in migraine sufferers (A. Michelotti). An anterior disc displacement with reduction may progress to an intermittent displacement without reduction (intermittent locking). In adolescents, this progression seems to be related to diurnal clenching (explained variance 27.3%) (S. Kalaykova). Prolonged gum chewing (5 minutes) led to an increase in the tactile detection threshold and filament-prick pain detection threshold of the cheek skin. The authors speculated that these changes might be due to habituation. However, these changes may be explained by the “gating” effect that movements have on psychophysical detection thresholds mediated by several receptors, for instance, periodontal receptors, and on the reflex response to low-intensity stimulation but not to high-intensity/painful stimulation. New Scandinavian epidemiological studies confirmed previous data that TMD and bruxism decline with age (G. Carlsson) and that the prevalence of frequent pain in the jaw-face area (once a week or more often) increases during ado-

lescence and peaks among women in the fourth decade (A. Wänmann). An association between TMD and oral piercing has been found in young adolescents (C. Mejersjö). This association is intriguing, as it lacks biological plausibility. Again, this result shows how careful one should be in writing the study conclusions—those that normally are remembered—as a statistically significant association does not mean anything unless the Hill’s causative factors are met.<sup>2</sup>

Almost 20 years after the introduction of the Research Diagnostic Criteria for TMD,<sup>3</sup> clinicians and researchers are still debating on how and what are the best clinical tests to diagnose a TMD. This is due to the absence of a “gold reference standard” to separate subjects with and without TMD. Therefore, in order to study the validity of the clinical tests, these have to be tested not only against subjects free of TMD but also against patients having other orofacial pain conditions (C. Visscher).

Overall, this interesting meeting provided the audience with some new results. Without intending to offend anybody and being conscious that it is easier to criticize than to accomplish, I cannot conclude this review without mentioning that today’s academic imperative “publish or perish” leads too often to studies that do not have a clear biological hypothesis or that repeat already performed investigations, the only motivation being the use of a new technology. Such approaches will certainly not move ahead the orofacial pain field. Young investigators are urged to be more imaginative and open-minded and to address only those relevant questions that remain unsolved by previous research.

In accordance with the tradition of the Society, sufficient space was left for social activities so that the participants had enough time to interact and to visit and appreciate the beauty of Torino and its surroundings. Most of us will remember for a long time the beautiful Lange landscape with all its green vineyards. Professor Mongini and his team must be complimented for having put together a stimulating meeting, both scientifically and socially.

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## References

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