

Medication in temporomandibular disorders and bruxism

Akademisk avhandling

som för avläggande av odontologie doktorsexamen vid Sahlgrenska akademien, Göteborgs universitet kommer att offentlig försvaras i hörsal Arvid Carlsson, Academicum, Sahlgrenska akademien, Medicinaregatan 3, Göteborg,

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av

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Avhandlingen baseras på följande delarbeten

- I. Johansson Cahlin B, Samuelsson N, Dahlström L. Utilization of pharmaceuticals among patients with temporomandibular disorders: a controlled study. *Acta Odontol Scand.* 2006;64(3):187-92.
- II. Cahlin BJ, Dahlström L. No effect of glucosamine sulfate on osteoarthritis in the temporomandibular joints – a randomized, controlled, short-term study. *Oral Surg Oral Med Oral Pathol Oral Radiol Endod.* 2011;112(6):760-6.
- III. Cahlin BJ, Hedner J, Dahlström L. A randomised, open-label, cross-over study of the dopamine agonist, pramipexole, in patients with sleep bruxism. *J Sleep Res.* *Submitted*
- IV. Cahlin BJ, Lindberg C, Dahlström L. Cerebral palsy and bruxism: effects of botulinum toxin injections – a randomized, controlled trial *In manuscript*

SAHLGRENKA AKADEMIN
INSTITUTIONEN FÖR ODONTOLOGI



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Abstract

The aim of this thesis was to explore aspects of pharmaceutical intervention in temporomandibular disorders (TMDs) and bruxism. Sleep bruxism is a movement disorder that signals disturbed sleep and constitutes a significant health problem due to TMDs, headache and tooth wear. In **Study I**, medication was reviewed in patients referred for specialist treatment for TMDs. Female patients with myofascial pain used significantly more psychoactive medication, including antidepressants, tranquilizers, sedatives and hypnotics, compared with matched controls. These findings support other research demonstrating an overrepresentation of the diagnoses depression, anxiety, stress and sleep problems among TMD patients. **Study II** compared the effect of oral glucosamine sulfate on osteoarthritis in the temporomandibular joints with that of placebo. Glucosamine sulfate appeared to improve signs and symptoms over time, but it was not significantly superior to placebo. In **Study III**, the dopamine agonist, pramipexole, was investigated in severe sleep bruxism confirmed by polysomnographic/electromyographic monitoring. The severity of sleep bruxism was not reduced compared with control conditions, indicating that the involvement of the dopamine system in bruxism is less likely. In **Study IV**, the effects of botulinum toxin injections in the masticatory muscles, compared with placebo injections, were evaluated in subjects with cerebral palsy and bruxism. No significant differences between active and control injections in terms of subjective or objective oral functions could be observed at group level. **In conclusion**, the results were negative with respect to the evaluated pharmacologic remedies for TMDs and bruxism. There is a relative lack of controlled studies in this area. Considering the pronounced negative impact on quality of life that has been reported for these conditions, it should be an important task continuously to evaluate putative pharmacologic therapies in TMDs and bruxism.

Keywords: temporomandibular disorders, sleep bruxism, glucosamine sulfate, pramipexole, dopamine agonist, botulinum toxin, cerebral palsy