

## 論 文 要 旨

**Influence of experimental oesophageal acidification on masseter muscle activity, cervicofacial behaviour and autonomic nervous activity in wakefulness.**

迫口 陽子

Recent studies have been revealing the relationship between the stomatognathic system and the gastrointestinal tract. However, the effect of oesophageal acid stimulation on masticatory muscle activity during wakefulness has not been fully elucidated. To examine whether intra-oesophageal acidification induces masticatory muscle activity, a randomised trial was conducted investigating the effect of oesophageal acid infusion on masseter muscle activity, autonomic nervous system (ANS) activity and subjective symptoms. Polygraphic monitoring consisting of electromyography of the masseter muscle, electrocardiography and audio-video recording was performed in 15 healthy adult men, using three different 30-min interventions: (i) no infusion, (ii) intra-oesophageal saline infusion and (iii) intra-oesophageal infusion of acidic solution (0.1 N HCl; pH 1.2). This study was registered with the UMIN Clinical Trials Registry, UMIN000005350. Oesophageal acid stimulation significantly increased masseter muscle activity during wakefulness, especially when no behaviour was performed in the oro-facial region. Chest discomfort, including heartburn, also increased significantly after oesophageal acid stimulation; however, no significant correlation was observed between increased subjective symptoms and masseter muscle activity. Oesophageal acid infusion also altered ANS activity; a significant correlation was observed between masticatory muscle changes and parasympathetic nervous system activity. These findings suggest that oesophageal-derived ANS modulation induces masseter muscle activity, irrespective of the presence or absence of subjective gastrointestinal symptoms.