



0465

Alterations in Salivary Electrolytes in Oral Cancer or Lichen Planus

A. Almståhl^{1,2}, H. Cevik Aras⁴, N. Strömberg⁵, U. Almhöjd³

¹Oral Microbiology and Immunology, Odontology, Gothenburg, Sweden, ²Oral Health, Odontology, Malmö, Sweden, ³Cariology, Odontology, Gothenburg, Sweden, ⁴Orofacial Medicine, Odontology, Gothenburg, Sweden, ⁵Stromtech, Gothenburg, -- select state --, Sweden

Objectives To analyse electrolyte concentrations in stimulated whole saliva from patients with head and neck cancer and patients with lichen planus.

Methods Stimulated whole saliva was collected from 20 patients with head and neck cancer (HNC group) (63±9 years), 25 patients with either lichen planus (n=16) or oral lichen planus (n=11) (LP group) and 15 healthy controls. Saliva was stored at -80°C, thawed, centrifuged and lyophilized to a pellet (0.5-2 mg). The pellet was dissolved in water (3 ml), filtered (0.45 µm) and the concentrations of 6 positively charged ions (Li⁺, Na⁺, NH₄⁺, K⁺, Mg⁺, Ca₂⁺) and 8 negatively charged ions (F⁻, Cl⁻, Br⁻, NO₃⁻, HCO₃⁻, SO₄²⁻, PO₄³⁻, SCN⁻) simultaneously determined with ion chromatography using 200 µl of the filtered sample.

Results Results: The HNC group had a significantly lower secretion rate (1.6±0.7 ml/min) compared with the healthy controls (2.8±0.8 ml/min) (p < 0.001). The mean secretion rate in the LP group was 2.5±1.4 ml/min. The concentrations of F⁻, NO₃⁻, and Li⁺ were comparable between the groups. The LP group had significantly lower concentrations of Cl⁻, Br⁻, HCO₃⁻, PO₄³⁻, Na⁺, NH₄⁺, K⁺ and Ca²⁺ compared with the controls. The HNC group had significantly lower concentrations of HCO₃⁻ and Na⁺ and significantly higher concentrations of SCN⁻ and Mg⁺ compared with controls.

Conclusions The decreased levels of HCO₃⁻ in both the LP group and the HNC group results in a lower buffer capacity. The increased concentration of HCN⁻ might indicate a more active immune defense in HNC. The markedly decreased concentration of several electrolytes in the LP group needs further investigation. Ion chromatography constitutes a sensitive method, enabling complete and repeated analysis of electrolytes in low sample volumes.