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The specific salivary composition of children affected by oral disorders

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In the neonatal period, some severe digestive diseases require the cessation of oral feeding and the use of enteral or parenteral nutrition for prolonged periods. In some cases, this by-pass of the oral cavity during the early stages of feeding results in the development of so-called oral disorders (OD). Oral disorders may persist for years after healing of the causal disease, and are expressed for example by an exacerbated gag reflex, difficulties in chewing and swallowing and high food selectivity. The present study aimed at comparing the salivary biological signatures in two groups of children, OD patients (n=21) or healthy controls (n=23), using a variety of analytical methods: targeted biochemical measurements, ¹H NMR, MALDI-TOF and SELDI-TOF profiling, and 2D electrophoresis. Most analyses were performed longitudinally at three sampling times over one year.

Compared to healthy controls, saliva of OD patients was characterized by a lower total antioxidant status and a lower abundance of cystatins (SN, D, B) and glutathione S-transferase P. It was also possible to discriminate the two groups by the three sets of spectral data (¹H NMR, MALDI-TOF and SELDI-TOF). The most discriminant SELDI peak (m/z 14306) was in agreement with the under-expression of cystatin SN in the OD group. Profiling methods provided additional information, for example that lactate and alanine were over-expressed in saliva of OD patients. Despite heterogeneity within the groups in terms of age/developmental stage and initial pathology in the patients group, salivary profiles specifically associated to oral disorders were identified.

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