

Xerostomia and Caries Incidence in Relation to Metabolic Control in Children and Adolescents with Type 1 Diabetes

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Abstract : The aim of this study was to evaluate the prevalence of dry-mouth symptoms (xerostomia) and compare it with alterations in salivary characteristics of children and adolescents with type 1 diabetes (DM1), as measured with the use of chair-side saliva tests. This study also investigated the possible association between salivary dysfunction and incidence of caries, in relation to the level of metabolic control. A cross-sectional study was performed on young patients (6-18 years old) allocated among 3 groups: 40 patients poorly-controlled (DM1-A, HbA1c>8%), 40 well-controlled (DM1-B, HbA1c≤8%) and 40 age- and sex-matched healthy controls. The study was approved by the Research Ethics Committee of University of Athens and the parents signed written informed consent. All subjects were examined for dental caries, oral hygiene and salivary factors. Assessments of salivary function included self-reported xerostomia, quantification of resting and stimulated whole saliva flow rates, pH values, buffering capacity and saliva's viscosity. Salivary characteristics were evaluated with the use of GC Saliva Check Buffer (3M ESPE). Data were analysed by chi-square and Kruskal-Wallis tests. Subjects with diabetes reported xerostomia more frequently than healthy controls ($p<0.05$). Unstimulated salivary flow rate and pH values remained significantly lower in DM1-A compared to DM1-B and controls. Low values of resting salivary flow rate were associated with a higher prevalence of dental caries in children and adolescents with poorly-controlled DM1 ($p<0.05$). The results suggested that diabetes-induced alterations in salivary characteristics are indicative of higher caries susceptibility of diabetics and chair-side saliva tests are a useful tool for the evaluation of caries risk assessment.

Keywords : caries risk assessment, saliva diagnostic tests, type 1 diabetes, xerostomia

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