

Reduced statherin expression in labial glands of diabetic subjects

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Many oral diseases are associated to diabetes and, correspondingly, the salivary composition is strongly altered in subjects affected by this metabolic disorder with respect to healthy ones. Periodontal disease, tooth demineralization, caries, and oral infections, which frequently trouble diabetics, are generally ascribed to changes in some secretory protein expression. We focused our attention on the expression of the phosphoprotein statherin, which seems to play important roles in maintaining the buccal health, in human salivary glands. Recently, we reported the ultrastructural localization of this protein in human major and minor salivary glands and a significant reduction of its expression in submandibular glands of diabetic patients versus normal ones. In this study, we compare the subcellular immunoreactivity of statherin in diabetic and non diabetic labial glands. Surgical samples were fixed with a glutaraldehyde and paraformaldehyde mixture, embedded in Epon, and treated for immunogold histochemistry using a polyclonal antibody specific for statherin. Specific immunoreactivity was revealed in serous cells, where gold particles were deposited onto a lot of secretory vesicles and tubules diffused throughout the cytoplasm, Golgi apparatus and RER. The gold particles were counted and the labelling density was expressed as number of gold particles / μm^2 . The results obtained with diabetic samples were then compared with those in the controls. Statistical analysis showed a significant reduction of statherin expression in the diabetic versus normal glands. These data suggest that statherin secretion is affected by diabetes not only in major but also in minor salivary glands, supporting the belief that scarce amounts of this protein could be partly responsible for oral disturbances. Since the best known statherin functions are related to the formation of the acquired enamel pellicle and inhibition of calcium salt precipitation, reduced amounts could determine defects in the pellicle and in calcium metabolism, thus supplying inadequate protection to the teeth.

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Key words

Statherin, Diabetes, Immunogold