

A morphometric study of human submandibular gland in type 2 diabetic status

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Diabetes Mellitus Type 2 represents one of the principal diseases that afflict the world population. It is well documented that diabetes affects both morphology and function of several organs. In diabetic rats significant structural changes have been demonstrated in salivary glands, such as accumulation of secretory material and lipid droplets within secretory cells, parenchymal degeneration and its replacement with fibrous connective tissue (1). With regard to human salivary glands, the data are scanty and conflicting. Our work, carried out by light and electron microscopy, is based on the evaluation of the morphological changes which occur in human submandibular glands of diabetic with respect to non diabetic patients.

Surgical fragments of glandular tissue were fixed, dehydrated, and processed for light and electron microscopy. Randomly chosen images were analyzed with Image Pro Plus software to record the dimension of acini, serous cells, secretory granules and other variables. Data were analyzed by Student's t-test and Mann Whitney test. In diabetic glands statistically significant morphological changes were observed, such as enlargement of serous acini and increase of secretory granules area. These results suggest that the secretory activity of human submandibular gland is severely affected by the diabetic status. Obviously these data need to be confirmed with further measurements in order to explain better how diabetes affects human salivary glands.

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References

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Key words

Salivary glands, diabetes, light and electron microscopy.