

TO STUDY THE EXFOLIATIVE CYTOLOGY AND SALIVARY FLOW RATE IN DIABETIC PATIENTS IN COMPARISON WITH CONTROLS

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ABSTRACT

SALIVARY FLOW RATE AND EXFOLIATIVE CYTOLOGY IN UNCONTROLLED DIABETICS IN COMPARISON WITH CONTROLS

TOPIC: salivary flow rates and exfoliative cytology in uncontrolled diabetics in comparison with controls.

AIM: To compare salivary flow rates and exfoliative cytological smears in uncontrolled diabetic patients.

OBJECTIVE: To analyse the flow of saliva in diabetic patients for diagnosis of various salivary disorders.

BACK GROUND:

Diabetes is a metabolic disease characterized by hyperglycemia, which results from relative or absolute insulin deficiency, one of the first oral symptoms of diabetes. Exfoliative cytology, which is a quick and simple procedure, is an important alternative to biopsy in certain situations. This study is to determine the salivary flow rate in diabetic patients, the level of metabolic control and the duration of the disease.

REASON:

Saliva is the most important component of the oral cavity. Decrease in the salivary flow may occur due to various reasons. Diabetic patients are more prone for decreased salivary flow.

INTRODUCTION:

Diabetes mellitus is a group of metabolic diseases characterized by hyperglycemia resulting from defects in insulin secretion, insulin action, or both. The chronic hyperglycemia of diabetes is associated with long-term damage, dysfunction, and failure of various organs, especially the eyes, kidneys, nerves, heart, and blood vessels.

Several pathogenic processes are involved in the development of diabetes. These range from autoimmune destruction of the β -cells of the pancreas with consequent insulin deficiency to abnormalities that result in resistance to insulin action. The basis of the abnormalities in carbohydrate, fat, and protein metabolism in diabetes is deficient action of insulin on target tissues. Deficient insulin action results from inadequate insulin secretion and/or diminished tissue responses to insulin at one or more points in the complex pathways of hormone action. Impairment of insulin secretion and defects in insulin action frequently coexist in the same patient, and it is often unclear which abnormality, if either alone, is the primary cause of the hyperglycemia.

MATERIALS AND METHOD:

The study included 20 individuals above 30 years of age of which 10 individuals were normotensive without using any medications and the remaining 10 individuals were diabetic patients using anti diabetic drugs. Salivary samples were collected and exfoliative cytology was studied by taking a smear. Two types of staining namely PAP and H and E were used for staining. Statistical analysis was done using Chi square test. Smears were taken from the buccal mucosa with the wooden sticks moistened in water and then transferred onto the slides which were marked previously with the patient's reference number and spread uniformly thin over the slides followed by staining and mounting.

INCLUSION CRITERIA:

- Patients with the known history of diabetes for the past one year.
- Diabetes patients with a recently monitored Blood glucose levels.
- Control groups includes normotensive individuals with no history of hypertension, diabetes, smoking or other systemic complications.

EXCLUSION CRITERIA:

- Smoking, alcohol consumption
- Medications taken other than diabetes mellitus

RESULTS:

Micronuclei is a smaller nuclei formed when the fragment of the chromosome is not incorporated into the daughter nuclei. Micronucleus formation can be caused by chromosomal breakage or through the dysfunction of the mitotic spindle apparatus. Thus, micronucleus formation can be, in part, caused by replication errors as a result of persistent DNA damage at the time of S-phase. And is a sign of genotoxic and chromosomal instability. There's increased nuclear cytoplasmic ratio in diabetic individuals in comparison with the normal individuals.

DISCUSSION:

The study shows that there is evident genotoxic damage to the cells of the buccal mucosa because of the systemic condition of the patient(statistical significance p value 0.029). And we observed increased nuclear size and inflammatory infiltrate in few cases of hypertensive patients and normal nuclear size in normotensive individuals. Al Zamora, Y.M Ortiz –Garcia et.al in there study have concluded that oxidative stress in periodontitis results in alteration in the micro nuclei. Studies suggests that the genomic instability can result from diabetic and antidiabetic drugs, life style, increased BMI, food habits , high levels of triglycerides, LDL etc. studies done to understand the exfoliative cytology among the diabetic patients made an impact to study the exfoliative cytology and oral microbial flora in hypertensive patients in comparison with controls.

CONCLUSION:

These results associated with clinical observations suggest that diabetes mellitus can produce alterations in oral epithelial cells, detectable by microscopy and cytomorphometry, which can be used in the diagnosis of this disease. So there is a significant difference between two samples. Exfoliative cytology thus serves as a simple and non invasive procedure alternative to biopsy . In exfoliative cytology the shed cells are studied and the oral microbial flora gives an idea about the altered oral flora in various conditions. The results contribute to the understanding of alteration in the oral epithelium pertaining to the number, size, and color of the micronuclei and the altered microbial flora in comparison with the controls .

