

**Dental Caries, Mutans Streptococci,  
Lactobacilli and Salivary Status of  
Type1 Diabetic Mellitus Patients  
Aged 18-22 years In Relation To  
Glycated Haemoglobin**

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By**

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## Abstract

**Background:** Diabetes is a chronic systemic disorder of glucose metabolism. That could be diagnosed using fasting and/or random plasma glucose and Glycated Haemoglobin (HbA<sub>1c</sub>). Several biochemical and microbial alterations of saliva that could affect dental caries occurrence and severity among diabetic patients.

**Aims of the study:** The aims of the present study were to assess the severity of dental caries, Mutans Streptococci, Lactobacilli and some salivary constituents in addition to flow rate and pH among uncontrolled and controlled diabetic groups in comparison with non-diabetic control group.

**Materials and Methods:** The total sample composed of 75 adults aged 18-22 years. Divided into 25 uncontrolled diabetes mellitus (HbA<sub>1c</sub> > 7), 25 controlled diabetes mellitus (HbA<sub>1c</sub> ≤ 7) and 25 non-diabetes control group, fasting blood sugar was determine for the diabetic patients. The diagnosis and recording of dental caries was according to severity of dental caries lesion through the application of D<sub>1-4</sub>MFS (Manji *et al*, 1989). Stimulated salivary samples were collected under standardized condition (Tenovuo and Lagerlöf, 1994). Salivary flow rate and pH estimated and then estimation of salivary glucose, total proteins using spectrophotometric analysis, viable count of mutans streptococci and lactobacilli was determined.

**Results:** The percentage of dental caries occurrence was 100% among diabetes mellitus patients. While in control group was 88%. Caries experience (DMFS) was highly significantly higher among uncontrolled diabetic than both controlled diabetic group and control group. Salivary flow rate and pH among uncontrolled diabetic group was highly significant lower than in both controlled diabetic group and control group.

The salivary flow rate was found to be inversely correlated with DMFS among all groups with no significant difference; salivary pH was inversely highly significant correlated with DMFS among uncontrolled diabetic group and control group.

Concerning salivary glucose among uncontrolled diabetic group and controlled diabetic group were highly significant higher than control group. Salivary glucose was positively highly significant correlated with DMFS among uncontrolled diabetic group and control group. While salivary total proteins in uncontrolled diabetic group was found to be highly significant higher than in both controlled diabetic group and control group, but the level of total proteins between controlled diabetic group and control group was not significant. The relations between salivary total protein and DMFS among all groups were not significant in negative direction.

Mutans Streptococci and Lactobacilli in saliva of uncontrolled diabetic group was highly significant higher than both controlled diabetic group and control group, while no significant difference was found between controlled diabetic group and control group. Mutans streptococci positively highly significant correlated with DMFS among all groups; while lactobacilli positively highly significant correlated with DMFS among uncontrolled diabetic and controlled diabetic group.

HbA<sub>1c</sub> was positively highly significant correlated with caries experience represented by DMFS among uncontrolled diabetic group. In the same group HbA<sub>1c</sub> was found to be inversely significant and highly significant correlated with flow rate and pH respectively; and in the same picture the relation of HbA<sub>1c</sub> with mutans Streptococci and Lactobacilli were highly significant and significant respectively but in positive direction. The correlation between HbA<sub>1c</sub> and salivary glucose was significant in positive direction. While the

correlations of HbA<sub>1c</sub> with salivary total protein were inversely not significant among the same group.

On the other hand, concerning controlled diabetic group, HbA<sub>1c</sub> was found to be positively not significant correlated, with DMFS, salivary glucose, total protein, mutans streptococci and lactobacilli, while inversely not significant correlated with flow rate, however the only significant relation was found between HbA<sub>1c</sub> and salivary pH in negative direction in this group.

**Conclusion:** Dental caries revealed higher percentage of occurrence and severity among uncontrolled diabetic group. Furthermore there was significant influence of the diabetic and the poor metabolic control on the salivary flow rate, pH, glucose, total proteins, mutans streptococci and Lactobacilli that have an effect on caries occurrence and severity.