

Correlation between levels of sulcular and capillary blood glucose

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[View references \(3\)](#)

Abstract

Aim: The aim of this study was to evaluate the correlation between capillary blood glucose levels (CBGLs) and sulcular blood glucose levels (SBGLs) using blood obtained from gingival tissue during routine periodontal examinations to determine if sulcular blood samples can be used as a non-invasive means to diagnosis blood glucose levels. **Methods and Materials:** Thirty non-diabetics and 20 diabetic patients with moderate to severe periodontitis were included in the study and subjected to routine clinical periodontal examinations. Blood was collected using a 1.6-1.8 mm diameter micro bite collection tube to transport the sample from the gingival sulci of anterior teeth following periodontal pocket probing to a test strip of a glucose self-monitoring device. As a control, capillary blood was taken with a finger-stick. Statistical analysis was performed using the Pearson's correlation coefficient and a t-test. **Results:** The blood glucose levels in patients ranged from 98 mg/dl to 277 mg/dl, and the values of blood samples taken from gingival sulcus or finger tip of the same patient showed a very high intra-patient correlation ($r = 0.99$, $p < 0.0001$). **Conclusion:** The results of this study suggest sulcular blood from a routine periodontal examination may be used for diabetes mellitus screening. **Clinical Significance:** Considering 90% of diabetics remain undiagnosed, testing sulcular blood may provide a suitable method for identifying potential diabetic patients during routine dental visits since there is a correlation with capillary blood. Appropriate referrals to a physician can then be made when warranted.

Reaxys Database Information

Author keywords

Bleeding on probing; Capillary blood glucose level; CBGL; Diabetes mellitus; Periodontal disease; SBGL; Sulcular blood glucose level

ISSN: 10263711 Source Type: Journal Original language: English

Document Type: Article