Letters to the Editor

patients using limited information about the patient’s blood glucose control from a previous laboratory test that may not reflect the current status. Monitoring the blood glucose during the office visit may be a better alternative.

After receiving the approval of the Ethical Committee, a detailed medical history was taken from 200 patients. Sixty-eight male and 32 female patients in the age group of 30–60 years were selected and informed consent was obtained from them.

Inclusion criteria
1. Patients with history of Type 2 diabetes mellitus.
2. Patient should have at least one tooth that bleeds upon probing.

Exclusion criteria
1. Current treatment for anemia, polycythemia, gout, dialysis.
2. Any history of severe cardiovascular, hepatic, immunological, renal, hematological, or other organ impairment.

Each fasting patient was examined for signs of gingival inflammation. Inflamed area was isolated with cotton rolls and a periodontal probe was inserted into the gingival sulcus. After the probe was removed, a blood sample of about 1.5 μl was collected with a small plastic syringe and blood glucose level was measured with a self-monitoring glucose meter. Following this, finger was punctured with a sterile lancet and blood glucose level was measured with same glucose meter. Venous blood samples, drawn from the patient’s antecubital fossa, were analyzed for plasma glucose by the calorimeter.

**Venous blood correction**

Plasma measurement can be converted to whole blood measurements by the following formula:

\[
\text{Hct corrected venous glucose (mg/dl) = laboratory mg/dl} \times [1.0 - (0.0024 \times \text{Hct})]
\]

There is also a physiological drop in the blood glucose concentration as it passes from a capillary (such as gingival crevice) area into a venous area due to normal cellular uptake of glucose. The drop for a fasting individual is 2–5 mg/dl or an average of 3.5 mg/dl.

Corrected venous glucose (mg/dl) = laboratory mg/dl \times [1.0 - (0.0024 \times \text{Hct})] + 3.5 mg/dl.

The data were subjected to statistical analysis.

Pearson’s correlation analysis showed that the gingival crevicular blood glucose and finger prick blood glucose were significantly correlated \((r = 0.999, P < 0.0001)\). Similarly

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**Gingival crevicular blood glucose assessment as a chairside test for diabetic patients with chronic periodontitis: A clinical study**

Sir,

Diabetes mellitus and periodontitis are common chronic diseases in adults. Dentists frequently manage diabetic
the gingival crevicular blood glucose and corrected venous blood glucose were significantly correlated ($r = 0.985, P < 0.0001$). Further, the finger prick blood glucose and corrected venous blood glucose were also significantly linearly correlated ($r = 0.999, P < 0.0001$). Bias analysis of gingival crevicular blood glucose and finger prick blood glucose measurements showed mean prediction error at 95% confidence limits. Precision values were also in 95% confidence limits.

The blood glucose measurements of gingival crevicular blood, finger-puncture blood, were comparable with corrected venous blood glucose measurements. This is in accordance with the results of a study by Shreya Shetty,[3] in which “dextrostix” strips were used, whereas in our study, a chairside self-monitoring glucose meter was used. Though dextrostix strips were shown to be fairly reliable, gingival puncture with a sharp lancet was avoided in our study as the blood sample was obtained from gingival probing, which was a routine step in periodontal examination.

The results are in agreement with those of Shiela et al.[4] and Parker et al.,[2] who suggest that glucose levels of gingival crevicular blood samples are comparable to those obtained using the finger-puncture method.

The results of our study showed a similarity with those of Beikler et al.,[5] who found that blood oozing during routine periodontal examination could be used to determine blood glucose levels.

The advantages of gingival blood sampling procedure are that it is much easier to perform and less time consuming, since no additional tools like sharp lancet for finger puncture are necessary. Gingival crevicular blood may not be a good sample in cases where purulent exudates are found in pockets, which may dilute the blood sample. This technique is safe, reliable, easy to perform, comfortable for patients, and helpful to assess the current diabetic status of patients in periodontal clinics. It may not be sufficient for an overall control of diabetes and further diagnostic tests may be required.

From this study it seems reasonable to conclude that gingival crevicular blood can be used as a sample for blood glucose assessment, which can be obtained quickly and safely in routine periodontal examination with no physical and psychological trauma of finger prick. Further studies are suggested in large population to screen the undiagnosed diabetic patients in periodontal practice.

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