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Blood from periodontal disease can be used to screen for diabetes

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Oral blood samples drawn from deep pockets of periodontal inflammation can be used to measure hemoglobin A1c, an important gauge of a patient's diabetes status, an NYU nursing-dental research team has found. Hemoglobin A1c blood glucose measures from oral blood compare well to those from finger-stick blood, the researchers say. The findings are from a study funded by an NYU CTSI (Clinical and Translational Science Institute) grant awarded to the research team last year.

Hemoglobin A1c is widely used to test for diabetes. According to guidelines established by the American Diabetes Association, an A1c reading of 6.5 or more indicates a value in the diabetes range.

The NYU researchers compared hemoglobin A1c levels in paired samples of oral and finger-stick blood taken from 75 patients with periodontal disease at the NYU College of Dentistry. A reading of 6.3 or greater in the oral sample corresponded to a finger stick reading of 6.5 in identifying the diabetes range, with minimal false positive and false negative results. The findings were published in November 2011 in the Journal of Periodontology.

"In light of these findings, the dental visit could be a useful opportunity to conduct an initial diabetes screening – an important first step in identifying those patients who need further testing to determine their diabetes status," said the study's principal investigator, Dr. Shiela Strauss, associate professor of nursing and co-director of the Statistics

and Data Management Core for NYU's Colleges of Nursing and Dentistry.

Dr. Strauss added that some patients may find the oral blood sampling in a dentist's office to be less invasive than finger stick sampling.

The one-year study utilized a version of a hemoglobin A1c testing kit that was initially developed specifically to enable dentists and dental hygienists to collect finger-stick blood samples and send them to a laboratory for analysis. The testing kit was adapted to enable analysis of both oral blood and finger-stick samples. Dr. Strauss points out that the hemoglobin A1c testing method requires only a single drop of blood to be collected, applied to a special blood collection card, and mailed to the laboratory when dry.

"There is an urgent need to increase opportunities for diabetes screening and early diabetes detection," Dr. Strauss added. "The issue of undiagnosed diabetes is especially critical because early treatment and secondary prevention efforts may help to prevent or delay the long-term complications of diabetes that are responsible for reduced quality of life and increased levels of mortality risk."

The research is part of a series of NYU nursing-dental studies examining the feasibility of screening for diabetes and other physical illnesses in the dental setting.

Dr. Strauss plans additional research on oral blood hemoglobin A1c testing involving a broader pool of subjects and dental practice sites.

Provided by New York University

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