

Study indicates the potential of new tests in long-term diabetes complications

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Monitoring glucose levels is imperative for diabetes patients, but for some the standard Hemoglobin A1c (HbA1c) test is not valid. Researchers from Johns Hopkins University, the University of Wisconsin, and the University of Minnesota have determined that the fructosamine tests and a novel assay for glycated albumin may be useful for predicting complications related to diabetes. The results will be published in the latest edition of *The Lancet Diabetes & Endocrinology*.

HbA1c, which is also used to diagnose diabetes, reflects exposure to glucose in the blood over the previous 2-3 months. However, this test will not work in patients with anemia, kidney disease, hemoglobinopathies, HIV, and other conditions. The study measured HbA1c, fructosamine and glycated albumin in blood samples from over 12,000 participants in the Atherosclerosis Risk in Communities (ARIC) Study. The ARIC Study is a community-based cohort of persons from Washington County, MD; Jackson, MS; Forsyth County, NC; and suburban Minneapolis, MN who have been followed for clinical outcomes since 1987. Fructosamine is approved for clinical use in the United States but rarely used. The glycated albumin test is widely used in Japan but not approved for use in the United States. A major barrier to using these non-traditional markers is that they have not been related to the clinical outcomes of diabetes or compared to HbA1c.

"We compared the associations of HbA1c, fructosamine, and glycated albumin with two of the most important clinical outcomes related to diabetes: retinopathy (eye disease) and kidney disease," notes lead author

Elizabeth Selvin, PhD, MPH, associate professor, Johns Hopkins Bloomberg School of Public Health. "We found that fructosamine and glycosylated albumin were strongly associated with retinopathy and kidney disease. [T]hese associations were similar to those observed for HbA1c with these outcomes."

The results of the study suggest that fructosamine and glycosylated albumin may be useful substitutes for monitoring glucose control in patients with diabetes when HbA1c is not available or not valid. Because fructosamine and glycosylated [albumin](#) are measures of short-term (2-4 week) glucose control and change more rapidly than HbA1c, they could also be useful for monitoring changes in diabetes treatments.

"Further studies are needed to understand the value of these tests in the clinic," Selvin added.

Provided by Johns Hopkins University Bloomberg School of Public Health

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