Mathematical model can simulate HbA1c progression in T2DM

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(HealthDay)—A mathematical model (MM) can simulate hemoglobin

A1c (HbA1c) trajectories in type 2 diabetes mellitus (T2DM) models, according to a study published online Dec. 27 in *Diabetes, Obesity and Metabolism*.

Phil McEwan, Ph.D., from Health Economics and Outcomes Research Ltd. in Cardiff, U.K., and colleagues developed an alternative MM to simulate HbA1c progression in T2DM in contrast to the time-dependent HbA1c trajectories in health economic models, typically informed by the UK Prospective Diabetes Study (UKPDS). They pooled data from 68 eligible studies to develop an alternative MM equation, which was compared with the UKPDS progression equation in illustrative scenarios.

The researchers found that across studies, HbA1c progression was highly heterogeneous and varied with baseline HbA1c, treatment group, and age of patient. They fitted the MM equation with parameters for the mean baseline HbA1c, initial change in HbA1c, and upper quartile of maximum observed HbA1c in the MM equation (8.3, −0.62 and 9.3 percent, respectively). In illustrative scenarios, differences in HbA1c trajectories between the MM and UKPDS approaches affected the timing of therapy escalation.

"The MM represents an alternative approach to simulate HbA1c trajectories in T2DM models, since UKPDS data may not adequately reflect the heterogeneity of HbA1c profiles observed in clinical studies," the authors write. "However, the choice of approach should ultimately be determined by the characteristics of individual patients under consideration, and the clinical face validity of the modeled trajectories."

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More information: Full Text (subscription or payment may be required)