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Evaluation of risk equations for prediction of short-term coronary heart disease events in patients with long-standing type 2 diabetes: the Translating Research into Action for Diabetes (TRIAD) study

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Abstract:

Background To evaluate the U.K. Prospective Diabetes Study (UKPDS) and Framingham risk equations for predicting short-term risk of coronary heart disease (CHD) events among adults with long-standing type 2 diabetes, including those with and without preexisting CHD. Methods Prospective cohort of U.S. managed care enrollees aged ≥ 18 years and mean diabetes duration of more than 10 years, participating in the Translating Research into Action for Diabetes (TRIAD) study, was followed for the first occurrence of CHD events from 2000 to 2003. The UKPDS and Framingham risk equations were evaluated for discriminating power and calibration. Results A total of 8303 TRIAD participants, were identified to evaluate the UKPDS (n = 5914, 120 events), Framingham-initial (n = 5914, 218 events) and Framingham-secondary (n = 2389, 374 events) risk equations, according to their prior CHD history. All of these equations exhibited low discriminating power with Harrell's c-index <0.65. All except the Framingham-initial equation for women and the Framingham-secondary equation for men had low levels of calibration. After adjsusting for the average values of predictors and event rates in the TRIAD population, the calibration of these equations greatly improved. Conclusions The UKPDS and Framingham risk equations may be inappropriate for predicting the short-term risk of CHD events in patients with long-standing type 2 diabetes, partly due to changes in medications used by patients with diabetes and other improvements in clinical care since the Frmaingham and UKPDS studies were conducted. Refinement of these equations to reflect contemporary CHD profiles, diagnostics and therapies are needed to provide reliable risk estimates to inform effective treatment.

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