PREVENTION

A new model to estimate lifetime risk of CVD

In primary prevention of cardiovascular disease (CVD), the use of models that estimate the absolute 10-year risk of developing CVD has been the norm. These models have been utilized to identify people who might benefit from intervention. However, this approach "may miss people at younger ages who, despite a low absolute 10-year risk, have a high risk relative to their peers," explains Julia Hippisley-Cox, one of a team of UK researchers who developed a new model to estimate the lifetime risk of CVD.

The researchers prospectively analyzed data from patients registered between 1 January 1994 and 30 April 2010 in 563 primary care centers in England and Wales. Patient data were obtained from the QResearch® database, in which electronic information routinely collected in primary care centers is stored. The open cohort analyzed in the study included patients who, at study entry, were aged 30–84 years, free from CVD, and had never

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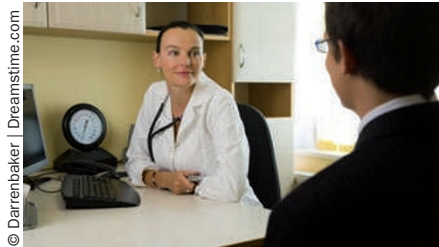
taken statins. Importantly, a wide range of risk factors were included in the model, such as social deprivation, ethnicity, and family history of coronary heart disease. Lifetime risk of CVD was defined as the cumulative risk of developing CVD, and death from noncardiovascular causes was considered as a competing risk. Two-thirds of the practices were assigned to the derivation cohort (which included 2,343,759 eligible patients) and one-third to the validation cohort (which included 1,267,159 eligible patients).

Comparisons with QRISK2, a previously developed model that predicts the 10-year absolute risk of CVD, show that the new lifetime risk model identifies younger patients at high risk. These patients are more likely to be men, from nonwhite ethnic groups, and have a family history of coronary heart disease.

These patients might be new targets for intervention. However, the researchers warn that medical interventions carry risks themselves and that, therefore, the cost-effectiveness and acceptability of intervention at an early age need to be closely examined. Understanding the pros and cons of the different approaches to estimate CVD risk is also important, they add, calling for a wide debate on how best to estimate and communicate CVD risk.

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