RISK FACTORS

A new model for predicting 30-year CVD risk

Pencina and colleagues from Boston University, USA, have used data from the Framingham Offspring Study to construct a model for predicting the 30-year risk of cardiovascular events in people free of the condition at baseline. The average 30-year cardiovascular disease (CVD) risk, adjusted for competing risk of non-CVD death, was approximately 1 in 13 for women and 1 in 5 for men. This algorithm predicted CVD risk with greater accuracy than other methods, which were based on extrapolation of 10-year risk profiles. “There has been growing evidence suggesting that 10-year risk might give a deceptive view of the true long-term CVD risk, especially in younger people, and particularly in younger women,” says Dr Pencina. “No one to date has attempted to create a risk calculator which extends ... to the 30-year horizon,” he continues.

A total of 4,506 individuals from the Framingham Offspring cohort were

eligible for inclusion in the analysis. All participants underwent physical examination and assessment of cardiovascular risk factors at baseline and constant monitoring of CVD events during follow-up, which continued until 2007 (mean 32 years).

“...primary prevention of CVD is a lifelong exercise...”

‘Hard’ CVD events (coronary death, myocardial infarction, and stroke) occurred in 671 participants (14.9%). Notably, stroke accounted for almost 40% of all first CVD events in women, compared with less than 25% in men. The adjusted 30-year CVD risk was 7.6% for women and 18.3% for men. Standard CVD risk factors, such as elevated cholesterol level, elevated blood pressure, and smoking, remained

significantly associated with CVD risk throughout follow-up. The investigators also found that more simple risk prediction models—which used calculations based on 10-year risk, or did not adjust for the risk of death from other causes—overestimated or underestimated the 30-year CVD risk and were inadequate.

The model proposed by Pencina *et al.* is “new and important for primary prevention strategies” according to Professor Guy De Backer from the University Hospital Ghent, Belgium. “Since primary prevention of CVD is a lifelong exercise, we have to base our strategies on long-term risk prediction tools,” says De Backer.

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Original article Pencina, M. J. *et al.* Predicting the 30-year risk of cardiovascular disease: the Framingham Heart Study. *Circulation* **119**, 3078–3084 (2009).