Editor's Page

The HellenicSCORE: A Simple Tool for Measuring Cardiovascular Disease Risk

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The prediction of the risk of cardiovascular disease (CVD) has received much attention in recent years. Several risk prediction models have been proposed and used in various populations. The best known predictive risk model for CVD is the Framingham Risk Sheet, which was developed based on the data provided by the Framingham Heart Study.[1] The Framingham Heart Study, one of the most important studies in the field of CVD epidemiology, was designed as a prospective, single-centre study in the setting of a community-based cohort: Framingham in the northern USA. The Framingham Risk Sheet provides predictions of future myocardial infarction, coronary heart disease (CHD), death from CHD, stroke, CVD and death from CVD, over the course of 10 years; moreover, it should be underlined that the model refers only to individuals without known heart disease. Based on the Framingham Risk Sheet, risk charts have been incorporated into guidelines for the prevention of CVD and for treating risk factors in European populations, too.[2]

However, despite the wide use of the Framingham Risk Sheet, it has been strongly suggested that the algorithm might not suit other populations, since the population studied (i.e. Framingham village) was almost all Caucasian. In line with this consideration, several investigators strongly suggested that, although the set of CVD risk factors is consistent among various populations, there is considerable inaccuracy in the forecasts.[3] One potential explanation attributed this to the differences between populations in several environmental factors, such as geographical, cultural, social, behavioural and genetic. These differences are of even greater epidemiological interest than a major shift in the pattern of mortality within a particular population, because of the additional discrepancy between populations.

Taking all the aforementioned considerations into account, the Working Group on Epidemiology and Prevention of the European Society of Cardiology (ESC) conducted a project for the development of risk prediction charts based on data from 12 European cohort studies: the SCORE project.[4] The new European, population-based risk charts were incorporated into the 3rd European guidelines on CVD prevention (2003). The division of the European countries into "high" and "low" risk was also an innovation of this project, since it assumed an inherent variation of CVD risk across Europe. However, the inclusion of only 12 cohorts raised several concerns about the accuracy of the developed risk charts for the estimation of risk in various European populations, such as those in Mediterranean Europe, a region known from the past to have a low CVD risk.

Thus, in 2007, a calibration of the ESC SCORE was suggested, based on the methodology proposed by D'Agostino et al[5] and using local information about the prevalence of CVD risk factors from the ATTICA Study together with data on the 10-year incidence of the disease from the Hellenic Statistical Authority and the WHO database.[6] The resulting HellenicSCORE, which was based on age, sex, smoking habits, systolic blood pressure and total cholesterol levels, estimated fatal future CVD events during a 10-year period. Although it could be argued that the HellenicSCORE could be a valid tool for CVD risk prediction in the referent Greek population, only the 10-year prospective evaluation of the population would provide a basis for evaluating its predictive accuracy.

Undoubtedly, the estimation of future events is a dynamic and promising field in CVD epidemiology. With accurate risk estimation, clinicians have an additional tool for primary CVD prevention —especially under the prism of the current financial crisis— as it can be used to expedite the initiation of lifestyle changes and/or the use of appropriate therapeutic interventions among people "at high risk".[7] Furthermore, the addition of newer clinical markers, such as renal function, arterial stiffness or inflammatory factors, remains a challenge to the improvement of the accuracy of those models.[8] However, the challenge for health care policy makers, as well as clinicians, is how to develop "front-end" strategies based on these risk prediction models that can be integrated successfully into daily primary health care.

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