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**Editorial**

# A possible alternative to multivariate models for cardiovascular risk estimates

The sex-specific estimation of 10-year cardiovascular risk in individuals without cardiovascular diseases (CVD) has commonly used the Framingham Risk Score (FRS), which was developed from a large, population-based prospective cohort in the US representing mainly the white population of European ancestry [1, 2]. Other multivariate risk models, including a risk calculator released by the Joint British Societies (JBS) in 2014 [3], and later versions of Framingham risk model have been developed to predict coronary heart disease (CHD), cerebrovascular disease, peripheral arterial disease, aortic disease, such as aortic aneurysm.

Specific preventive measures can be used to modify many risk factors for cardiovascular disease. These measures include lifestyle changes (smoking cessation, a healthy diet, regular exercise, moderate alcohol consumption), clinical interventions, such as statins, aspirin, antihypertensives, control of dyslipidemia and control of diabetes. Modifiable factors account for most of the population-attributable risk [4]. Therefore, once the 10-year and lifetime risk estimates are conducted, it is important that the risks be communicated with patients in the decision making process for primary prevention by lifestyle changes and prescription of clinical preventive services.

In this issue, Khankham S et al. compared the risk of coronary artery disease (CAD) among patients with psoriasis using FRS and the Thai cohort assembled for more than 10 years, the RAMA-EGAT score [5]. They found significant differences in the estimates 10-year and lifetime risks for CAD. This raises the concerns about the appropriate choice of the most applicable risk score for each individual patient (based upon the patient's unique characteristics and comorbidities).

There is a significant over- and under-estimation of a 10-year CVD risks when the predicted and observed rates of CVD are compared between various populations and ethnic groups [6]. It is difficult to precisely identify why this is so. The differences may be due to population characteristics, the representativeness of samples, secular changes in risk factors, the use of lifestyle changes and clinical preventive measures during the period of observation, and changes in environment conducive of healthy or unhealthy lifestyles and healthy or unhealthy diets, and the effective control of comorbidities. Therefore, in communicating the risks to patients to empower them to adopt primary prevention and adherence to clinical preventive services, health providers should remember that the prediction is only an estimate and significant over- and underestimations do occur.

Because of the concerns about the over- and underestimations of risks using the various multivariate models, it may be advisable for patients without established risk of CVD to undergo periodic CVD risk assessment, such as from every 3 to 5 years. Periodic risk assessment offers the opportunity to identify CVD risk factors and offer assistance on the appropriate management of specific risk factors including lifestyle changes and prescription of clinical preventive interventions as described above. Moreover, many individuals with a low 10-year risk, as calculated using the described models when they are young, will still have a high lifetime risk because the largest influence on risk in most risk calculators is age [7]; followed by effective control of comorbidities and changes affecting lifestyle.

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