Editorial Comment

Prediction of Outcomes After Percutaneous Coronary Intervention for Unprotected Left Main Coronary Artery Stenosis Using the EuroSCORE

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The EuroSCORE, designed to predict surgical mortality, was recently shown to be an independent predictor of adverse outcomes after percutaneous coronary intervention (PCI) [1]. Rekik et al. confirmed, in this issue, that EuroSCORE had a function to predict mortality after PCI for 246 patients with unprotected left main coronary artery (ULMCA) stenosis [2]. The predictive power of 4-year survival was modest with the c-statistic of 0.69 in the entire population. Of interest, when the patients were separated into the low and high score groups by six of EuroSCORE, the performance of EuroSCORE to predict mortality was better in the high score group with the c-statistic of 0.71 than the low score group with the c-statistics of 0.65. Accordingly, this study reports the strength and weakness of EuroSCORE risk scoring system when it is utilized in individual care of patients with complex coronary disease.

Because the EuroSCORE is a risk assessment system to integrate the diverse clinical and procedural factors of patients, it is not surprising to find the predictive ability of EuroSCORE in PCI for ULMCA stenosis [2]. However, with regard to the generalizability of this score in all interventions, its limitations need to be concerned. Because, the EuroSCORE was basically developed to predict operative mortality in open heart surgery, some components of this score may not be applicable to the prediction of PCI. For instance, procedural factors, such as cardiac surgery except coronary artery bypass surgery (CABG), surgery on thoracic aorta or postinfact septal rupture, are not considered prognostic factors of PCI. In addition, because this score was initially created with the CABG database, integers weighting the clinical importance of prognostic factors may not be reasonable in the procedures of PCI. Finally, the differential predictability according to the level of EuroSCORE, as indicated in the paper of Rekik et al, is another limitation. A lower predictive power of low EuroSCORE for operative mortality was already reported in the previous analysis evaluating studies including CABG patients [3]. In particular, because the distribution of EuroSCORE in PCI patients is generally clustered in the low scores, the performance as a risk prediction model may not be sufficiently high in patients with low EuroSCORE.

Despite aforementioned illustration about the limitations of EuroSCORE, it is noteworthy that this scoring system is still one of the most validated risk models in either CABG or PCI [1]. For high risk patients, such as those with ULMCA disease, applying such a risk score is clinically relevant to decide appropriate treatment strategy and predict outcome. In fact, a recent study reported that a combination of SYNTAX score and EuroSCORE can improve the performance of risk prediction [4,5]. Therefore, in a daily patient care, assessment of carefully collected data with application of current risk scoring models would be clinically important before a single ideal risk model is created.

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