Value of CHADS-VASc Score in Diverse Cardiovascular Conditions

CHADS-VASc Skorunun Farklı Kardiyovasküler Hastalıklardaki Değeri

Contrast-induced acute kidney injury (CI-AKI) following a cardiac intervention is associated with a prolonged hospital stay, permanent renal damage, and adverse cardiovascular events. Depending on the definition and clinical setting, AKI can be observed up to 50% after cardiac interventions.[1] Established clinical risk factors for AKI after cardiac procedures include patient-related risk factors (older age, female gender, diabetes, chronic renal failure, congestive heart failure, anemia, dehydration, disturbances in hemodynamic status, and use of nephrotoxic drugs) and procedure-related risk factors (contrast volume, choice of contrast agent, and repeat procedure within 48–72 h).[2,3] Postprocedural bleeding complications can trigger or increase the severity of CI-AKI as well.[4]

A large body of evidence about the use of clinical risk scores in predicting adverse cardiovascular outcomes has been accumulated. The Mehran risk score is a robust tool for calculating the risk of CI-AKI after percutaneous coronary intervention (PCI).[1] It includes clinical, laboratory, and angiographic variables. The limitation of the Mehran score is that procedural variables cannot be assessed at baseline, and laboratory values cannot be obtained in all patients with acute coronary syndrome (ACS). For this purpose, risk scores, which are based on variables readily available before the procedure, are needed to implement prophylactic measures such as intravenous hydration or keeping contrast volume as low as possible.

The CHADS-VASc score is a widely used score to predict the risk of thromboembolic events in patients with atrial fibrillation (AF). Wide adoption of the CHADS-VASc score by clinicians is due to its simplicity: (i) an online calculator is not required, (ii) each point is given to a binary risk factor, and (iii) laboratory or imaging test is not required. The CHADS-VASc score also includes many traditional coronary artery disease risk factors. As a result, the CHADS-VASc score predicts in-hospital and long-term adverse cardiovascular events very well, regardless of the presence of AF. Adverse cardiovascular events, which are shown to be associated with high CHADS-VASc score, include all-cause mortality, nonfatal myocardial infarction, acute stent thrombosis, no-reflow phenomena, nonfatal stroke, pulmonary embolism, and postoperative AF.[5–12]

In this issue of the Journal, a paper entitled "The predictive value of CHA2DS2-VASc score in patients with contrast-induced nephropathy after primary PCI for ST-elevated myocardial infarction" has been published. Age, diabetes, history of stroke, volume of contrast medium, left ventricular ejection fraction (LVEF), and CHADS-VASc score were found to be the independent predictors of CI-AKI. A score of CHADS-VASc > 2 had good discriminating power (80.1% sensitivity and 71.4% specificity) for the prediction of CI-AKI. It is an interesting finding that the CHADS-VASc score remained an independent predictor of CI-AKI despite other independent predictors such as age, diabetes, stroke, and LVEF are already com-

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ponents of the CHADS–VASc score. This may suggest the dominant effect of the aforementioned clinical risk factors on the development of CI–AKI. However, the authors are not the first to use the CHA2DS2–VASc score as a surrogate marker. Other groups have evaluated the potential role of the CHA2DS2–VASc score for predicting CI–AKI in various cardiac conditions.[13–15]

It is no surprise that a risk score for thromboembolism in patients with AF can predict CI–AKI after PCI. Major predictors of CI–AKI are already represented in the CHADS–VASc score (advanced age, diabetes, CHF, and female gender). However, baseline renal impairment, contrast volume, and contrast volume to glomerular filtration rate ratio are other major determinants of CI–AKI.[16] Is it appropriate to use a risk score that does not include variables such as renal function and contrast volume? It will definitely not be comprehensive. However, the relative strength of the CHADS–VASc score is that it covers most of the relevant variables, it is simple to use, and it predicts CI–AKI risk before the procedure commences in patients with ACS.

All studies so far on the value of the CHADS–VASc score in diverse cardiovascular conditions indicate remarkable robustness for predicting a variety of procedural complications and clinical outcomes. In comparison to other available and more complex CI–AKI risk stratification tools, the CHADS–VASc score is a simple and accustomed tool and therefore can be easily applied in daily practice.

Declaration of Interests: The authors declare that they have no competing interest.

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