Comparative Performance of ATRIA, CHADS2, and CHA2DS2-VASc Risk Scores Predicting Stroke in Patients With Atrial Fibrillation. Results From a National Primary Care Database

Commentary by Dr. Valentin Fuster

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Background Previous studies report that CHADS2 and CHA2DS2-VASc risk scores have similar discriminating ability (C statistic ~0.6). Recently a clinically based risk score, the ATRIA (Anticoagulation and Risk Factors in Atrial Fibrillation) study risk score, was developed and validated.

Objectives This study compared predictive ability of CHA2DS2-VASc and CHADS2 ischemic stroke risk scores with ATRIA stroke risk score and their implications for anticoagulant treatment in patients with atrial fibrillation (AF).

Methods Patients with AF not using warfarin were included from the Clinical Practice Research Datalink database, 1998 to 2012. Patients were followed from AF diagnosis until occurrence of ischemic stroke, prescription of warfarin, death, or the study's end. Independent predictors of ischemic stroke were identified and the c-index and net reclassification improvement were calculated.

Results A total of 60,594 patients with AF were included. Annualized stroke rate was 2.99%. Event rates for moderate- and high-risk categories for CHA2DS2-VASc were lower than those of the ATRIA and CHADS2. Age and previous stroke most strongly predicted ischemic stroke. C statistics for the full point scores were 0.70 (95% confidence interval [CI]: 0.69 to 0.71) for the ATRIA risk score, 0.68 (95% CI: 0.67 to 0.69) for CHADS2, and 0.68 (95% CI: 0.67 to 0.69) for CHA2DS2-VASc risk score. The net reclassification improvement was 0.23 (95% CI: 0.22 to 0.25) for ATRIA compared with CHA2DS2-VASc.

Conclusions The ATRIA score performed better in the U.K. Clinical Practice Research Datalink AF cohort. It more accurately identified low-risk patients than the CHA2DS2-VASc score, which assigned these patients to higher-risk categories. Such reclassification of stroke risk could prevent overuse of anticoagulants in very low stroke risk patients with AF.