To the Editor: Estimation of bleeding risk is a crucial step in the management of patients with atrial fibrillation (AF). Three bleeding risk–prediction schemes have been derived and validated exclusively in AF populations: HEMORR2HAGES, HAS-BLED, and ATRIA (1,2). In the present analysis, the performance of these 3 schemes was tested in the idraparinux arm of the AMADEUS trial (Evaluating the Use of SR34006 Compared to Warfarin or Acenocoumarol in Patients With Atrial Fibrillation) (3).

A total of 2,283 patients (67% men; age 70.1 ± 9 years) were randomized to the idraparinux arm. Overall, 74 major bleeding events, 346 any clinically relevant bleeding events, and 62 deaths occurred over 311 ± 161 days of follow-up. Specific data for each risk score are shown in Table 1.

The 3 scores demonstrated only modest discriminative ability for all outcomes as reflected by the c-indexes in receiver-operating characteristic curve analysis. The ATRIA score presented c-indexes of 0.61 (95% confidence interval [CI]: 0.54 to 0.68), 0.56 (95% CI: 0.53 to 0.59), and 0.65 (95% CI: 0.58 to 0.73) for the outcomes of major bleeding, any clinically relevant bleeding, and death, respectively. The HAS-BLED score demonstrated c-indexes of 0.60 (95% CI: 0.54 to 0.66), 0.61 (95% CI: 0.58 to 0.65), and 0.62 (95% CI: 0.55 to 0.69) for the outcome of major bleeding, any clinically relevant bleeding, and death. Finally, the HEMORR2HAGES score demonstrated c-indexes of 0.60 (95% CI: 0.53 to 0.66), 0.60 (95% CI: 0.56 to 0.63), and 0.64 (95% CI: 0.57 to 0.71) for the outcome of major bleeding, any clinically relevant bleeding, and death. Comparison of c-indexes revealed no statistically significant differences in the discriminative ability of the 3 tested scores for the outcomes of major bleeding and death.

The HAS-BLED and HEMORR2HAGES scores were both superior to the ATRIA score for the outcome of any clinically relevant bleeding (HAS-BLED vs. ATRIA, c-index difference 0.054, \( z \)-score 3, \( p \) = 0.002; HEMORR2HAGES vs. ATRIA, c-index difference 0.036, \( z \)-score 2.3, \( p \) = 0.02). For the outcome of any clinically relevant bleeding, using the HAS-BLED score compared with the ATRIA score correctly (and significantly) reclassified 11.6% of the population (95% CI: 3.6 to 19.7; \( p \) = 0.005), whereas using the HEMORR2HAGES score compared...
with the ATRIA score correctly reclassified 4.7% (95% CI: 1.8 to 11.2; \( p = 0.152 \)) of the population, although this finding was nonsignificant.

In a Cox regression analysis, a HAS-BLED score \( \geq 3 \) was a predictor of major bleeding, any clinically relevant bleeding, and death, with hazard ratios of 2.3 (95% CI: 1.1 to 5; \( p = 0.028 \)), 2.7 (95% CI: 1.9 to 3.8; \( p < 0.001 \)), and 2.8 (95% CI: 1.2 to 6.5; \( p = 0.013 \)), respectively (vs. low-risk category as baseline risk).

This is one of the first comparisons of bleeding risk–prediction schemes in a cohort of nonwarfarin anticoagulated patients with AF. All 3 bleeding risk–prediction schemes demonstrated similar modest discriminative performance for the outcome of major bleeding and death. HAS-BLED and HEMORR2HAGES demonstrated superior discriminative performance compared with ATRIA for the outcome of any clinically relevant bleeding. Clinically relevant bleeding was the primary safety endpoint in AMADEUS (which was centrally and blindly adjudicated) and would be clinically meaningful and highly relevant to patients as well as to clinicians who ultimately wish to assess, in everyday clinical practice, those patients who are at risk of important bleeding events. The modest predictive performance of the scores should be interpreted in light of the low bleeding risk population in this clinical trial setting, with the highest categorization into low risk (89.7%) seen for the ATRIA score.

These results are in accordance with our observations in the warfarin arm of the AMADEUS cohort (2), suggesting that despite being initially validated in warfarin-treated populations, the ATRIA, HAS-BLED, and HEMORR2HAGES schemes retain their modest predictive performance in patients receiving other forms of (nonwarfarin) anticoagulation (1), and that the HAS-BLED and HEMORR2HAGES scores were clearly superior to the ATRIA score for the outcome of any clinically relevant bleeding.

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Letters to the Editors
All CAD Is Not CHD, and All CHD Is Not CAD

I read with great interest the review by Marzilli et al. (1) in a recent issue of the Journal. The authors make a compelling case that coronary artery disease (CAD) does not equal ischemic heart disease (IHD), or vice versa. They also show that angina symptoms do not always improve after coronary revascularization, whether surgical- or catheter-based. Certainly every seasoned cardiologist has seen patients who continue to have IHD symptoms despite open “native artery” or “bypass graft.” However, many asymptomatic patients have received percutaneous coronary intervention (PCI) or coronary artery bypass grafting (CABG) in the name of obstructive CAD. Then, there are others who are asymptomatic and have normal exercise tests despite bypass graft occlusion. These observations support the essay by Marzilli et al. (1).

Unfortunately, our profession has become catheter laboratory centric since the day we could see pictures of the live coronary artery. The advent of PCI has led to a new medical–industrial enterprise in which administrators, hospitals, and physicians are enthusiastic partners. So often one reads about greedy coronary interventionalists who have placed stents in arteries with minimal lesions or no lesions at all (2, 3). These events have only served to lessen the public’s trust in physicians in general, and cardiologists in particular. I feel a coronary intervention, such as a PCI, should be performed only in patients with acute myocardial infarction, and CABG should be performed in patients with 2- or 3-vessel disease with compromised left ventricular function.

We must realize that when we perform PCI or bypass surgery, we create a new form of coronary lesion that is prone to rapid atherogenesis, and give another disease to the patient, that is, coagulopathy, which is related to multiple antplatelet and anticoagulant drugs. Being true to ourselves and performing a procedure when it is needed is the correct, moral, and ethical approach. This approach will go a long way in controlling ever-rising healthcare costs, and restore the public’s trust in their caregivers. The Institute of Medicine has estimated that our country wastes $750 billion a year with inefficient utilization of resources, poor cost control, and excessive and unnecessary procedures (4). I urge all readers of the Journal to read this report.

REFERENCES

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