Heartbeat: Highlights from this issue

Catherine M Otto

Percutaneous coronary intervention (PCI) for an acute coronary syndrome often is deferred in the frail older adult due to concerns about the benefit versus risk in this patient group. In this issue of *Heart*, Professor Di Bari and colleagues (***see page 1537***) report an observational cohort study of 698 elderly patients who presented with an acute coronary syndrome. The Silver Code was used to provide a numerical score that predicts overall 1 year mortality in patients older than age 75 years based on age, gender, martial status, previous hospital admissions and the number of chronic medications. In this study, each point increase in Silver Code, was associated with an 11% lower likelihood of the patient being treated with PCI but a 10% higher one-year mortality. In addition, the relative benefit of PCI was higher in those with higher Silver Codes suggesting that increased background risk should not dissuade physicians from intervention in the setting of acute coronary syndrome (figure 1).

In the accompanying editorial, Drs. Mazhari and Kapur (***see page 1483***) note that although PCI is used for treatment of an acute coronary syndrome in 75% of patients under age 65 years, the rate of PCI in those over age 75 years is only 40% in the USA. Decision making is complicated by underrepresentation of older adults in clinical trials and the absence of age-specific recommendations in current AHA/ACC and ESC guidelines. Although the study by Professor Di Bari and colleagues provides reassurance that PCI does benefit older adults with an acute coronary syndrome, Drs Mazhari and Kapur suggest that "future randomised trials to examine the safety and efficacy of PCI in patients older than 75 years, along with using comprehensive risk assessment models can guide the risk stratification and management of elderly patients with ACS."

It now is established clinical practice to use scoring systems to estimate the risk of stroke in patients with atrial fibrillation. In a novel analysis from a large registry, Dr. Wilton and colleagues (***see page 1524***) provide data showing that these same risk scores may be predictive even in the absence of atrial fibrillation (AF). Over a median followup of 4.1 years, 2.2% of 20,970 acute coronary syndrome patients suffered an ischaemic stroke or transient ischemic attack (TIA). A $CHADS_2$ score (congestive heart failure, hypertension, age ≥75 years, diabetes mellitus, previous stroke/TIA (transient ischaemic attack) (double score)) of 3 or higher was associated with a 1% or greater annual absolute risk of stroke or TIA. Similar findings were found using the CHA_2DS_2-VASc sore, which is calculated by doubling the score for age, and adding vascular disease and female sex to the $CHADS_2$ score (figure 2).

It is not surprising that the combination of clinical factors in the $CHADS_2$ and CHA_2DS_2-VASc scores provides a useful measure of cardiovascular risk, given that several of these factors are predictive individually. What is more interesting, as detailed by Dr. Senoo and Professor Lip in an editorial (***see page 1485***), is that these scores also identify patients with a higher risk of developing AF and those with intermittent (and undiagnosed) AF. In addition, the factors in these scores are associated with cerebral atherosclerosis and adverse left atrial remodeling. How should we manage patients without AF but with a high $CHADS_2$ or CHA_2DS_2-VASc score? Dr. Senoo and Lip conclude "What we can do now is that we follow-up such patients regularly and screen carefully for AF. Time will tell, but randomised trials may need to address the issue of whether oral anticoagulants would be needed."

The 5 to 30% higher incidence of cardiovascular events in the winter, compared to the summer, has not been fully explained in past studies. Now, a large database (***see page 1517***) including centers in both the Northern and Southern hemispheres, shows that there is a seasonal pattern in cardiovascular risk factor levels, with a consistent pattern across centers. For example, in the Northern hemisphere from summer to winter it was estimated that body mass index increases by 0.26 kg/m^2, waist circumference by 0.6 cm, total cholesterol by 0.10 mmol/L and systolic blood pressure by 2.9 mm Hg. Professor Modesti (***see page 1489***) summarizes other studies addressing seasonal variation in cardiovascular risk factors, emphasizing the effects of colder temperatures on vasoconstriction and blood pressure. Professor Modesti suggests that "at the patient level, only a low value in winter can thus be considered a low 'yearly' value, whereas a low value in summer does not mean a low value in winter. At the population level, seasonal differences may be important because CV

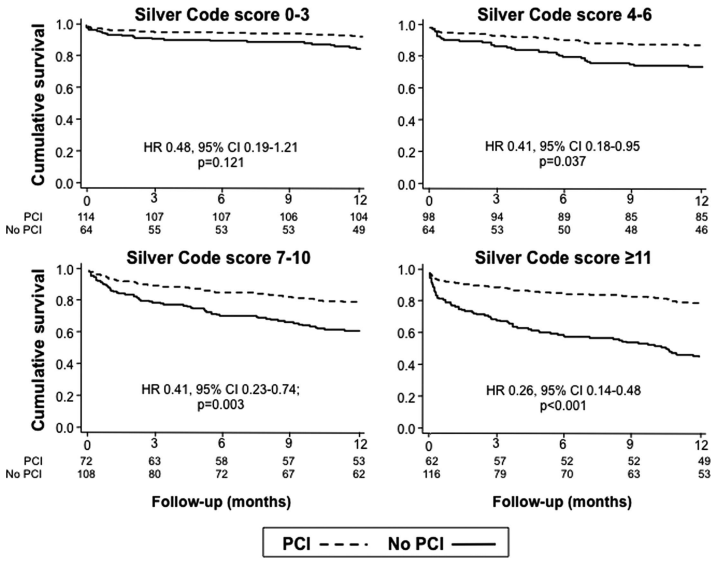

Figure 1 Cumulative survival by application of percutaneous coronary intervention (PCI), in strata identified by the Silver Code score. Numbers below the x-axis represent participants in each group at each point in time.

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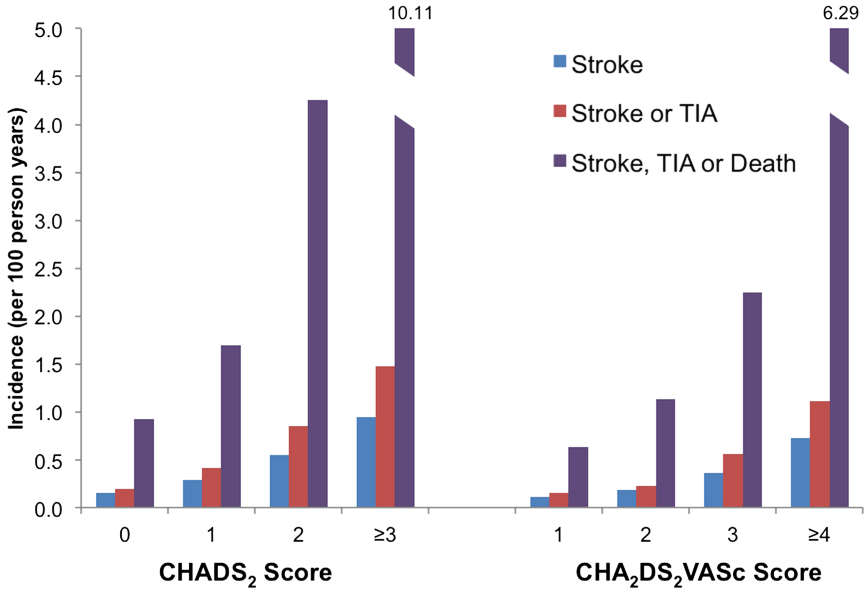

Figure 2 Graded increase in risk of stroke, transient ischaemic attack (TIA) and death by $CHADS_2$ and CHA_2DS_2-VASc scores. Incidence of ischaemic stroke, TIA or stroke and stroke, TIA or death stratified by, in patients without a baseline history of atrial fibrillation. Non-parametric trend $p<0.001$ for each grouping.

risk estimation plays a key role in the efficient allocation of resources."

In this issue, readers also will find two additional articles in our Aortic Disease series with a review by Dr. Nienaber (***see page 1491***) on management of Type B aortic dissection and one by Dr. Daugherty (***see page 1498***) on the basic science behind mechanisms of aneurysm formation and potential medical therapies. The Education in Heart article in this issue by Dr Aung Myat (***see page 1550***) is on "Diabetes, incretin hormones and cardioprotection".

The Image Challenge case (***see page 1497***) presents an unusual finding but one that we should be able to recognize on echocardiography. Be sure to view the online videos as the 3D images and Doppler are helpful in making the diagnosis. You can find the online videos, under "Supplementary data" on the online full text, with a link from the pdf online article also taking you to the video supplement.

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