



## Atrial fibrillation in older patients—reducing stroke risk is not only about anticoagulation

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Atrial fibrillation (AF) is associated with a five-fold increased risk of ischaemic stroke, stroke recurrence and mortality.<sup>[1]</sup> Anticoagulant therapy may reduce the risk of recurrent stroke by approximately 60% and is more efficacious than anti-platelet agents.<sup>[2]</sup>

However, warfarin is prescribed infrequently in older patients with AF, presumably due to concerns with haemorrhage risk. A retrospective study showed significant under-utilization of anticoagulants for AF in tertiary hospitals and in the community (41% and 16%, respectively).<sup>[5]</sup>

An audit of compliance with guidelines for treating older patients with AF using anticoagulants, including risk stratifying patients according to risk of thrombosis versus bleeding was performed in our local hospital. We identified a high rate of anticoagulant use in this audit but also a few potential issues that need to be addressed in reducing stroke risk for this patient group.

This was a retrospective audit of medical inpatients age 65 years and over with AF. All inpatients admitted to the medical wards over a two week period were identified. Electronic records were reviewed to identify their cardiac rhythm on admission and whether they had AF. If it was unclear or undocumented, admission electrocardiograms were reviewed manually.

Electronic records were reviewed to obtain basic demographics including age, gender and ethnicity, onset (new, paroxysmal, persistent or permanent AF), treatment goal (rate or rhythm control) and the components of the CHA<sub>2</sub>DS<sub>2</sub>-VASc and HAS-BLED scores.

There were 113 patients admitted, and of which 27 (23%) patients had AF. Fourteen (52%) were male. There were 24 Malays, one Chinese and one Indian patient. One patient did not have their ethnicity documented. Median age was 76 years (range 67 to 97 years).

Three patients had new onset AF. Eight were paroxysmal, five persistent and five had permanent AF. Six patients did not have this documented. The goal of treatment in two patients was rhythm control. One was treated with amiodarone but remained in persistent AF during the admission. CHA<sub>2</sub>DS<sub>2</sub>-VASc and HAS-BLED risk factors are summarized in Table 1.

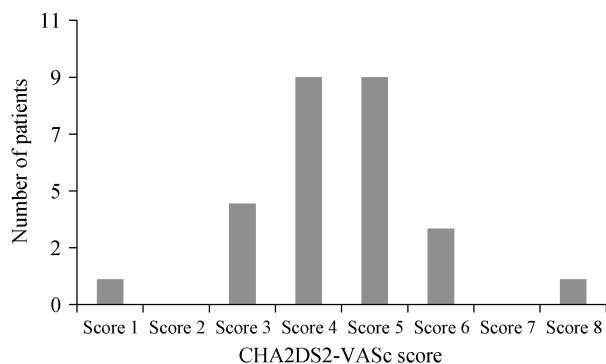
Figures 1 & 2 illustrate the patients' CHA<sub>2</sub>DS<sub>2</sub>-VASc and HAS-BLED scores respectively. For convenience, the CHA<sub>2</sub>DS<sub>2</sub>-VASc score and associated annual stroke risk and the HAS-BLED score and associated annual bleeding risk are included underneath the figures.

**Table 1. CHA<sub>2</sub>DS<sub>2</sub>-VASc and HAS-BLED risk factors.**

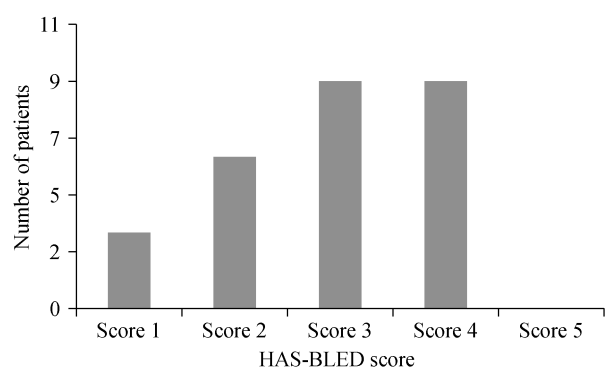
CHA <sub>2</sub> DS <sub>2</sub> -VASc risk factors	
Congestive heart failure	9 (33%)
Hypertension	26 (96%)
Age ≥ 75 yrs	17 (63%)
Age 65 to 74 yrs	10 (37%)
Diabetes mellitus	14 (52%)
Stroke/TIA/Thromboembolism	4 (15%)
Vascular disease	7 (26%)
Female gender	13 (48%)
HAS-BLED risk factors	
Hypertension (Uncontrolled)	18 (67%)
Abnormal liver function	2 (0.7%)
Abnormal renal function	10 (37%)
Previous stroke	4 (15%)
Previous major bleed	4 (15%)
Labile INR	16 (94%)
Note: 10 not on warfarin	
Elderly (age > 65 yrs)	27 (100%)
Drugs associated with bleeding (or alcohol)	Aspirin: 5 (19%) Clopidogrel: 5 (19%)

INR: international normalised ratio; TIA: transient ischaemic attack.

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**Figure 1. CHA2DS2-VASc scores and thromboembolic risk of AF patients.** Adjusted one year stroke risk according to CHA2DS2-VASc score: Score 1, 1.3%; Score 2, 2.2%; Score 3, 3.2%; Score 4, 4%; Score 5, 6.7%; Score 6, 9.8%; Score 7, 9.6%; Score 8, 6.7%; Score 9, 15.2%.<sup>[9]</sup> AF: atrial fibrillation.



**Figure 2. HAS-BLED scores of AF patients.** Annual risk of major bleeding in patients with AF according to HAS-BLED Score: Score 0, 1.13%; Score 1, 1.02%; Score 2, 1.88%; Score 3, 3.74%; Score 4, 8.7%; Score 5, 12.5%; Scores 6 to 9, Limited data.<sup>[10]</sup> AF: atrial fibrillation.

Assuming the annual risks of stroke and major bleeding apply to this population, 20 (74%) patients with AF are at higher risk of bleeding compared to stroke. Almost half of the patients (48%) were anticoagulated with warfarin. For the remaining fourteen patients, ten (71%) had documented reasons for not starting anticoagulation. The reasons are as follows: (1) patient factors: personal preference not for anticoagulants; no transport for blood tests so declined warfarin. (2): Risk of bleeding: confirmed gastrointestinal bleed (three patients); anaemia with suspected gastrointestinal bleed; end stage renal disease on haemodialysis; metastatic disease with risk of bleed. (3) Unlikely to benefit: limited functional status; extreme age and multiple comorbidities.

Four patients did not have reasons documented but one passed away in hospital and the other was for presumed rhythm control. The remaining two patients had a higher risk of bleed than stroke when the CHA2DS2-VASc and

HAS-BLED scores were compared. One patient who had history of melena with multiple gastric and duodenal ulcers confirmed on endoscopy was still on warfarin.

Overall, for the 27 patients with AF, ten had contraindications or did not consent to anticoagulants. In the remaining 17, 13 (76%) were treated with warfarin therapy. When the four patients without documented reasons for withholding anticoagulant therapy were reviewed further, they were found not to be appropriate candidates anyway.

This was a retrospective audit of medical inpatients to assess the rate of anticoagulation in patients age 65 years or older with AF in a tertiary hospital in Brunei. The risk-benefit of anticoagulation comparing stroke risk and bleed risk was also reviewed using the CHA2DS2-VASc and HAS-BLED scores respectively.

This patient group had a very high rate of hypertension (96%) and diabetes (52%); two-thirds had uncontrolled hypertension or systolic blood pressure greater than 160 mmHg. This is higher than expected rate compared to a pooled analysis of five randomized controlled trials of anti-thrombotic therapy in AF, where hypertension and diabetes mellitus accounted for 46% and 16%, respectively.<sup>[4]</sup>

Patients with documented moderate to severe hypertension have five folds higher risk of stroke,<sup>[5]</sup> yet uncontrolled hypertension is also associated with risk of significant bleeding.<sup>[6]</sup> Therefore, patients in this audit are at high risk both for stroke and clinically significant bleeding. It is imperative that hypertension be adequately managed in this group to reduce stroke risk and reduce risk of bleeding with anticoagulants.

There are concurrent anti-platelet and anticoagulant prescriptions in approximately 40% of patients. Both anti-platelet and anticoagulant treatment may be indicated in patients with acute coronary syndrome but due to the additive risk of bleeding, reducing the duration of concurrent therapy should be considered.<sup>[7]</sup> For other indications, clinicians should consider stopping anti-platelet therapy when prescribing anticoagulants.

The 94% labile international normalised ratio (INR) rate is alarming, even if this may be overestimated by choosing a subset of older inpatients. A Malaysian study (similar in race and ethnicity to our population group) showed labile INR was associated with three times higher risk of bleeding.<sup>[8]</sup> It is challenging to achieve time in therapeutic range of more than 60% in elderly patients.<sup>[9]</sup> For patients whose INR reached above 4, warfarin dose adjustments may need to be done cautiously over a longer period of time. Systems to ensure safe anticoagulant prescribing will need to be reviewed. If there is difficulty achieving time in therapeutic range despite appropriate monitoring and good adherence

to medications, novel anticoagulant agents may need to be considered.

In terms of anticoagulation for patients with AF to reduce stroke risk, there is greater than 75% compliance once patients with contraindications were excluded. For patients who did not have documentation of why warfarin was not prescribed, all were potentially not appropriate when clinical factors were taken into account from electronic records retrospectively. This may be due to direct involvement of Cardiologists in treatment of AF in this hospital.

In conclusion, although a high compliance rate of anticoagulant treatment was achieved, there were other issues identified in management of older patients with AF. This includes assessment of bleed risk and stroke carefully using CHA2DS2-VASc and HAS-BLED scores, hypertension treatment, closer monitoring and process review of warfarin treatment to avoid labile INR and avoiding concurrent anti-platelet agents on warfarin. These should be addressed to shift the balance of anticoagulant treatment towards reducing stroke risk away from increased bleed risk. Reducing stroke risk is not only about prescribing anticoagulants, it should be done with consideration of managing the other stroke risk factors and ensuring anticoagulant treatment is performed as safely as possible.

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