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ATRIAL FIBRILLATION

Stroke prevention in atrial fibrillation: can we do better?

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Standfirst

Clinical guidelines advocate oral anticoagulation (OAC) for stroke prevention in atrial fibrillation (AF) patients with ≥1 stroke risk factors yet 40% of eligible patients receive aspirin and those at greatest risk of stroke are least likely to be prescribed OAC. Why is there a discrepancy between guidelines and clinical practice?

Refers to Hsu, J. C. *et al.* Aspirin instead of oral anticoagulant prescription in atrial fibrillation patients at risk for stroke. *J. Am. Coll. Cardiol.* **67**, 2913–2923 (2016) | Buck, J. *et al.* Trends in antithrombotic therapy for atrial fibrillation: data from the veterans health administration health system. *Am. Heart J.* http://dx.doi.org/10.1016/j.ahj.2016.03.029 (2016)

Stroke prevention is the cornerstone of management in patients with atrial fibrillation (AF). Contemporary international clinical guidelines advocate oral anticoagulation (OAC) for patients with AF with ≥1 risk factors for stroke, and aspirin monotherapy is no longer recommended. However, a time-lag is often observed in the translation of guidelines into clinical practice, and guideline-adherent treatment is frequently less than optimal. Two large cohort studies now report disparities between guideline recommendations for OAC therapy and clinical practice[1,2].

In 2016, an analysis of the US PINNACLE registry found that among a cohort of 294,642 patients at high-risk of stroke ($CHADS_2$ or CHA_2DS_2-VASc score ≥2), two out of five patients were prescribed aspirin monotherapy, with significant variation in OAC prescription across practices.[1] Guideline-adherent OAC treatment was more likely among men, and those with higher BMI and previous thromboembolism and congestive heart failure according to multivariable analyses. Those receiving aspirin were more likely to have comorbidities associated with coronary atherosclerosis.[1] Furthermore, an examination of trends in OAC prescription and degree of guideline-adherent OAC prescription in patients with incident AF over a 10-year period from 2001–2011 from the Veterans Health Administration, published in the *American Heart Journal*,[2] revealed that less than half (47%) received OAC therapy. An overall temporal decline was observed in OAC initiation from 51.3% in 2002–2003 to 43.1% in 2010–2011, in addition to a decrease in the proportion of patients with increasing $CHADS_2$ score who were initiating OAC therapy.[2]

Although both studies are based on large USA cohorts, one a prospective cohort[1] and the other a retrospective healthcare claims database,[2] prescription of antithrombotic therapy might vary considerably by geographical location. In addition, centres providing data to the PINNACLE registry were all dedicated cardiology practices and, therefore, prescription of OAC might be higher than in general AF populations managed outside of cardiology practices. In addition, antithrombotic therapy was based on prescription at baseline and treatment may have changed over time.[1] Patients from the Veterans Health Administration might have received their treatment from outside this system, resulting in non-capture of some OAC prescriptions that might account for the lower OAC prescription rates.[2]

Together, these studies highlight the considerable disparity between effective evidence-based treatment recommended by clinical guidelines, namely OAC therapy (either a vitamin K antagonist (VKA) or non-VKA oral anticoagulant (NOAC), and actual clinical practice.

Indeed, between 25–40% of patients received aspirin monotherapy,[1,3-4] particularly the elderly (aged ≥75 years), and many low-risk patients were inappropriately prescribed OAC.[2-4] This phenomena is particularly worrying given that appropriate OAC treatment in at-risk patients with AF could help prevent avoidable strokes and deaths, whereas inappropriate OAC prescription (among those with no risk factors) places patients at risk of major bleeding. Although the data from these two large studies are generally consistent with earlier large-scale registries,[3-4] a more recent study from the USA[5] suggests greater adherence to OAC guideline recommendations and a >3-fold increase in the uptake of the NOACs.[5]

Guidelines also recommend (or at least suggest considering) OAC for those with a single risk factor for stroke, but physician uncertainty might contribute to suboptimal OAC use in this population. Studies published in the past year[6-7] have consistently demonstrated that patients with a single risk factor for stroke not related to sex (that is, CHA_2DS_2-VASc score of 1 in men and CHA_2DS_2-VASc score of 2 in women) would benefit from OAC, whereas aspirin has a negative net clinical benefit.[6-7] Of note, reported event rates vary with different cohorts and study setting (for example, hospitalized versus community-based), and appropriate study methodology.[8]

The reasons for not prescribing OAC in eligible patients are multifactorial, but can be distilled down to physician choice and patient refusal. A very small proportion for who OAC is absolutely contraindicated exists, but these patients should not be prescribed aspirin as alternative therapy. Physicians often fear a greater risk of bleeding associated with OAC and therefore, patients might never be offered the option of OAC therapy. By contrast, evidence suggests that aspirin is minimally effective for stroke prevention in patients with AF,[9] and has a similar risk of major bleeding to OAC, with a significant reduction in intracranial haemorrhage with NOACs (compared with warfarin).[10] Patients often have different perceptions about OAC, which may influence their treatment choices, and they are eager to avoid stroke and, therefore, are more willing to accept higher risk of bleeding.[11] In this context, patient and prescriber education is critical to enable understanding of the link between AF and increased risk of stroke, and the benefit of OAC in addition to the associated bleeding risks, to allow patients to make an informed choice about treatment. Patient decisions aids are available[12] to assist healthcare professionals in their discussions with patients about the advantages and disadvantages of OAC therapy in relation to individual stroke and bleeding risk.

Future research should focus on identifying the reasons for the inconsistency between guideline recommendations for OAC and real-life clinical practice and implementing strategies to address this inconsistency. Examples of such strategies include physician and patient education programmes and an analysis of the effect of such programmes, equitable access to OAC therapy and services globally, and incentivised prescribing where necessary. We can certainly do much more to reduce the risk of stroke (and death) among patients with AF.

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Competing interests

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Figure 1: Predictors of aspirin versus oral anticoagulant therapy prescription in atrial fibrillation patients at high risk of stroke (CHA_2DS_2-VASc ≥2) among the PINNACLE US Registry [adapted from Hsu et al, 2016[1]]

Prescription of OAC more likely	**Prescription of aspirin more likely**
Systemic embolism*	Unstable angina†
Congestive heart failure*	Coronary artery disease†
Prior stroke/transient ischaemic attack (TIA)*	Stable angina†
Male sex*	Peripheral arterial disease†
Higher body mass index*	Prior CABG surgery†
Increasing age	Hypertension†
Diabetes mellitus	Dyslipidaemia†
	Prior myocardial infarction†

*significant predictors of OAC prescription after multivariable adjustment

† significant predictors of aspirin prescription after multivariable adjustment