

Better prevention of stroke through screening for atrial fibrillation

INTRODUCTION

As Western populations age, the prevalence of atrial fibrillation is on the rise. In the UK, there are over three-quarters of a million people with atrial fibrillation, and more than 10% of people over 75 years of age have this most common arrhythmia.¹ The most serious consequence of the arrhythmia is cardioembolic stroke. About 20% of ischaemic strokes are cardioembolic, the great majority in relation to atrial fibrillation, with over 20 000 such strokes in the UK every year. Stroke associated with atrial fibrillation tends to be more severe, and to result in more complications and a greater risk of death or institutionalisation. A person aged over 75 years with a middle cerebral artery occlusion — for which cardioembolism is the most frequent cause — has a greater than 95% likelihood of death or institutionalisation, with all the attendant health and social care costs.² In every respect it is the most 'expensive' form of stroke.

RISKS AND BENEFITS

Our understanding of the natural history of atrial fibrillation as a precursor to cardioembolic stroke has increased significantly in the last 10 years, along with our ability to prevent its most damaging consequences. Among those at highest risk — people of either sex aged over 65 years — a large well-conducted randomised controlled trial has shown that opportunistic screening with radial pulse checks followed by a 12-lead electrocardiogram (ECG) for all those with an irregular pulse is a cost-effective method for detecting the arrhythmia.¹ People aged over 65 years consult with their primary care practitioners on average five to seven times per year, providing ample opportunities to detect atrial fibrillation while it is asymptomatic.

In this age group, risk stratification with prediction scores such as CHADS₂ or its successor, CHA₂DS₂-VASc,³ is largely redundant, since the latest population-based analysis of risk assessment in atrial fibrillation demonstrates that age over 65 years confers substantial risk even without any other risk factors.⁴ Such scores should therefore no longer be used for the selection of people at 'intermediate risk' for whom antiplatelet treatment might suffice, given that antiplatelets do not represent an

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effective or safe alternative to anticoagulation, particularly among those over the age of 75 years.⁵ Risk scoring should serve solely to identify the minority of patients, all of whom are below the age of 65, who are at 'truly low risk' and for whom antithrombotic therapy is inappropriate.⁶ Linking such scores with risk assessment for haemorrhagic events shows that at any level of stroke risk above 'truly low risk', the advantages of anticoagulation outweigh the disadvantages, all the more so among older people.⁴

NEW ANTICOAGULANTS

Recent drug developments mean that we now have available an increasing number of oral anticoagulants which are at least as effective and safe as warfarin, particularly with respect to that most feared complication, intracranial haemorrhage. These include a factor Xa antagonist with effectiveness in people considered ineligible for warfarin,⁷ although the basis on which individuals are deemed unsuitable for anticoagulation is often questionable.⁸ The first of these new oral anticoagulants, dabigatran etexilate, has now been approved for NHS use by the National Institute of Health and Clinical Excellence in England and Wales, following approval last year in Scotland, and as further agents join the market we can expect drug costs to fall significantly and cost-effectiveness to correspondingly increase.

SCREENING

So do we now have all our ducks in a row?

Has the time come for a coordinated UK screening programme for atrial fibrillation in people aged over 65 years, aimed at reducing the largely preventable tragedy of cardioembolic stroke? Using the customary criteria for a screening programme, the prevention of cardioembolic stroke through the detection and anticoagulant management of atrial fibrillation fits the bill.⁹ The proposed screening method (radial pulse checking at every primary care consultation with a person over 65 years, with 12-lead ECG for individuals with any irregularity) is relatively cheap, costing approximately £337 for every case detected, and with a high probability that screening and anticoagulation are cost-effective through substantial reductions in disabling stroke.¹

Developing the infrastructure to support the ECG-based diagnosis of atrial fibrillation (perhaps through centralised support from competent practitioners in locality commissioning groups) will also be necessary. Screening would complement the revisions to the general practice Quality and Outcomes Framework (QOF) for 2012–2013 aimed at increasing the uptake of anticoagulation for atrial fibrillation, although the use of the CHADS₂ score in the QOF indicators risks overlooking a significant proportion of older people at appreciable thromboembolic risk who would benefit from anticoagulation.⁴

Cost and affordability may be considerations, although the English Department of Health's renewed emphasis on the prevention of expensive diseases (in

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the broadest sense of the term) in times of increasing financial constraint serves as recognition of the wider health gain from such preventative approaches. Furthermore, the ageing of the UK population will make the existing case still more compelling in the decades to come. A recent Royal College of Physicians of Edinburgh UK Consensus Conference led the call for a coordinated national screening programme for atrial fibrillation and for an end to the use of antiplatelet treatment for the prevention of thromboembolism in the condition.¹⁰ We believe that the prevention of cardioembolic stroke through the identification and anticoagulant management of atrial fibrillation is a large-scale screening intervention for which the time has come.

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REFERENCES

1. Hobbs FD, Fitzmaurice DA, Mant J, *et al*. A randomised controlled trial and cost-effectiveness study of systematic screening (targeted and total population screening) versus routine practice for the detection of atrial fibrillation in people aged 65 and over: The SAFE study. *Health Technol Assess* 2005; **9(40)**: iii-iv, ix-x, 1-74.
2. Frankel MR, Morgenstern LB, Kwiatkowski T, *et al*. Predicting prognosis after stroke: a placebo group analysis from the National Institute of Neurological Disorders and Stroke rt-PA Stroke Trial. *Neurology* 2000; **55(7)**: 952-959.
3. Lip GY, Nieuwlaet R, Pisters R, *et al*. Refining clinical risk stratification for predicting stroke and thromboembolism in atrial fibrillation using a novel risk factor-based approach: the euro heart survey on atrial fibrillation. *Chest* 2010; **137(2)**: 263-272.
4. Olesen JB, Lip GY, Lindhardsen J, *et al*. Risks of thromboembolism and bleeding with thromboprophylaxis in patients with atrial fibrillation: a net clinical benefit analysis using a 'real world' nationwide cohort study. *Thromb Haemost* 2011; **106(4)**: 739-749.
5. Mant J, Hobbs FD, Fletcher K, *et al*. Warfarin versus aspirin for stroke prevention in an elderly community population with atrial fibrillation (the Birmingham Atrial Fibrillation Treatment of the Aged Study, BAFTA): a randomised controlled trial. *Lancet* 2007; **370(9586)**: 493-503.
6. European Heart Rhythm Association; European Association for Cardio-Thoracic Surgery, Camm AJ, Kirchhof P, Lip GY, *et al*. Guidelines for the management of atrial fibrillation: the Task Force for the Management of Atrial Fibrillation of the European Society of Cardiology (ESC). *Europace* 2010; **12(10)**: 1360-1420.
7. Connolly SJ, Eikelboom J, Joyner C, *et al*. Apixaban in patients with atrial fibrillation. *N Engl J Med* 2011; **364(9)**: 806-817.
8. Man-Son-Hing M, Nichol G, Lau A, Laupacis A. Choosing antithrombotic therapy for elderly patients with atrial fibrillation who are at risk for falls. *Arch Int Med* 1999; **159(7)**: 677-685.
9. Wilson JM, Jungner YG. [Principles and practice of mass screening]. *Bol Oficina Sanit Panam* 1968; **65(4)**: 281-393.
10. Stott DJ, Dewar RI, Garratt CJ, *et al*. Approaching the comprehensive management of atrial fibrillation: evolution or revolution? Royal College of Physicians of Edinburgh Consensus Statement. *J R Coll Physicians Edinb* 2012; **42(Suppl 18)**: 3-4.