Preventing stroke in patients with atrial fibrillation

Why is this important?

In Australia, stroke affects 40,000 people every year and is the third most common cause of death.[1,2] There are many known risk factors for stroke. One major risk factor is atrial fibrillation, a rapid and irregular heart beat. Its prevalence increases with age, from two per cent in the total population, to five per cent in people over 65 years, and 10 per cent in people over 75 years.[3]

Atrial fibrillation increases the risk of stroke because the rapidly beating heart does not completely empty of blood. Blood pools and therefore forms clots that may break off and travel to the brain and block small arteries. Brain cells thus deprived of blood can die, causing permanent disability, coma or death.

Best available evidence

There is now considerable evidence to support the use of blood-thinning agents (anticoagulants) in the prevention of stroke in some patients with atrial fibrillation, especially those with specific risk factors, such as previous stroke, high blood pressure, heart failure and advanced age.

An analysis of trials involving a total of 2313 patients with atrial fibrillation found a reduction in stroke, heart attack and death in the patients treated with anticoagulants. While an increase in the rates of brain haemorrhage may have been expected with the use of anticoagulants, the risk was not significantly increased.

A review of two trials involving 485 people with atrial fibrillation and a past history of stroke found that anticoagulants reduced the recurrent risk of stroke by two-thirds. No brain haemorrhages were reported among people given anticoagulants.[4]

Consistent with this evidence, the current National Health and Medical Research Council guidelines recommend the use of the oral anticoagulant warfarin for people with atrial fibrillation to prevent stroke, in certain circumstances.[5]

Current practice

Many countries report data demonstrating the underuse of warfarin in patients with atrial fibrillation. There is evidence from England, Canada and the USA that less than half the patients who are appropriate candidates for warfarin are receiving it.[6–8]

A recent Australian study found that 16 per cent of the patients studied were receiving warfarin to prevent stroke, but a further 64 per cent could have been receiving it if published clinical guidelines were applied.[9] The study concluded that the number of preventable strokes far outweighed the problems associated with warfarin use in the management of atrial fibrillation.

For every 1000 patients with atrial fibrillation, by taking oral anticoagulants about 25 will avoid experiencing a stroke and 12 will avoid dying from a stroke.

Implications

- There is evidence to support the wider use of anticoagulants in a subgroup of patients with atrial fibrillation.
- Each year, for every 1000 patients with atrial fibrillation who are given anticoagulants, we can assume that about 25 fewer people will experience a stroke and 12 fewer will die from a stroke than would be the case if they were not given them.[10]
- While there are dangers and costs associated with warfarin use and monitoring, the wider use of warfarin in certain patients could prevent significantly more strokes each year.

References

1 Australian Institute of Health and Welfare (2001) Heart, stroke and vascular diseases – Australian facts 2001. AIHW cat. no. CVD 13 (Cardiovascular Disease Series No. 14) Canberra: AIHW, National Heart Foundation of Australia, National Stroke Foundation of Australia

2 Australian Bureau of Statistics (2002) Causes of death, Australia, 2001. Cat. no. 3303.0. ABS, Canberra

3 Lake FR, Cullen KJ, de Klerk NH, McCall MG, Rosman DL (1989) Atrial fibrillation and mortality in an elderly population. *Aust N Z J Med* 19: 321–326

4 Koudstaal PJ (2003) Anticoagulants for preventing stroke in patients with nonrheumatic atrial fibrillation and a history of stroke or transient ischemic attacks (Cochrane Review). In: The Cochrane Library, Issue 2, 2003. Oxford: Update Software

5 National Health and Medical Research Council (1997) Clinical practice guidelines: prevention of stroke – the role of anticoagulants, antiplatelet agents and carotid endarterectomy. AGPS, Canberra

6 Thomson R, Parkin D, Eccles M, Sudlow M, Robinson A (2000) Decision analysis and guidelines for anticoagulant therapy to prevent stroke in patients with atrial fibrillation. *Lancet* 355: 956–962

7 The Clinical Quality Improvement Network (CQIN) Investigators (1998) Thromboembolic prophylaxis in 3575 hospitalized patients with atrial fibrillation. *Can J Cardiol* 14: 695–702

8 Bungard TJ, Ghali WA, Teo KK, McAlister FA, Tsuyuki RT (2000) Why do patients with atrial fibrillation not receive warfarin? *Arch Intern Med* 160: 41–46

9 Evans A, Davis S, Kilpatrick C, Gerraty R, Campbell D, Greenberg P (2002) The morbidity related to atrial fibrillation at a tertiary centre in one year: 9.0% of all strokes are potentially preventable. *J Clin Neurosci* 9: 268–272

10 Benavente O, Hart R, Koudstaal P, Laupacis A, McBride R (2003) Oral anticoagulants for preventing stroke in patients with non-valvular atrial fibrillation and no previous history of stroke or transient ischemic attacks (Cochrane Review). In: The Cochrane Library, Issue 2, 2003. Oxford: Update Software