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National Institute of Clinical Studies

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Reducing the risk of stroke in atrial fibrillation

Evidence-practice gap

- Atrial fibrillation (AF) is a disorder of the heart rhythm that substantially increases the risk of stroke. AF becomes increasingly common with age, affecting about 1% of the overall population but about 10% of people over 80 years.
- AF causes around 6000 strokes per year in Australia – 15% of all strokes. People with AF are 5-6 times more likely to have a stroke than those without it. Previous research has found that doctors commonly underestimate this risk.
- There is compelling evidence that anticoagulant (blood thinning) medications such as warfarin or aspirin substantially reduce the risk and prevent many strokes. Warfarin can reduce the risk of stroke by about two-thirds; aspirin reduces it by about a quarter. (By comparison, in most areas of therapeutics, improvements around 25% are considered outstanding.)
- Anticoagulants (warfarin and, to a lesser extent, aspirin) do increase the risk of bleeding complications, but previous research has shown that doctors often overestimate this risk. Overall, rates of warfarin-related bleeding have been low, and for about half the people with AF, the stroke-prevention benefits of warfarin far outweigh the risks.
- Despite this evidence, anticoagulant treatments, particularly warfarin, are not prescribed for many people who could benefit. Previous research has found that, among patients discharged from hospital, only about two in every three who should be on warfarin are actually receiving it.
- This project, carried out at Royal Hobart Hospital, aimed to ensure that all patients with AF in the hospital who should be receiving an anticoagulant – those for whom the benefits outweigh the risks – actually received it. The project used a pharmacist to assess all patients with AF who were admitted to the hospital and make recommendations to the medical team on anticoagulant medication.

Key findings

- The project pharmacist assessed 134 patients with AF. Nearly 90% of these patients were assessed as being at high risk of stroke.
- The pharmacist's assessments and subsequent recommendations to the medical team led to a substantial increase in the proportion of these patients who were on appropriate anticoagulant therapy when they were discharged from the hospital.
- Importantly, of the patients who were assessed at being at high risk of stroke and who had no contraindications to warfarin, nearly all were receiving warfarin on discharge, compared to less than three quarters on admission.
- There was also a significant increase in the use of warfarin between admission and discharge across all patients with AF. At the same time, use of aspirin decreased as some patients were changed from aspirin to the more effective warfarin.

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- When the pharmacist recommended a change in anticoagulant therapy, in the large majority of cases the medical team followed the recommendation. About two thirds of the recommendations were to “upgrade” to a more effective treatment (most from aspirin to warfarin, a small number from no therapy to aspirin). About one third of the changes were “downgrades” to less effective but safer options, in patients for whom the anticoagulant was considered too risky.
- It is unlikely these very positive results occurred by chance. The researcher also looked at the records of patients with AF admitted a year earlier, who did not receive any specific stroke risk assessment. For these patients, there was no increase in appropriate anticoagulant therapy during their time in hospital.
- A similar project in New South Wales, reported in 2005, achieved similar improvements in anticoagulant usage, confirming the findings of this study. Similarly, in the community environment, a Tasmanian project involving pharmacists, using locally produced guidelines and targeting general practitioners also significantly improved the prescribing of anticoagulants to eligible patients.

Implications for clinical practice

- If hospital pharmacists across Australia had responsibility for stroke risk assessment and anticoagulant recommendations as part of their normal health care role, this could reduce the number of AF-related strokes by an estimated 10% – some 600 strokes per year. The savings in health care costs would be about \$16 million per year.
- Hospital pharmacists could do these assessments (30-60 minutes per patient) as part of their normal daily activities, drawing on their skills in drug and disease management. This would be an excellent and cost-effective use of an existing resource.
- This stroke prevention strategy has the potential to underpin consistent, evidence-based management of AF across hospitals. It should be evaluated in a larger trial involving many hospitals and pharmacists. If a larger trial confirms the success of this approach, it should be implemented in hospitals across Australia.
- This project has also shown that pharmacists and perhaps other health professionals can be very effective in promoting evidence-based practice. This potential should be explored more broadly, beyond stroke prevention, in relation to other evidence-practice gaps.
- This program was very well received by doctors, as evidenced by their high acceptance of treatment recommendations. Involving clinical opinion leaders (in this project, as an advisory group) is important in gaining clinicians’ acceptance of a project of this nature.
- A stroke risk assessment form in the medical record allows treatment decisions and the rationale for them to be documented, and provides a basis for review in the future.

Method

- A pharmacist was given the task of doing stroke risk assessments of all patients admitted to Royal Hobart Hospital who were identified as having AF. The intervention ran over five months during 2005. The assessment was made according to Australian guidelines, and was based on the medical record plus an interview with the patient.
- The pharmacist then made a recommendation to the medical team, both verbally and in writing, on the most appropriate anticoagulant therapy. The recommendation was based on evidence-based guidelines, any comorbidities the patient had, and any contraindications to use of anticoagulants.
- This process was documented on a stroke risk assessment form, which was placed in the medical record. If the recommendation differed from the patient’s current anticoagulant therapy, the pharmacist contacted the medical team to discuss the therapy.
- The project was guided by an advisory group comprising a clinical haematologist, geriatrician, general physician, cardiologist and clinical pharmacists – each an opinion leader in his or her field.

- From the start, hospital doctors and GPs were involved in the project and asked for their feedback or comments. AF guidelines were also printed on computer mouse mats, which were distributed to the hospital's medical and cardiac wards.
- Data were collected on the numbers of patients who were receiving appropriate anticoagulant therapy on admission to hospital, and at discharge from hospital. These were compared and statistically analysed at the end of the project.
- The researchers also identified patients with AF admitted from the hospital over an earlier eight month period (in 2004), and compared them with group of patients assessed under the project, in regard to their anticoagulant medication on admission and discharge.
- This program employed important strategies in relation to guideline dissemination and implementation - the use of local data, to show the extent of the current problem, identification of the barriers to the use of guidelines in previous work by the researchers and the promotion of guidelines that were well supported by the evidence, with local engagement of opinion leaders in the implementation of guidelines.