

What's the Evidence?



Preventing Strokes in Your Patients With Atrial Fibrillation

Atrial fibrillation (AFib or AF) is the most common abnormal heart rhythm, affecting an estimated 350,000 Canadians. Its incidence increases with age, so numbers are likely to increase as our population continues to age. AF can lead to serious complications. It increases the risk of an ischemic stroke by 3 to 5 times; an estimated 20% of all strokes are caused by AF.

Antithrombotic drugs help to prevent stroke, but also increase the risk of serious bleeding. There are two types of antithrombotic drugs used to prevent stroke in people with non-valvular AF: anticoagulant and antiplatelet drugs.

Anticoagulant Drugs	Antiplatelet Drugs
warfarin (Coumadin)	acetylsalicylic acid (ASA, Aspirin)
new oral anticoagulant drugs (NOACs) • dabigatran (Pradaxa) • rivaroxaban (Xarelto) • apixaban (Eliquis)	clopidogrel (Plavix)

Warfarin has been the mainstay of therapy for more than 60 years. It is effective in preventing strokes in patients with AF, but there are some challenges with warfarin therapy: diet restrictions, drug and food interactions, the need for regular international normalized ratio (INR) monitoring, and frequent dosing changes. New oral anticoagulant drugs (NOACs) are given in fixed doses, so routine blood tests and dose adjustments are not needed; however, these drugs are costly, long-term safety data and clinical experience are lacking, and unlike warfarin, there is no reversal agent in the event of a bleed. Antiplatelet drugs are less effective than warfarin and the NOACs, but are sometimes used for patients considered to have a low risk of stroke. Given the new drug options for the prevention of stroke in patients with AF, CADTH undertook systematic reviews of the scientific evidence for these drugs as well as an economic analysis.

The Results

- Compared with warfarin, the added benefit of NOACs in preventing stroke in patients with AF is small. The estimated number of patients who would avoid a stroke or other blood clot if treated with a new drug rather than warfarin was less than 10 people for every 1,000 patients treated per year.
- Bleeding risks for patients treated with the newer drugs compared with warfarin were similar overall, with a modest decrease in intracranial bleeding and a small increase in gastrointestinal bleeding.
- While warfarin can be reversed with vitamin K, there is no reversal agent or proven management strategy if bleeding occurs with the new drugs.
- The newer drugs were significantly more expensive even when the cost of INR monitoring with warfarin was factored in, and the cost-effectiveness of the newer drugs was uncertain.
- Compared with anticoagulant drugs, people on antiplatelet drugs experience more strokes without any reduction in bleeding risk. Even though antiplatelet drugs are inexpensive, they are not cost-effective because the cost of treating additional strokes and bleeding events must be factored in.

An expert committee made recommendations based on CADTH's systematic reviews and economic analysis to guide policy and clinical decisions.



The Bottom Line

- Warfarin is the recommended first-line therapy for preventing stroke in patients with atrial fibrillation.
- NOACs are a second-line option for some patients with non-valvular atrial fibrillation who are not doing well on warfarin.
- If a new oral anticoagulant is prescribed, patients must be monitored.
- For people who are able to use an anticoagulant, anticoagulant drugs should be used in preference to antiplatelet drugs.

Improving Warfarin Management

A structured plan of care can help to improve warfarin management in any care setting. This includes regularly scheduled patient follow-up, monitoring for adherence and side effects, regular INR monitoring, dose adjustments based on INR results using a dosing tool or nomogram (see example below), ongoing patient education, involving other health professionals in patient care and education, and engaging caregivers to ensure adherence to treatment and regular follow-up. For more evidence-based reports, tools, and other information from CADTH on the prevention of stroke in patients with AF, please visit www.cadth.ca/clots.

Warfarin Management Plan Checklist

Things to consider when developing a structured plan of care:

- Patient follow-up
- INR monitoring
- Dose adjustments (including dosing tool)
- Other health care professionals involved in care/patient education
- Patient education — ongoing
- Caregiver engagement
- Monitoring for complications/side effects

Example of a Validated Nomogram for the Maintenance of Warfarin

Target INR 2–3	Action	Target INR 2.5–3.5
< 1.5	Extra dose, ↑ weekly dose by 10%–20%	< 2
1.5–1.9	↑ weekly dose by 5%–10%	2–2.4
2–3	No change	2.5–3.5
3.1–3.5	↓ weekly dose by 5%–10%	3.6–4
3.6–4.9	Hold 1 dose, ↓ weekly dose by 10% – 20%	4.1–4.9
5–9	Hold 2 doses, ↓ weekly dose by 10% – 20%	5–9
> 9	Urgent evaluation	> 9

- Do not adjust warfarin dose based on one asymptomatic, unexplained, out of range maintenance INR ± 0.5 +/- target.
- Recheck INR in 1–2 weeks.

Many nomograms are available. If another validated nomogram is already in use in your care setting, there is no need to change.

What's the Evidence is published by:

[Canadian Agency for Drugs and Technologies in Health](#)

The Canadian Agency for Drugs and Technologies in Health (CADTH) is an independent, not-for-profit producer and broker of health technology assessments.

600-865 Carling Avenue
Ottawa, ON Canada K1S 5S8
Tel.: 613-226-2553
Fax: 613-226-5392
We welcome your feedback.
For more information:
www.cadth.ca/clots

The information in this document is not a substitute for clinical judgment in the care of a particular patient. CADTH is not liable for any damages arising from the use or misuse of any information contained in or implied by the information in this document.
The statements, conclusions, and views expressed herein do not necessarily represent the views of Health Canada or any provincial or territorial government.
Made possible through funding from Health Canada.