OPTUM Labs™

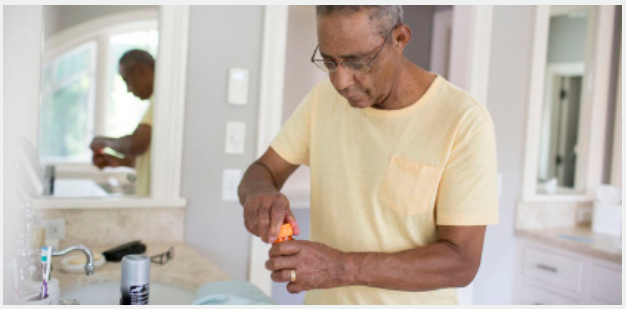
Discovery insights

Cardiovascular research

Patterns of Anticoagulation Use and Cardioembolic Risk After Catheter Ablation for Atrial Fibrillation

Based on personal risk factors, how long should patients with atrial fibrillation take anticoagulants after catheter ablation to prevent a stroke?

Evidence and practice landscape



33M people have atrial fibrillation (AF or a-fib) worldwide – an irregular heartbeat. Some have no symptoms and may not even know they have a-fib. For others, days are disrupted by a racing heart, shortness of breath, fatigue, and more. Regardless of symptoms, AF increases the risk for stroke known as cardioembolism.

Blood thinners (anticoagulants) are commonly prescribed to patients with a-fib to help prevent blood clots that may lead to stroke. Catheter ablation is a common procedure used to treat severe AF symptoms that interfer with a person's daily life.

Current practice guidelines recommend patients who have a catheter ablation to correct their heart rhythm should continue taking oral anticoagulants (OAC) for at least 2-3 months after the procedure to prevent risk of stroke.

Concepts to know

Cardioembolism: a type of stroke caused when blood clots form in the heart and escape to the body, blocking blood flow.

Catheter ablation: a procedure in which tubes steer to the heart through a vein in the groin and target cells causing irregular rhythm signals.

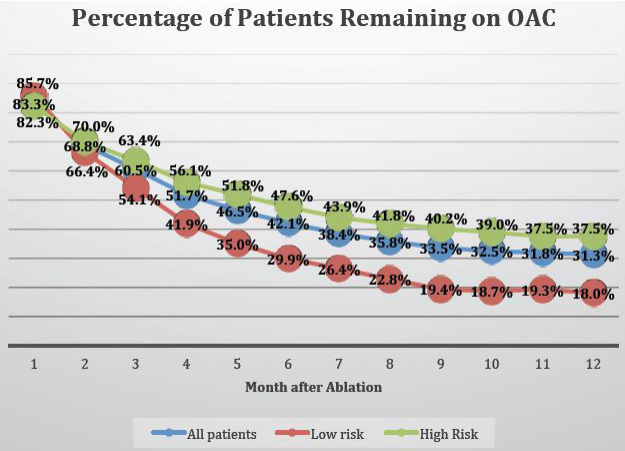
Study Population

6,886 patients who had a catheter ablation for AF between 2005-2014, were enrolled in health plan coverage during that time and at least 12 months prior, and had at least 1 prescription for OACs filled.

Key findings

Many patients stop taking anticoagulants before the recommended time of at least 2-3 months after ablation.

- 6 in 10 patients stayed on anticoagulants a full 3 months.
- 3 in 10 patients stayed on anticoagulants beyond 3 months.



It is important to take anticoagulants after ablation to prevent stroke – duration based on patient risk.

- Any time off within the first 3 months resulted in an increased risk of stroke/systemic embolism.
- High risk patients with any time off within the first 3 months had 8x the risk of cardioembolism compared to those who did not.
- The risk of stroke beyond 3 months increased with stopping anticoagulants among high-risk patients, but not among low risk patients.

Translation potential

Results confirm existing guidelines:

- It is important to continue taking anticoagulants after ablation to prevent stroke.
- Low-risk patients may benefit from taking anticoagulants for at least 3 months after ablation.
- High-risk patients may benefit from continuous use of anticoagulants.

Implications for practice:

- Clinicians may frame catheter ablation to patients as treatment to reduce AF symptoms only, and not to prevent stroke risk. Communicating this clearly may promote rhe importance of taking anticoagulants after the procedure to prevent stroke.
- Clinicians may recommend more personalized anticoagulation plans to their patients by basing the duration of continued anticoagulation on CHA2DS2-Vasc scores and other unique risk factors.

Project mechanics

Objectives

- Assess the immediate and long-term effect of ablation on risk of stroke.
- Explore the impact of anticoagulation (warfarin and novel oral anticoagulants) on risk of stroke.
- Determine the role for long-term anticoagulation after AF ablation.

Methods

- Medical and pharmacy claims data.
- All patients who had a catheter ablation for AF, 2005-2014.
- Outcomes of interest: ischemic stroke, TIA, systemic embolism.
- Determine patients' risk of stroke using Cox Proportional Hazard Models.
- Relate stroke event to the time patients were not on anticoagulants.
- Measure the "interaction effects" between the time off anticoagulants and patients' baseline CHA2DS2-Vasc score -- high-risk (CHA2DS2-Vasc ≥2) vs. low-risk (CHA2DS2-Vasc 0-1).

Study limitations

- The potential reasons for OAC discontinuation are difficult to establish from observational claims data, such as deliberated discontinuation by the provider vs. nonadherence on the part of the patient.
- Other clinical factors, such as bleeding or the need for surgery, could confound the association between OAC discontinuation and stroke.
- Although anticoagulation discontinuation was associated with an increased risk of stroke, the confidence interval of the estimate was wide, due to the low event rate in the group.
- There are inherent limiting characteristics of administrative data such as under- or overcoding, unmeasured confounders, and the lack of clinical detail and outcome and diagnosis validation that is possible in clinical trials and registries.
- Warfarin use is particularly challenging to assess with claims data because the medication is sometimes purchased without an insurance claim, and the dose may be changed without requiring a new prescription.

Driving discovery

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Sources

Noseworthy PA, Yao X, Deshmukh AJ, et al. Patterns of anticoagulation use and cardioembolic risk after catheter ablation for atrial fibrillation. *J Am Heart Assoc*. 2015 Nov;4:e002597.

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