Left Atrial Appendage Closure Is Preferred to Chronic Warfarin Therapy

The Pro Perspective

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KEYWORDS

• Left atrial appendage • Left atrial appendage occlusion • Atrial fibrillation • Arrhythmia • Thromboembolism • Anticoagulation related bleeding

KEY POINTS

- Atrial fibrillation (AF), the most common arrhythmia in the United States, is associated with increased rates of death, stroke, heart failure, hospitalization, degraded quality of life, reduced exercise capacity, and left ventricular dysfunction.
- An oral anticoagulant reduces the risk of stroke; however, it places the patient at risk for bleeding complications.
- Weighing the stroke and bleeding risks, a challenging task in some cases, remains the key for optimal treatment.
- Cardiac interventions that can obviate long-term oral anticoagulation hold great promise for the future care of patients with AF and high stroke risk.
- The US Food and Drug Administration recently approved the percutaneously deployable Watchman device for left atrial appendage (LAA) exclusion in warfarin-eligible patients based on data from randomized controlled trials. This treatment is a paradigm shift in how clinicians can abate the need for continued oral anticoagulation.
- There are emerging data on the clinical effectiveness of 2 other devices in successfully excluding the LAA mechanically and electrically: LARIAT and AtriClip.

Case History

A 76-year-old patient has been on anticoagulation for thromboembolic prophylaxis for atrial fibrillation (AF) for the past 3 years and has had no complications. The CHADS2 score (Congestive Heart Failure = 1, Hypertension = 1, Age ≥ 75 Years = 1, Diabetes Mellitus = 1 , Stroke or TIA in the past = 2) is 3 for age, hypertension, and diabetes. The patient has not had a thromboembolic event or bleeding complications. The International Normalized Ratio measurements have been stable. You recommend closure of the left atrial appendage (LAA) and discontinuation of warfarin.

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INTRODUCTION

AF is the most common arrhythmia in the United States, with ≈7 million Americans estimated to have the disease by 2020.[1] AF is associated with increased rates of death, stroke, heart failure, hospitalizations, degraded quality of life, reduced exercise capacity, and left ventricular (LV) dysfunction.[2] Using an oral anticoagulant reduces the risk of stroke[3]; however, it places the patient at a risk for bleeding complications. Weighing the stroke and bleeding risks, a challenging task in some cases, remains the key for optimal treatment. Cardiac interventions that can obviate long-term oral anticoagulation hold great promise for the future care of patients with AF and high stroke risk. Recently, the US Food and Drug Administration (FDA) approved the percutaneously deployable Watchman device (Boston Scientific, Marlborough, MA) for (LAA) exclusion in warfarin-eligible patients based on data from randomized controlled trials (RCTs). This approval is a paradigm shift in how clinicians can abate the need for continued oral anticoagulation. There are 2 other technologies that are available, both of which are epicardial approaches: the LARIAT suture delivery device (SentreHEART, Inc, Redwood City, CA) and AtriClip (AtriCure, West Chester, OH). There are emerging data on the clinical effectiveness of these two devices in successfully excluding the LAA. No RCTs are available for these two devices. There is incremental evidence in their role in arrhythmia burden reduction, and they are being positioned for future RCTs.

CASE

This patient has AF, his CHADS2 score is 3 for age, hypertension, and diabetes. He is doing well so far on anticoagulation with warfarin without any thromboembolic events. Patients may do well until an event occurs, which could be a thromboembolic or bleeding event. Both types of event may have deleterious effects and compromise the patient's lifestyle or even contribute to death.

THROMBOEMBOLIC RISK

CHADS2 score was shown to be a specific and easy-to-use score to quantify the risk of stroke in patients with nonvalvular AF and aid in the selection of antithrombotic therapy.[4] This patient has a CHADS2 score of 3, which put him at 5.9% adjusted stroke rate per year.[4,5] However, these adjusted stroke rates were based on data of hospitalized and sicker patients with AF, unlike this patient. In addition, CHADS2 was published in 2001,[4] and because stroke rates are decreasing, actual stroke rates in contemporary nonhospitalized cohorts might vary from these estimates.[5] Another tool to estimate his risk may therefore be needed.

Several other comprehensive AF stroke risk scoring systems are available now, including Framingham, Atria, and CHA2DS2-VASc scores.[6–8] These scores were compared with each other and the superiority of the CHA2DS2-VASc score was shown, especially for low-risk groups.[9–12] The 2014 American Heart Association/American College of Cardiology/Heart Rhythm Society AF guidelines recommend that the stroke risk in patients with nonvalvular AF be assessed based on the CHA2DS2-VASc score (class I, level of evidence B).[13]

More information is needed to calculate his CHA2DS2-VASc score. Assuming he does not have vascular disease, his score is 4 (age = 2 + hypertension (HTN) = 1 + diabetes mellitus = 1). This score places him at a 4.0% thromboembolic risk per year.[14]

Per current guidelines, this patient has a CHA2DS2-VASc score greater than or equal to 2, so long-term oral anticoagulants are recommended (for warfarin: class I, level of evidence, A). Although disliked by patients, physicians, and the media, warfarin is cheap and effective in reducing thromboembolic risk. This finding was translated from randomized trials to clinical practice in a large cohort of greater than 10,000 patients. Warfarin was associated with greater than 50% reduction in stroke risk at a small expense of increased intracerebral hemorrhage (ICH).[15] Although effective, warfarin does not eliminate the patient's stroke risk.

Evidence from the AVERROES trial (Apixaban versus acetylsalicylic acid to prevent stroke in atrial fibrillation patients who have failed or are unsuitable for vitamin K antagonist treatment) clearly shows that acetylsalicylic acid is capable of causing as much bleeding complication as oral anticoagulants,[16] making choice of therapy more complicated. The PROTECT-AF trial (WATCHMAN Left Atrial Appendage System for Embolic PROTECTion in Patients With Atrial Fibrillation) has shown that it is superior to warfarin in reducing the risk of stroke.[17]

BLEEDING RISKS

To help patients understand their bleeding risks, it is crucial to provide them with all the current data to help them choose wisely based on their values and preferences. ICH is the most feared