Oral anticoagulants before and after ablation for atrial fibrillation

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This editorial refers to ‘Incidence of left atrial thrombus prior to atrial fibrillation ablation: is pre-procedural transoesophageal echocardiography mandatory?’ by J.W. McCready et al., on page 927

Oral anticoagulation with warfarin is a cornerstone in the prevention of systemic thromboembolism in patients with atrial fibrillation. It reduces the risk of stroke by 67% compared with no antithrombotic therapy and by 36% compared with aspirin. The downside of anticoagulation is increased risk of major bleeding which amounts to 1% per year. Therefore, careful selection of patients for oral anticoagulation is required. The CHADS2 risk stratification system incorporates heart function, blood pressure, age, diabetes, and previous stroke. Patients at high thromboembolic risk should receive oral anticoagulation with an INR between 2 and 3. Those at lower risk should receive aspirin or no antithrombotic therapy at all.

Catheter ablation for atrial fibrillation has become a popular therapeutic approach in patients with symptomatic drug resistant atrial fibrillation, especially paroxysmal atrial fibrillation. With this technique, many patients become symptom free and the question arises whether these patients should continue oral anticoagulation. However, currently there is no clear answer to this. More important though is the question how anticoagulation should be managed before, during, and after the procedure. No specific guidelines are available and, therefore, an expert opinion should prevail.

The source of thromboembolism in atrial fibrillation has never been properly established. Many feel that the fibrillating left atrium is the source of thrombus due to the low flow state and the absence of atrial contraction. It has become clear that the left atrial appendage is the predilection place for the formation of thrombi. Measurements of blood flow velocity in the appendage have made this rather likely. Recently, a randomized controlled trial was published in which a left atrial appendage occluder (Watchman™) effectively prevented stroke in patient with atrial fibrillation in comparison with chronic warfarin therapy. This suggests that the left atrial appendage is the source of thromboembolism in many cases of stroke in patients with atrial fibrillation.

The diagnosis of left atrial thrombosis is a difficult one. Only transoesophageal echocardiography effectively diagnoses clot in the left atrium and/or left atrial appendage. Although relatively safe, this technique is burden for the patient, and little is known about the proper selection of patients undergoing ablation therapy for atrial fibrillation in whom a transoesophageal echocardiogram should be performed.

In this issue of the Journal, an interesting registry was published, in which 635 patients awaiting ablation for atrial fibrillation underwent transoesophageal echocardiography to identify left atrial thrombus. Thrombus was discovered in <2% of patients. Clearly, hypertension, age, and the presence of cardiomyopathy were identified as associated with thrombus, but the incidence was so low that one has to perform transoesophageal echocardiography in 50 patients to detect one left atrial thrombus. Therefore, according to the authors, better patient selection for this technique should be performed.

Since anticoagulation effectively prevents stroke in atrial fibrillation, the chance of finding a left atrial thrombus will be low in patients under therapeutic anticoagulation. Other imaging techniques for patients awaiting ablation therapy may be CT-angiography or magnetic resonance imaging of the left atrium. Both are used for proper navigation during the ablation procedure. It is unknown whether magnetic resonance imaging can also detect left atrial thrombus reliably. Therefore, until consensus has been reached, transoesophageal echocardiography should be performed in all patients to exclude left atrial thrombus even in the absence of clinical risk factors. Each stroke that may occur during and after ablation is a catastrophe which may have been prevented by proper imaging of the left atrium in general and of the left atrial appendage in particular. In addition, transoesophageal echocardiography provides unprecedented spatial and temporal resolution to guide pharmacological and invasive therapies.

The opinions expressed in this article are not necessarily those of the Editors of the Europace or of the European Society of Cardiology.

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Are the findings by McCready et al.\textsuperscript{8} sufficient to perform transoesophageal echocardiography only in high risk individuals? We think not. Sufficient data on the negative predictive accuracy of transoesophageal echocardiography for stroke during or after atrial ablation should be presented first, but so far they are scarce. Although interesting, the findings by McCready et al.\textsuperscript{8} should be confirmed prospectively in a validation cohort. If such a cohort indeed can identify high risk patients, a proper randomized trial should be designed in this group of patients. Until then, transoesophageal echocardiography, although burden for the patient, should be performed in all patients awaiting ablation therapy for atrial fibrillation.

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**References**