

## INTERVENTIONAL CARDIOLOGY

## Anticoagulation during AF ablation

In patients undergoing radiofrequency catheter ablation for atrial fibrillation (AF), continuous anticoagulation with warfarin reduces the risk of periprocedural thromboembolism and haemorrhage, compared with a strategy of warfarin discontinuation and bridging with low-molecular-weight heparin (LMWH). These findings come from the COMPARE trial.

Anecdotal evidence from clinical experience and nonrandomized studies has suggested that the strategy of stopping warfarin therapy and switching to LMWH during catheter ablation for AF is suboptimal, but a randomized clinical trial had not been performed. Therefore, investigators designed the prospective, randomized, parallel-group, open-label, multicentre COMPARE trial. A total of 1,584 patients with AF (429 paroxysmal, 363 persistent, and 792 longstanding persistent) and a CHADS<sub>2</sub> score  $\geq 1$  were included in the trial. Patients were randomly allocated either to discontinue warfarin therapy 2–3 days before the ablation and bridge with LMWH ( $n = 790$ ), or to continue warfarin therapy ( $n = 794$ ). In the latter group, patients had to have an international normalized ratio (INR) in the therapeutic range (2–3).

The primary end point of thromboembolic events was defined as the combination of stroke, transient ischaemic attack, or systemic thromboembolism, and occurred in 4.9% of the LMWH group and 0.25% of the uninterrupted warfarin group ( $P < 0.001$ ). The rate of thromboembolic events did not differ significantly according to anticoagulation strategy in patients with paroxysmal or persistent AF, but was significantly reduced in patients with longstanding persistent AF (8.5% with LMWH versus 0.49% with warfarin;  $P < 0.001$ ). Warfarin discontinuation (OR 13, 95% CI 3.1–55.6,  $P < 0.001$ ) and longstanding persistent AF (OR 4.7, 95% CI 2.6–8.5,  $P < 0.001$ ) were strong predictors of periprocedural thromboembolism.

The investigators also recorded the secondary end points of major bleeding (requiring intervention), minor bleeding (not requiring intervention), and pericardial effusion. The incidence of major bleeding and that of pericardial effusion did not differ significantly between the two groups. However, minor bleeding occurred significantly more frequently with LMWH (22.0%) than with uninterrupted warfarin (4.1%;  $P < 0.001$ ).

Hugh Calkins, Professor of Cardiology and Director of the Electrophysiology Laboratory and Arrhythmia Service at the Johns Hopkins Hospital, Baltimore, MD, USA and who was not involved in the COMPARE trial, comments that “the most significant finding is that, for patients [with AF] who are at high risk of stroke, it is safest to continue warfarin rather than stopping it and using LMWH. These high-risk patients include those with a previous stroke or transient ischaemic attack, and also those likely to present for [catheter ablation] in AF and require cardioversion during the procedure.”

The investigators admit that a potential source of bias in the COMPARE trial was that the operators were not blinded to the strategy of anticoagulation management. Furthermore, “new anticoagulants such as dabigatran, rivaroxaban, apixaban, and edoxaban have been introduced into clinical practice”. A consensus on the periprocedural use of these agents during AF ablation has not been reached, and the investigators believe that “the results of the COMPARE trial should not be extrapolated to these new oral anticoagulant drugs”. According to Professor Calkins, “many centres now employ these [new agents] on a routine basis and stop them 1–2 days before, and resume them 2–4 h after, ablation. This approach seems safe and effective in patients at low risk of stroke who present in sinus rhythm, but it is unclear how to use these drugs in patients at high risk of stroke.” The uninterrupted use of the new anticoagulant drugs during AF ablation is now being investigated in clinical trials and, according to the COMPARE investigators, “should be investigated predominantly in high-risk patients and compared only with strategies that do not discontinue warfarin”.

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