Is Percutaneous Left Atrial Appendage Transcatheter Occlusion an Alternative to Oral Anticoagulation in Patients With Atrial Fibrillation?

To the Editor:

Percutaneous left atrial appendage (LAA) transcatheter occlusion (PLAATO) has been suggested to prevent stroke in high-risk patients with atrial fibrillation (AF). PLAATO is performed by implanting a novel device via transseptal catheterization into the LAA to seal it. Because more than 90% of thrombi are located within the LAA in AF, occlusion of the LAA seems an attractive alternative to oral anticoagulation (OAC), especially in AF patients who are not suitable candidates for OAC.

However, performing PLAATO in patients with AF raises several concerns: 1) it is not known whether LAA thrombi are responsible for the increased number of thromboembolic events in patients with AF; atrial, ventricular, or aortic thrombi might also be important sources of arterial embolism; 2) hypercoagulability reported in patients with AF will not be treated by the PLAATO technique; 3) it is not known whether LAA occlusion impairs release of natriuretic peptides, and it is possible that PLAATO eliminates a major regulatory factor of intravascular volume regulation and disturbs neurohumoral regulation; and 4) PLAATO is an invasive procedure that had a 6% to 7% risk of developing hemopericardium in the study by Sievert et al. The reason why patients undergoing PLAATO were placed on 300 mg per day of aspirin indefinitely and on 75 mg per day of clopidogrel for 6 months is unexplained and difficult to understand, because 9 of the 15 patients had gastrointestinal bleeding as a contraindication to OAC. Furthermore, if patients require such combined antplatelet therapy after PLAATO, with a known risk of major (3.7%) and minor (5.1%) bleeding approaching the bleeding risk of OAC, why were these patients not treated with OAC alone?

In summary, much more evidence is available on which to base treatment of AF patients with OAC. Compared with interventional LAA occlusion, OAC has the advantage of being noninvasive, reversible, well known for decades, and may easily be monitored even by patients themselves. In addition, OAC does not have hemodynamic side effects. On the basis of these arguments, we believe that at present, PLAATO cannot be recommended as an alternative to OAC in patients with AF.

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Response

We thank Dr Stöllberger and her colleagues for their interest in our publication. This was primarily a feasibility trial of a novel device for occluding the left atrial appendage. With an experience now of over 50 patients with no major adverse events during implantation or in follow-up to 1 year, we feel that such feasibility has been demonstrated.

Dr Stöllberger et al speculate on a number of reasons that percutaneous left atrial appendage transcatheter occlusion (PLAATO) might ultimately be unsuccessful at preventing the thromboembolic complications of atrial fibrillation. Of course, the purpose of a carefully crafted clinical trial is precisely to address these and other theoretical concerns.

Though we had not seen thrombus on the device in a large series of animal studies, aspirin and clopidogrel were prescribed in the initial clinical study because of the unknown risk of thrombus formation on the device in patients with possible rheological disturbances in the setting of AF. However, we have performed serial transesophageal echocardiogram (TEEs) in our patients and have not seen any residual clot on the device surface that would lead to embolic events. Therefore, in the future, if the patient has a significant risk from these agents, a short course of clopidogrel with or without aspirin may be recommended but not required.

Dr Stöllberger et al state that PLAATO is not a substitute for long-term anticoagulation treatment. We agree. Indeed, our study includes only those patients who are unable to take long-term anticoagulation therapy. At present, we would certainly advocate that patients with atrial fibrillation who are stable on anticoagulation therapy, have no major risk of bleeding, and compliant with follow up, remain on this therapy.

Few studies address the best mode of stroke prevention in patients who cannot tolerate long-term anticoagulation. Therefore, evaluating the effect of PLAATO in this cohort of patients seems appropriate. Testing the equivalency or superiority of PLAATO to warfarin in patients who are stable on warfarin would be a separate study, especially in those patients who, although stable on anticoagulation, have a strong desire to eliminate this major inconvenience from their lives.
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