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Editorial

Left Atrial Appendage Occlusion: An Alternative to Long Term Coumadin for Patients with Atrial Fibrillation

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Atrial fibrillation (AF) is an important risk factor for stroke. The current standard of care is long term anticoagulation to reduce this risk. There is strong evidence that the majority of thromboembolic strokes associated with AF originate from the left atrial appendage (LAA). This formed the basis of the hypothesis that closing the LAA might be non-inferior to anticoagulation, which was demonstrated in the landmark PROTECT AF trial using the WATCHMAN™ Left Atrial Appendage System (Atritech, Minneapolis, MN, USA).[1]

In this issue of **Revista Brasileira de Cardiologia Invasiva**, Armaganijan et al.[2] describe their early experience in LAA closure using the Amplatzer™ Cardiac Plug (ACP). It is important to note that although the ACP is clinically available, there are few well-documented reports regarding the efficacy and safety of the ACP. Although the group studied is small, the clinical results were excellent with no adverse events either peri-procedurally or at follow-up. Several important issues in patient assessment and procedural aspects are positively addressed. Some of these are particular to this device but most are relevant to the concept of LAA closure in general and merit further discussion.

The pre-procedural assessment of a patient for LAA closure by any device includes determination of clinical suitability with the presence of persistent or paroxysmal AF and an appropriate CHADS2 score, which documents a sufficiently high risk of thromboembolic stroke. In the authors' study this score was ≥ 2, whereas the PROTECT AF study evaluating the WATCHMAN device included lower risk patients with a score ≥ 1.

Although the LAA is a heterogeneous structure, several sizes available for both devices can usually accommodate this variability. Thus, although there are some proponents of pre-procedural contrast computed tomography (CT) evaluation, anatomical suitability is often determined by intra-procedural transesophageal echocardiography (TEE). One must note that in addition to inter-patient variation there is intra-patient variation in LAA size, as determined by the intravascular volume status at a particular time. This is attributable to the distensibility of the LAA. Ensuring the LA pressure is ≥ 10 mmHg, and fluid infusion if the LA pressure is low following transseptal puncture, can prevent underestimation of the LAA size.

The authors describe intra-procedural use of both two dimensional (2D) and three dimensional (3D) TEE with particular emphasis on TEE projections: 0, 45 and 90 degrees. We have found the use of the X plane facility of the Phillips 3D TEE system, particularly with simultaneous 45 degree and 135 degree angles, invaluable in confirming an optimal seal at the end of the procedure. We practice a similar complementary use of X ray contrast fluoroscopy to that described by the authors, but it is generally TEE that we rely on for definitive sizing and positioning. The optimal use of intra-procedural imaging helps confirm a complete sealing of the ostium of the LAA as well as stability of the device.

As the authors employed in the present study, the ACP protocol in warfarin ineligible patients, as in the European ACP registry, includes three months of dual antiplatelet therapy followed by lifelong aspirin; this is empiric and not evidence based. In contrast, patients treated with the WATCHMAN device in both the randomized and continued access studies required a 45 day course of warfarin therapy, followed by dual antiplatelet therapy for 6 months and then lifelong aspirin monotherapy.[1,3] Some of these steps, particularly the use of warfarin for 45 days, are most probably precautionary, require a greater evidence base and are likely to be changed in the refinement of post-procedural care in the future.

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An important clinical application of this technology is the use in patients not eligible for long-term anticoagulation, which applies to the three patients described. This is a fundamental difference to the PROTECT AF trial, which mandated eligibility for warfarin therapy to permit the head-to-head comparison with medical therapy. This leads to the conclusion that LAA closure is not only a therapy for those ineligible for warfarin but also a viable alternative to warfarin, vastly expanding the population of patients treatable by this novel strategy.

Even with the advent of potentially more tolerated anticoagulant medications with less need for monitoring, such as dabigatran,[4] a significant proportion of patients may prefer a single procedure to a lifelong commitment to medication, particularly in those patients who have risk of bleeding.

Although the PROTECT AF trial showed a higher rate of adverse safety events in the intervention group than in the control, most of these were peri-procedural. Indeed, we have recently demonstrated the importance of the learning curve, with a significantly lower risk profile observed in the CAP registry, which mandated experienced operators, than in the original PROTECT AF trial.[3] This illustrates a final important point that optimal training in the procedure can ensure its safety.

CONFLICT OF INTEREST

Hasan Jilaihawi has no conflict of interest to declare. Saibal Kar receives research grant support from Atritech.

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