PLAATO (Percutaneous Left Atrial Appendage Trans-catheter Occlusion) — to get off the hassles of anticoagulation in atrial fibrillation

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Madam, Atrial Fibrillation (AF) is the most common type of supraventricular tachycardia affecting an estimated 33 million people worldwide.[1] Accounting for 20%[2] of all strokes, it is associated with a five-fold increased risk leading to an overall annual stroke rate of 4.5%/year.[3] The rapid and irregular heart beat produces turbulence in the blood flow causing temporary stasis of blood and formation of an easy dislodgeable mural thrombus. Apart from rate and rhythm control strategy, anticoagulation/antiplatelet therapy is a logical approach to prevent thrombus formation with a 70% risk reduction in embolic events.[3] The decision for an anticoagulation/antiplatelet therapy, depends on the patients CHADS2 score which quantifies the stroke risk using one point each for Congestive Heart Failure, Hypertension, Age ≥75 years, Diabetes mellitus and two points for a previous history of Stroke/TIA. A cumulative score of ≥2 is considered high risk and an oral anticoagulation with either Warfarin (target INR 2-3) or Dabigatran/Rivaroxaban is recommended. A score of 1 is considered as an intermediate risk with anticoagulation preferred although aspirin alone can be given. Low risk patients without a score doesn't need any prophylaxis.[4] Even without an obvious contraindication to anticoagulation therapy(where surgical intervention is the only choice), the patient acceptance for anticoagulation owing to the concerns over frequent follow-ups, bleeding risk and dietary restrictions is quite low (Warfarin-45%, newer anticoagulants like Dabigatran, Rivaroxaban, Apixaban and Edoxaban -75%).[1]

Since more than 90% of atrial thrombi in non-rheumatic AF originates in the left atrial appendage (LAA),[2,3] Food & Drug Administration (FDA) has recently approved an alternate approach — the percutaneous trans-catheter occlusion of the left atrial appendage (PLAATO).[5] Introduced as Watchman Device, it consists of a self-expanding nitinol cage delivered transvenously under transesophageal echocardiogram (TEE) or fluoroscopic guidance to seal the LAA. The device approval came from significant results from a multi-institutional study across US and Europe. The trial involved 108/111 patients in US and 162/180 patients in Europe who successfully received device implantation. The annual stroke rate was 2.2% and 2.3%, compared to the CHADS2 score-estimated annual stroke rate of 6.3% and 6.6% in US and Europe respectively an approximate 65% relative risk reduction in both.[3,6]

While there are concerns like vessel perforation, trans-septal puncture or device dislodgement but it is more practical compared to surgical closure in being less invasive and having a faster recovery. Although long-term studies are needed to further evaluate its safety and efficacy over anticoagulation or surgery, this technique may become an alternative therapeutic strategy to patients who are ineligible for long-term warfarin treatment.

Disclaimer: None to declared.

Conflict of Interest: None to declared.

Funding Disclosure: None to declared.

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