

## Prevalence of LAA thrombus in patients undergoing percutaneous ablation of atrial fibrillation

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**Introduction:** Computed tomography (CT) is often performed before atrial fibrillation (AF) ablation to assess the anatomy of the pulmonary veins and exclude left atrial (LA) and left atrial appendage (LAA) thrombus. With the growing use of new oral anticoagulants (NOACs), a reassessment of the need for systematic thrombus exclusion in this context seems warranted.

**Objective:** To evaluate the prevalence of thrombus in LA/LAA in pre-ablation CT in a contemporary cohort of patients predominantly anticoagulated with NOACs.

**Methods:** We evaluated 789 consecutive patients (mean age  $61 \pm 12$  years; 38% female; 84% with paroxysmal AF) who underwent pre-ablation CT between Oct/2015 and Oct/2019. ECG-gated CT-angiography was performed using a dual-source 64-slice CT after iodinated contrast injection. Whenever necessary, a second dedicated acquisition was made 60 seconds after the first set of images. Presence of thrombus was defined as a persistent opacification defect. For each patient, thromboembolic risk was assessed with the CHA2DS2-VASc score.

**Results:** The median interval between CT and AF ablation was 1 day (IQR 1 – 2 days). The median CHA2DS2-VASc was 2 points (IQR 0 – 3 points),

with 590 patients (75%) having CHA2DS2-VASc  $\geq 1$ . Among the 199 patients (25%) with CHA2DS2-VASc = 0, 118 (59.3%) were anticoagulated with a NOAC and 14 (7%) with a vitamin K antagonist; 67 (34%) were not anticoagulated. Conversely, amongst the 590 patients with CHA2DS2-VASc  $\geq 1$ , 84% were anticoagulated with a NOAC (n=494), 11% used vitamin K antagonists (n=62), and 34 patients were not anticoagulated (23 with CHA2DS2-VASc = 1). On cardiac CT, 521 (66%) patients were in sinus rhythm. Overall, only one LAA thrombus was found (0.12% [1/789]; 95% CI: 0.0–0.7%) – in a patient with CHA2DS2-VASc = 0, anticoagulated with a NOAC. The median effective radiation dose was 3.2 mSv (IQR 2.1–4.8 mSv). There were 5 minor allergic reactions to iodinated contrast. No strokes were documented within the first 24 hours after ablation.

**Conclusion:** In this contemporary cohort of patients with predominantly paroxysmal AF and anticoagulated with NOAC, the prevalence of intracavitary thrombus was extremely low (0.12%). While these findings do not compromise the multipurpose role of pre-ablation CT, they should nevertheless inform future discussions on the risk/benefit and cost/benefit of performing systematic exclusion of LA/LAA thrombi prior to AF ablation.