



Imaging

ATRIAL THROMBI DETECTION PRIOR TO PULMONARY VEIN ISOLATION: CARDIAC COMPUTER TOMOGRAPHY VERSUS TRANSESOPHAGEAL ECHOCARDIOGRAPHY

Poster Contributions

Poster Sessions, Expo North

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Background: Pulmonary vein isolation (PVI) is a common treatment for patients with symptomatic atrial fibrillation. Cardiac computed tomography (CCT) is required prior to PVI to obtain a left atrium and pulmonary vein anatomical map on which to superimpose an electrical map. Patients also routinely undergo transesophageal echocardiography (TEE) to rule out presence of left atrial and left atrial appendage (LAA) thrombus. We sought to determine whether CCT alone is adequate to exclude the presence of LAA thrombus.

Methods: Patients who underwent PVI's during 2010 and 2011 were identified. Analysis was limited to patients with CCT and TEE within 3 days of each other. CHADS₂ scores were calculated. LAA thrombus was identified by cardiologists trained in TEE, blind to CCT results CCT's were read by a cardiologist trained in CCT, who was blind to the TEE results.

Results: 51 patients had both TEE and CCT within a 3 day period (mean age 59.9 ± 9.6 years; 64% male; ejection fraction 60 ± 12%). By TEE, 0 LAA thrombi were identified. By CCT, 2 LAA thrombi were identified and 4 could not be ruled out. Specificity, positive predictive value and negative predictive value for CCT were 80.4%, 0%, and 100%, respectively. Due to lack of positive findings by TEE, CCT sensitivity was indeterminate.

Conclusions: These results demonstrate that CCT is an effective tool in ruling-out LAA thrombi prior to PVI (NPV=100%). We propose that TEE be reserved for those cases where CCT is positive, when TEE may still be able to rule out thrombus.

Table 1 -- Demographics & CHADS₂ Scores (n=51)

Age (yrs), mean (SD)	59.4 ± 9.5
Male, n (%)	37 (81)
Bodysurface area (m ²), mean (SD)	2.1 (0.27)
Duration of atrial fibrillation or flutter (yrs), mean (SD)	5.0 ± 6.1
Atrial fibrillation	
Persistent, n (%)	15 (29)
Paroxysmal, n (%)	38 (75)
Atrial flutter, n (%)	16 (31)
Anticoagulation therapy, n (%)	32 (63)
Antiplatelet therapy, n (%)	19 (37)
No anticoagulation or antiplatelet, n (%)	14 (27)
INR, mean (SD)	1.5 ± 0.6
CHF, n (%)	3 (4)
Hypertension, n (%)	35 (44)
Age ≥ 75, n (%)	3 (4)
Diabetes mellitus, n (%)	8 (10)
Prior CVA/TIA, n (%)	4 (5)
CHADS ₂ score	
0	25 (49)
1	22 (43)
2	1 (2)
3	2 (4)

INR = International Normalized Ratio, CHF = congestive heart failure, CVA/TIA = cerebrovascular accident/transient ischemic attack, CHADS₂ = congestive heart failure, hypertension, age older than 75 years, diabetes, and history of CVA/TIA