

EP News: Clinical

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Subclinical atrial fibrillation in older patients

Healey et al (Circulation 2017;136:1276, PMID 28778946) implanted subcutaneous electrocardiographic monitors in patients 65 years and older attending cardiovascular or neurology outpatient clinics if they had no history of atrial fibrillation but had any of the following: CHA₂DS₂-VASc score of ≥ 2 , sleep apnea, or body mass index >30 kg/m². Eligibility also required either left atrial enlargement (≥ 4.4 cm or volume ≥ 58 mL) or increased (≥ 290 pg/mL) serum N-terminal pro-B-type natriuretic peptide level. Two hundred fifty-six patients were followed up for 16.3 ± 3.8 months. The baseline age was 74 ± 6 years; the mean CHA₂DS₂-VASc score was 4.1 ± 1.4 ; the left atrial diameter averaged 4.7 ± 0.8 cm; and 48% had a prior stroke, transient ischemic attack, or systemic embolism. Subclinical atrial fibrillation (SCAF) lasting ≥ 5 minutes was detected in 90 patients (detection rate 34.4%/y). Baseline predictors of SCAF were increased age (hazard ratio [HR] 1.55), left atrial dimension (HR per centimeter diameter 1.43), and blood pressure (HR per 10 mm Hg 0.87), but not prior stroke. The rate of occurrence of SCAF in those with a history of stroke, systemic embolism, or transient ischemic attack was 39.4%/y vs 30.3%/y without ($P = .32$). *The authors conclude that SCAF is frequently detected by continuous electrocardiographic monitoring in older patients without a history of atrial fibrillation who are attending outpatient cardiology and neurology clinics and that its clinical significance is unclear.*

Catheter ablation versus medical rate control in atrial fibrillation and systolic dysfunction: The CAMERA-MRI study

Prabhu et al (J Am Coll Cardiol 2017;70:1949, PMID 28855115) evaluated whether catheter ablation (CA) for atrial fibrillation (AF) improves left ventricular ejection fraction (LVEF) compared with medical rate control (MRC) where the etiology of the impaired LVEF was unexplained, apart from the presence of AF. This multicenter randomized clinical trial enrolled patients with persistent AF and idiopathic cardiomyopathy (LVEF $\leq 45\%$). The primary end point was change in LVEF on repeat cardiac magnetic resonance (CMR) at 6 months. Sixty-six patients were enrolled and randomized, with 33 in each arm. The average AF burden post-CA was $1.6\% \pm 5.0\%$ at 6 months. The LVEF improved by $18\% \pm 13\%$ in the CA group as compared with $4.4\% \pm 13\%$ in the MRC group ($P < .0001$) and normalized (LVEF $\geq 50\%$) in 58% vs 9% ($P = .0002$). In those undergoing CA, the absence of late gadolinium enhancement predicted greater improvements in absolute LVEF (10.7%; $P = .0069$) and normalization at 6 months (73% vs 29%; $P = .0093$).

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The authors conclude that AF is an underappreciated reversible cause of left ventricular systolic dysfunction in this population despite adequate rate control. The restoration of sinus rhythm with CA results in significant improvements in ventricular function, particularly in the absence of ventricular fibrosis on CMR.

Electrical risk score beyond the left ventricular ejection fraction: Prediction of sudden cardiac death

Aro et al (Eur Heart J 2107;38:3017, PMID 28662567) evaluated whether an electrocardiogram (ECG) risk score could improve identification of individuals at high risk of sudden cardiac death (SCD). A total of 522 SCD cases with 12-lead ECG available (age 65.3 ± 14.5 years; 66% men) were compared with 736 controls to assess the incremental value of multiple ECG parameters in SCD prediction. Heart rate, left ventricular hypertrophy, QRS transition zone, QRS-T angle, corrected QT interval, and Tpeak-to-Tend interval remained significant in the final model. Sixteen percent of cases and 3% of controls had ≥ 4 abnormal ECG markers. After adjusting for clinical factors and left ventricular ejection fraction (LVEF), increasing ECG risk score was associated with progressively greater odds of SCD. Overall, subjects with ≥ 4 ECG abnormalities had an odds ratio (OR) of 21.2 for SCD ($P < .001$). In the LVEF $>35\%$ subgroup, the OR was 26.1 ($P < .001$). *The authors conclude that this novel cumulative ECG risk score was independently associated with SCD and was particularly effective for LVEF $>35\%$ where risk stratification is currently unavailable.*

Patients with Brugada syndrome and implanted cardioverter-defibrillators: Long-term follow-up

Hernandez-Ojeda et al (J Am Coll Cardiol 2017;70:1991, PMID 29025556) evaluated the long-term outcome after implantable cardioverter-defibrillator (ICD) implantation in patients with Brugada syndrome (BrS). Of a total of 370 patients with BrS in follow-up (age 43 ± 14 years; 74% men), 104 patients (28.1%) were treated with ICDs. After a follow-up of 9.3 ± 5.1 years, 21 patients (20.2%) experienced a total of 81 appropriate shocks (incidence rate 2.2 per 100 person-years). In the multivariable analysis, type 1 electrocardiogram with syncope (hazard ratio [HR] 4.96; $P < .01$) and secondary prevention indication (HR 6.85; $P < .01$) were significant predictors of appropriate therapy. Nine patients (8.7%) experienced 37 inappropriate shocks (incidence rate 0.9 per 100 person-years). Twenty-one patients (20.2%) had other ICD-related complications (incidence rate 1.4 per 100 person-years). Three patients (2.9%) died (1 electrical storm and 2 noncardiovascular deaths). *The authors conclude that ICD therapy is an effective therapy in high-risk patients with BrS. However, it is also associated with a significant risk of device-related complications.*