

MINI-FOCUS ISSUE: ATRIAL FIBRILLATION ABLATION

Persistent Atrial Fibrillation From the Onset

A Specific Subgroup of Patients With Biatrial Substrate Involvement and Poorer Clinical Outcome



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CME Objective for This Article: Upon completion of this activity, the learner should be able to identify this unique subset of patients with persistent atrial fibrillation from the onset and institute early therapy and intensive cardiovascular risk factor management for these patients.

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ABSTRACT

OBJECTIVES This study sought to characterize the clinical characteristics, atrial substrate, and prognosis in a subgroup of patients with persistent atrial fibrillation (AF) from the onset (PsAFonset).

BACKGROUND Patients with AF frequently progress from trigger-driven paroxysmal arrhythmias to substrate-dependent persistent arrhythmias.

METHODS Patients referred for persistent AF (PsAF) ablation were enrolled from 3 centers. Consecutive patients with PsAFonset (n = 129) were compared with patients with PsAF that progressed from paroxysmal AF (n = 231). In addition, 90 patients (30 patients with PsAFonset and 60 control subjects) were studied with noninvasive mapping to characterize the AF drivers. The degree of fractionation and endocardial voltages were assessed invasively.

RESULTS Patients with PsAFonset were younger (p = 0.047) and more obese (p < 0.001); there were more men (p = 0.034), more patients with hypertension (p = 0.044), and these patients had larger left (p < 0.05) and right atria (p < 0.05). Baseline AF cycle length was shorter in the PsAFonset group (p < 0.01); the degree of fractionation was higher (p < 0.001 for both atria), and the endocardial voltage was lower (p < 0.05 for both atria). Patients with PsAFonset had higher a number of re-entrant driver regions (p < 0.001) and extrapulmonary vein regions that had re-entrant drivers (p < 0.05), whereas control subjects displayed more focal driver regions (p = 0.029). The acute AF termination rate was lower in the PsAFonset group (42% vs. 81%; p < 0.001). During a mean follow-up of 17 ± 11 months from the last procedure, patients with PsAFonset had significantly higher AF, atrial tachycardia (AT), and AF/AT recurrence rates (p < 0.01).

CONCLUSIONS Patients with PsAFonset represent a distinct subgroup defined by specific demographics, underlying diffuse batrial substrate disease, and worse clinical outcome. The findings highlight the importance of defining criteria for early detection of atrial substrate disease. (J Am Coll Cardiol EP 2016;2:129-39) © 2016 by the American College of Cardiology Foundation.

Although the role of triggers in the initiation of paroxysmal atrial fibrillation (AF) is well-established, the underlying mechanisms sustaining persistent AF (PsAF) remain poorly understood (1). It is unclear why certain patients remain in paroxysmal AF (PAF) for an extended period of time, whereas others progress rapidly to a persistent form of AF (2-5). Atrial electrical remodeling

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