

## Prevalence of device-detected atrial fibrillation and stroke in patients with hypertrophic cardiomyopathy

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**Introduction:** Atrial fibrillation (AF) is highly prevalent in patients with hypertrophic cardiomyopathy (HCM) and is associated with adverse outcome, impaired quality of life, loss of productivity, and the risk for embolic stroke. However, still today, the real burden of AF is unresolved due to the unknown frequency of silent asymptomatic episodes.

**Purpose:** To assess the prevalence of device-detected AF and stroke in patients with HCM implanted with cardiac implantable electronic devices (CIEDs) at our institution, a long-standing high flow referral center for cardiomyopathies.

**Methods:** Clinical and instrumental data of HCM patients implanted with CIEDs (either pacemakers [PM] or implantable cardioverter defibrillator [ICD]) from 1998 to 2019 were retrospectively reviewed. Inclusion criteria were site-designated diagnosis of HCM, age at diagnosis >18 years, >1 follow up visit, follow up >1 year. HCM phenocopies (e.g. Fabry disease) were carefully excluded.

Patients were divided into three categories according to presence of AF ("AF prior to CIED implantation" vs "AF after CIED implantation" vs "no arrhythmia detected"). Outcome was measured against prevalence of thromboembolic events (stroke or transient ischemic attack [TIA]) at follow up. All-cause and cardiovascular (CV) mortality were also assessed.

**Results:** A total of 255 patients received a CIED (57% men, mean age at implantation  $54 \pm 17$  years). Men were younger at implantation ( $52 \pm 17$  vs  $56 \pm 18$  years,  $p=0.022$ ). At baseline, AF was present in 90 (35.3%) patients. During  $5.0 \pm 4.1$  years, de novo AF was detected in 30 (11.8%) individuals, resulting in an annual incidence rate of 6.1%/year. Overall, 135 (52.9%) of patients remained in sinus rhythm.

Stroke/TIAs were reported in 30 (11.8%) patients: 16 (53.3%) occurred in patients with prior history of AF, 3 (10%) in patients with de novo AF (with men being at higher risk, OR 3.73, 95% CI 1.88–6.09,  $p=0.041$ ), and 11 (36.7%) in patients with no history of arrhythmias.

Long term, 45 (17.6%) patients died (CV mortality  $N=38$ , 14.9%). At multi-variable analysis, history of stroke was directly related to all-cause mortality irrespective of AF in men (OR 4.15, 95% CI 1.35–12.77,  $p=0.018$ ) but not in women (OR 0.891, 95% CI 0.17–4.64,  $p=0.801$ ).

**Conclusions:** In a large cohort of consecutive high risk HCM patients referred to CIED implantation, the incidence of de-novo AF was high. Thromboembolic events were associated to worse outcome only in men, likely due to competing heart failure related causes in women. Strategies promoting early identification of AF and anticoagulation may play an important role in management and prevention of disease-related complications.

