The Incidence and Predictors of Newly Detected Atrial Fibrillation in Patients with Hypertrophic Cardiomyopathy following Cardiac Electrophysiological Device Implantation

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Introduction: Atrial fibrillation (AF) is an important prognostic parameter in patients with hypertrophic cardiomyopathy (HCM). However, the incidence and predictors of newly-detected AF in patients with HCM and cardiac implantable electrophysiological devices (CIEDs) has not been fully elucidated.

Methods: Seventy-three patients (44 men, age 60±16 years) with HCM who underwent CIED implantation (ICD n=61, Pacemaker n=11, CRTD n=1) were enrolled in the study. The clinical parameters, incidence of newly-detected AF and impact on inappropriate shock were evaluated. During follow-up, patients were screened for adverse events including stroke, heart failure, or death.

Result: Among all patients, 56 (77%) patients had no previous history of AF at the time of implantation. During 6±4 years of follow-up, AF was newly detected in 20 (36%) of 56 patients. Compared the patients who had newly-detected AF (Newly-detected AF group n=20) and who did not (Non-AF group n=36), patients in Newly-detected AF group had larger left atrial diameter (LAD) (45±6mm vs. 38±6mm p<0.01), higher prevalence of New York Heart Association (NYHA) (III/IV) (50% vs. 17% p=0.01) and more patients received percutaneous septal ablation (55% vs. 28% p=0.04) compared to Non-AF group. After Cox regression analysis, LAD (HR:1.11 per unit increase; 95% CI: 1.01-1.23) and concomitant NYHA (III/IV) (HR:3.90; 95% CI: 1.34-12.3) were the independent predictors of newly-detected AF. Compared the patients with AF (n=37) and without AF (n=36), the rate of appropriate therapy (25% vs. 17%, log-rank P=0.95) and inappropriate therapy (15% vs. 8% log-rank P=0.78) was similar between the two groups. However, all the cause of inappropriate therapy in patients with AF was false interpretation of tachycardic AF. During the follow-up, ischemic stroke was documented in only 1 patient without AF. Hospitalization due to heart failure was seen in 8 patients, amiodarone induced intestinal pneumonia was documented in 2 patients and death occurred in 3 patients.

Conclusion: The incidence of newly-detected AF was high in patients with HCM who underwent
CIED implantation. HCM patients with dilated left atrium and concomitant NYHA III/IV are at a high risk of newly-detected AF and careful follow up is recommended.