The Risk Factors of New-Onset Atrial Fibrillation after Pacemaker Implantation

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Introduction: We sought to determine the incidence of newly detected atrial fibrillation (AF) in patients following dual-chamber Pacemaker (PPM) implantation and to define the clinical predictors of newly AF in a Chinese cohort.

Methods: We prospectively studied 219 patients without documented AF who underwent dual-chamber PPM implantation for sick sinus syndrome (SSS) (n=88) or atrioventricular block (AVB) (n=131). Each patient was asked to follow-up on 1 month, 3 months and 6 months after the pacemaker implantation procedure, and once every six months afterwards. An atrial high-rate episodes (AHRE) ≥5 minutes and the atrial rate ≥180bpm was defined as AF.

Result: During follow-up of 884 ±180 days, AF was detected in 56(26%) patients. By using Kaplan-Meier survival curves with log-rank test, SSS patients with Cum % VP ≥60% had a significantly higher rate of new-onset AF than AVB patients (p=0.026) and SSS patients with Cum % VP <60% (p=0.018). On multivariate Cox regression analysis, higher Cum % VP independently predicts higher morbidity of new detected AF (HR 1.01; CI 1.00~1.02; p=0.035) among SSS patients. Larger left atrial dimension (LA dimension) was a predictor of new detected AF (HR 1.06; CI 1.01~1.14; p=0.046) in AVB patients.

Conclusion: The incidence of AF after dual-chamber PPM implantation was relatively high in this Chinese cohort. High Cum % VP and larger LA dimension could independently predict newly AF after dual-chamber PPM implantation in SSS and AVB patients, respectively.