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PREVALENCE AND RELATED FACTORS OF ARRHYTHMIAS IN PATIENTS WITH HYPERTROPHIC CARDIOMYOPATHY

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Objectives We aim to explore the incidence and risk factors of AF, dangerous ventricular arrhythmias and bradyarrhythmia in patients with HCM, and improve the awareness of clinicians on hypertrophic cardiomyopathy (HCM) associated with life-threatening arrhythmias.

Methods We retrospectively collected the clinical data of 86 unrelated patients diagnosed as HCM in our hospital from January 2009 to January 2012, including each patient's personal characteristics, clinical manifestations, echocardiography, 12-lead electrocardiography (ECG), 24 h Holter ECG monitoring, coronary angiography, left ventricular angiography and related treatment.

Results

1. In 86 patients with HCM, male and female patients were 56 and 30, respectively, and mean age was 58.4 ± 14.3 years.
2. 21 patients (24.4%) had documented AF, 7 patients with paroxysmal AF and 14 patients with chronic AF. 72 patients (85.7%) had premature ventricular contractions (PVCs), 36 patients (41.9%) had PVCs with Low grade ≥ 3 , and 22 patients (25.6%) had non-sustained ventricular tachycardia (NSVT). eight patients (9.3%) had sick sinus syndrome (SSS), 11 patients (12.8%) had atrioventricular block (AVB) and nine patients (10.5%) had atrial fibrillation with slow ventricular rate and long RR interval (RR interval > 2.0 s).
3. The mean age at examination was 64.1 ± 11.0 years in patients with AF, older than those with sinus rhythm (56.6 ± 14.8 years) ($p=0.037$). Left atrial diameter (LAD) was greater in patients with AF than those without AF (45.3 ± 5.2 mm vs 40.2 ± 5.2 mm) ($p<0.01$). There were 8 cases (38.1%) in NYHA classes III and IV in AF group, more than those without AF (6.2%, $p=0.001$). And left ventricular ejection fraction (LVEF) in AF group was lower than those without AF ($64.8 \pm 9.7\%$ vs $69.4 \pm 8.1\%$, $p=0.036$).
4. Maximum left ventricular wall thickness (MLVWT) and LAD was greater in patients with dangerous ventricular arrhythmias (B group) than in patients without dangerous ventricular

arrhythmias (A group) (23.1 ± 5.4 mm vs 20.2 ± 4.9 mm and 42.8 ± 5.2 mm vs 40.4 ± 5.8 mm, $p=0.009$ and 0.048 , respectively). The incidence of AF in B group was significantly higher than in A group (36.1% vs 16.0% , $p<0.05$).

5. In patients with pacemaker implantation, the age (mean 67.6 ± 7.4 years) was older than those without pacemaker implantation (mean 55.5 ± 14.1 years, $p=0.01$). LVEF in patients with pacemaker implantation was significantly lower than in patients without pacemaker implantation ($64.0 \pm 10.0\%$ vs $69.3 \pm 8.1\%$, $p=0.024$). And the incidence of AF in patients with pacemaker implantation was significantly higher than in patients without pacemaker implantation (52.9% vs 17.4% , $p<0.05$).

Conclusions Our study showed the incidence of arrhythmias in patients with HCM, including AF, dangerous ventricular arrhythmias and bradyarrhythmia, was quite high. And the incidence of AF and bradyarrhythmia was positively correlated with age increasing. The occurrence of AF was significantly associated with LAD, cardiac dysfunction and age. The prevalence of dangerous ventricular arrhythmias was 41.9% , and its occurrence was associated with MLVWT and LAD. LVEF was significantly decreased in patients with pacemaker implantation. The prevalence of AF in patients with dangerous ventricular arrhythmias and bradyarrhythmia was much higher than others without dangerous ventricular arrhythmias and bradyarrhythmia. Therefore, AF might play an important role in the prognosis of HCM patients.