

Clinical characteristics and outcomes after pulmonary vein isolation in atrial fibrillation patients with complete right bundle branch block

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Background: Complete right bundle branch block (CRBBB) is one of the most frequent alterations of the electrocardiogram (ECG). Several studies have shown that CRBBB was a risk factor for cardiovascular diseases and the appearance of CRBBB in patients hospitalized for exacerbated heart failure (HF) was associated with a worse prognosis. Various alternations of ECG such as early repolarization pattern and intraventricular conduction disturbance were associated with high recurrence ratio of atrial fibrillation (AF) after pulmonary vein isolation (PVI). However clinical outcome after PVI in patients with CRBBB remains unclear.

Methods: We enrolled consecutive AF patients who underwent PVI from September 2014 to November 2018 from Osaka Rosai Atrial Fibrillation (ORAF) registry. We excluded patients with other wide QRS (left bundle branch block, ventricular pacing and unclassified intraventricular conduction disturbance) and divided into 2 groups; CRBBB (QRS duration ≥ 120 msec) group and no-CRBBB (QRS duration < 120 msec) group. We compared the clinical characteristics including age, gender, hypertension, diabetes mellitus, history of heart failure, history of stroke, CHADS₂Vasc score, paroxysmal AF (PAF), renal function, plasma brain natriuretic peptide (BNP) level and echocardiographic parameters including left ven-

tricular end-diastolic diameter (LVDd), left ventricular end-systolic diameter (LVDs), left atrial diameter (LAD) and left ventricular ejection fraction (LVEF) between the 2 groups. We also compared the incidence of late recurrence of AF/atrial tachycardia (AT) between the 2 groups. We investigated whether CRBBB was an independent predictor of late recurrence of AF/AT after PVI by multivariate Cox analysis.

Results: We enrolled 736 consecutive AF patients who underwent PVI. CRBBB patients comprised 55 patients (7.5%). There were no significant differences of age, gender, hypertension, diabetes mellitus, history of heart failure, history of stroke, CHADS₂Vasc score, PAF, renal function, plasma BNP level and echocardiographic parameters (LVDd, LVDs, LVEF and LAD) between the 2 groups. Incidence of AF/AT recurrence after PVI was significantly higher in CRBBB group than no-CRBBB group (Figure). CRBBB was an independently and significantly associated with late recurrence of AF/AT after PVI by multivariate Cox analysis (hazard ratio: 1.923, 95% CI: 1.190–2.961, $p=0.009$) in addition to female ($p<0.001$), no-PAF ($p=0.005$) and left atrial diameter ($p=0.042$).

Conclusion: CRBBB may be a strong predictor of AF/AT late recurrence after PVI.

