# Idiopathic premature ventricular contractions from the outflow tract display an underlying substrate that can be unmasked by a Brugada electrocardiographic pattern at high right precordial leads

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## Abstract

Background and aims: Cardiac magnetic resonance (CMR), has shown conflicting data regarding existence of structural abnormalities in patients with idiopathic premature ventricular contractions (PVCs) from the right ventricular outflow tract (RVOT). Our aim was to evaluate the prevalence of low voltage areas (LVA) in the RVOT of patients with PVCS from the outflow tract and in a control group. Secondly, assess for the presence of a non-invasive electrocardiographic (ECG) marker. Methods: 56 consecutive patients, 45 with frequent PVCs (>10000/24h) LBBB, vertical axis, negative in aVL and 11 subjects without PVCs. Arrhythmogenic right ventricular cardiomyopathy was ruled out in all patients. An ECG was performed with V1-V2 at the 2nd intercostal space and the presence of a Brugada ECG pattern (BrP) was assessed. Bipolar voltage map of the RVOT was performed in sinus rhythm (0.5 mV-1.5 mV colour display). Areas with electrograms < 1.5 mV represented the LVA. We tested for the association between high BrP and LVA. Results: None of the patients in the control group had BrP or LVA. In the PVC group, 29 patients (64%) had type 2 BrP and 28 (62%) had LVAs. LVAs were more frequent in patients with BrP; 93% versus 4%, p<0.0001, which was associated with LVA, OR (95% CI): 202.50 (16.92- 2423), p<0.0001. Conclusions: LVAs were frequently present in the RVOT of patients with idiopathic PVCs. They were absent in controls and can be unmasked by the presence of BrP in high right precordial leads.

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