Objective: Ventricular extrasystoles (VEs) originating from the right ventricular outflow tract (RVOT) are considered benign, but sometimes lead to sudden cardiac death due to polymorphic ventricular tachycardia or ventricular fibrillation (PVT/VF). Previous case reports suggested that patients with a malignant form of RVOT-VE exhibited a left bundle-branch block morphology and positive deflection in lead I. We assessed the hypothesis that patients with a malignant form of RVOT-VE may have ventricular repolarization instability.

Methods and Results: We studied 3 patients with a malignant form of RVOT-VE (age, 34 ± 17 years, 2 males) and compared them to 40 control subjects without structural heart disease. All patients underwent high-resolution digital Holter recording (ela medical) and we determined the maximum value of the beat-to-beat T-wave variability (TAV). The patients with a malignant form of RVOT-VE had a higher maximum value of the TAV than the controls (max TAV: 69 ± 9 μV vs. 20 ± 7 μV, p<0.001). During the follow-up, two males experienced shock deliveries for VF by an implantable cardioverter-defibrillator (ICD). The remaining one female had survived after a radiofrequency catheter ablation and no ICD was implanted.

Conclusions: Our results suggest that patients with a malignant form of RVOT-VE may have a ventricular repolarization instability.

Keyword: ventricular arrhythmia