Substrate Modification of Ventricular Tachyarrhythmias in Acromegalic Cardiomyopathy

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Introduction: Acromegaly may present a variety of cardiac arrhythmia with disease progression. Complex ventricular ectopy is common in acromegaly patient; however, sustained ventricular tachycardia (VT) is rare. Late diagnosis of acromegaly may lead to amyloidotic cardiomyopathy (CM) and sequential lethal ventricular arrhythmia (VA) without fully reversible even after pituitary surgery. We report a patient undergoing ablation of drug refractory VT originating from perimiteal epicardium in acromegalic CM.

Methods:

Result: A 67-years-old man presented typical acromegaly appearance received previously successful pituitary gland surgery. He visited for medical help due to monomorphic VT occurred in April 2015. Echocardiography showed concentric left ventricular (LV) hypertrophy, right ventricular thickening, normal LV systolic function and dilated atria; the hallmark of acromegalic CM. The patient experienced multiple VT episodes in the following 2 years treatment period (figure A) although all episodes could be terminated by implantable cardioverter defibrillator (ICD) anti-tachycardia pacing (ATP) therapies (figure B). Due to the patient presented increasing VT burden, he underwent electrophysiological (EP) study. Programmed stimulation during EP study induced ventricular fibrillation (VF) and multiple monomorphic VT. The electroanatomic substrate mapping was created by Ensite PrecisionTM, (St Jude Medical, St Paul, MN) using a duodecapolar catheter. Biventricular endocardium demonstrated normal bipolar voltage mapping, while unipolar voltage mapping delineated potential abnormal substrates surrounding basal posterior perimetal areas. Epicardial substrate modification by eliminating the fragmented and delayed potentials rendered the VT/VF non-inducible (figure C). During 12 months followed-up period, the patient has free of VA recurrence.

Conclusion: Detailing cardiovascular (CV) system assessment in acromegaly patients is recommended to prevent and early detect acromegalic CM. Acromegalic CM may not be fully reverse even after treatment and the arrhythmia issues should be focused. The present case highlighted that late-onset VT/VF may occur in acromegalic CM and substrate-based ablation strategy can effectively prevent VA recurrence.