

Neuromodulatory Provocation Test to Unmask Ventricular Fibrillation Triggering Ectopic Beat in Early Repolarization Syndrome : Implications for Diagnosis and Ablation

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[INTRODUCTION] In contrast to Brugada syndrome whereby sodium-channel blockade can unmask precordial leads ST segment elevation, to date there is no provocation test that can reveal ST segment elevation in early repolarization syndrome (ERS) . We report 2 cases of incessant ventricular fibrillation (VF) , initially diagnosed as idiopathic VF (IVF) , in whom neuromodulatory test could accentuate ST segment elevation in one patient and VF-triggering ectopic beat in another. **[METHODS]** N/A. **[RESULTS]** **Case 1** : A 51-year-old male underwent implantable cardioverter defibrillator (ICD) implantation for what was called idiopathic ventricular fibrillation (IVF) . After ICD implantation, he had developed very frequent VF episodes within one year and was re-admitted for evaluation. After obtaining a written informed consent, and to sodium-channel blockade was performed elucidate the cause of recurrent VF, but it did not reveal Brugada ECG changes. Intravenous administration of isoproterenol (10 µg/10 min) , propranolol (10 mg/5 min) , epinephrine (50 µg/10 min) , and atropine (2 mg/1 min) was performed. Before atropine administration, neither PVCs nor inferior J-wave augmentation were observed. However, after atropine administration, VF was triggered by frequent PVCs with right bundle branch block (RBBB) -superior axis (SA) configuration was which lead to an electrical storm shortly after completing the test. **Case 2** : A 53 year-old female underwent ICD implantation for IVF with document VF triggering ectopic

Keywords

- Ventricular fibrillation
- Early repolarization
- Neuromodulatory provocation test

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beat. The patient had normal QT interval and sodium-channel blockade did not reveal Brugada ECG. She continued to develop recurrent VF episodes despite using 3 antiarrhythmic drugs, and was referred for catheter ablation. Because VF-triggering ectopic beat was not observed in the EP lab, adenosine, phenylephrine, and isoproterenol were infused intravenously; however, VF-triggering ectopic beat could be unmasked by atropine injection which induced inferior lead-ST elevation and RBBB-SA ectopic beat that led to VF repetitively.