

## TYPE II BRUGADA SYNDROME SYNCOPAL SEIZURE: A DIAGNOSTIC DILEMMA

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**TYPE II BRUGADA SYNDROME SYNCOPAL SEIZURE: A DIAGNOSTIC DILEMMA**

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**Background:** Type II Brugada syndrome is a rare entity that can present as syncope, sudden cardiac death, palpitations and nocturnal agonal respiration as a manifestation of ventricular tachyarrhythmia. Although patients can experience a syncopal seizure, the dilemma between epileptic seizure and syncopal seizure due to type II Brugada syndrome is rarely encountered and reported in literature.

**Case:** 45 years old caucasian male with history of bicuspid aortic valve and no family history of sudden cardiac death or arrhythmia presented with generalized body shaking, unresponsiveness, mouth frothing and rolling of eyes for 4 minutes during sleep followed by 30 minutes of confusion witnessed by his wife. EKG revealed type II Brugada pattern and initial labs were normal. Subsequently, a treadmill nuclear stress test had no perfusion defect and transthoracic echocardiogram was normal except for moderate aortic stenosis with bicuspid aortic valve. MRI brain was normal and EEG showed nonspecific focal slowing in the left temporal region without discrete epileptiform discharges.

**Decision-making:** Although there was no other supporting evidence besides a type II Brugada EKG pattern, the suspicion for Brugada syndrome due to the clinical presentation, absence of provocative factors and non-diagnostic EEG was still high. Therefore it was decided to proceed with a procainamide challenge EP study that failed to induce type I Brugada pattern or ventricular tachycardia (VT). Hence, an implantable loop recorder (ILR) was placed to capture the presence of any ventricular arrhythmia and any concomitant symptoms. This proved to be helpful as patient's next pre-syncopal episode 6 weeks later strongly correlated with the self terminating 8 seconds VT on the ILR and was unlikely to be an epileptic seizure prodrome. Patient thereafter successfully underwent a subcutaneous ICD placement.

**Conclusion:** In cases where there is no supporting evidence for Brugada syndrome and epileptic seizure stands out as a strong differential, a type II Brugada pattern EKG should be pursued carefully and if clinically warranted the utility of EP study and ILR can be tremendous in diagnosing a life threatening diagnosis of Brugada syndrome.