Diagnostic and Therapeutic Management for Recurrent Syncope Presented in Patient with Suspected Brugada Type 3 and Sinus Pause (Case Report)

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**Introduction:** Brugada syndrome and SA node dysfunction are rhythm dysfunctions which resulting in recurrent syncope as the main symptom, through reducing excitability and impairing conduction of impulses generated in the sinus node. This case report intends to describe the diagnostic and therapeutic management for the patient presented with such condition.

**Methods:** A 35 y.o Male presented with recurrent syncope, three times a week, since 2 weeks ago. He had a familial history of Sudden Cardiac Death (SCD), his uncle died at age 50 y.o because of SCD. On physical examination: BP(110/70mmHg), Pulse(60 BPM), RR(20x/minute), others physical examinations were unremarkable. Electrocardiography examination showed: bradycardia with sinus pause <3s, and suspected Type 3 Brugada. Chest X-ray showed no abnormalities. After the patient stabilized in ER, he was referred for further examination.

**Result:** Both Brugada syndrome and SA dysfunction may occur concomitantly through mutation in SCN5A gene. Mutations in SCN5A does not only affect cardiac Inward Natrium channel but also Calcium channel, coupled with the negative shift in the voltage-dependence of inactivation caused a prolongation of Action Potential Depolarization(APD) and a slowing of phase 4, which together are responsible for the Brugada syndrome, bradycardia, and sinus node dysfunction. Diagnostic and therapeutic management for our patient should be start with Ajmaline Test, for unmasking Brugada type 1. Positive Ajmaline test result with history of syncope means the need of Implantable Cardioverter Defibrillator (ICD) implantation. While negative Ajmaline test result leans on SA dysfunction as the cause of syncope, and might be a candidate for Percutaneous Pacemaker (PPM) therapy. Since the sinus pause that happened in the patient is <3s, even though the patient is symptomatic, the PPM therapy can be delayed and the patient might be put on Holter monitoring for further study to show episode of >3 sec sinus pause or aborted VT, if any.

**Conclusion:** Diagnostic and therapeutic strategy for the recurrent syncope in patient with suspected Brugada type 3 and SA node dysfunction may depend on Ajmaline test. ICD implantation is obligated therapy if Ajmaline test resulted positive. PPM and Holter monitoring therapy is choosen depend on the sinus pause duration.