

Paroxysmal Atrial Fibrillation in a 27-year old with Brugada Syndrome and an Implantable Cardioverter Defibrillator

Saima Shikari DO, Heather H. Hesselton PharmD, BCCP, Kristen Ellison, MD, Joseph Souza, MD, FHRS, Aaron B Hesselton, MD, BSEE, FACC, FHRS, CCDS

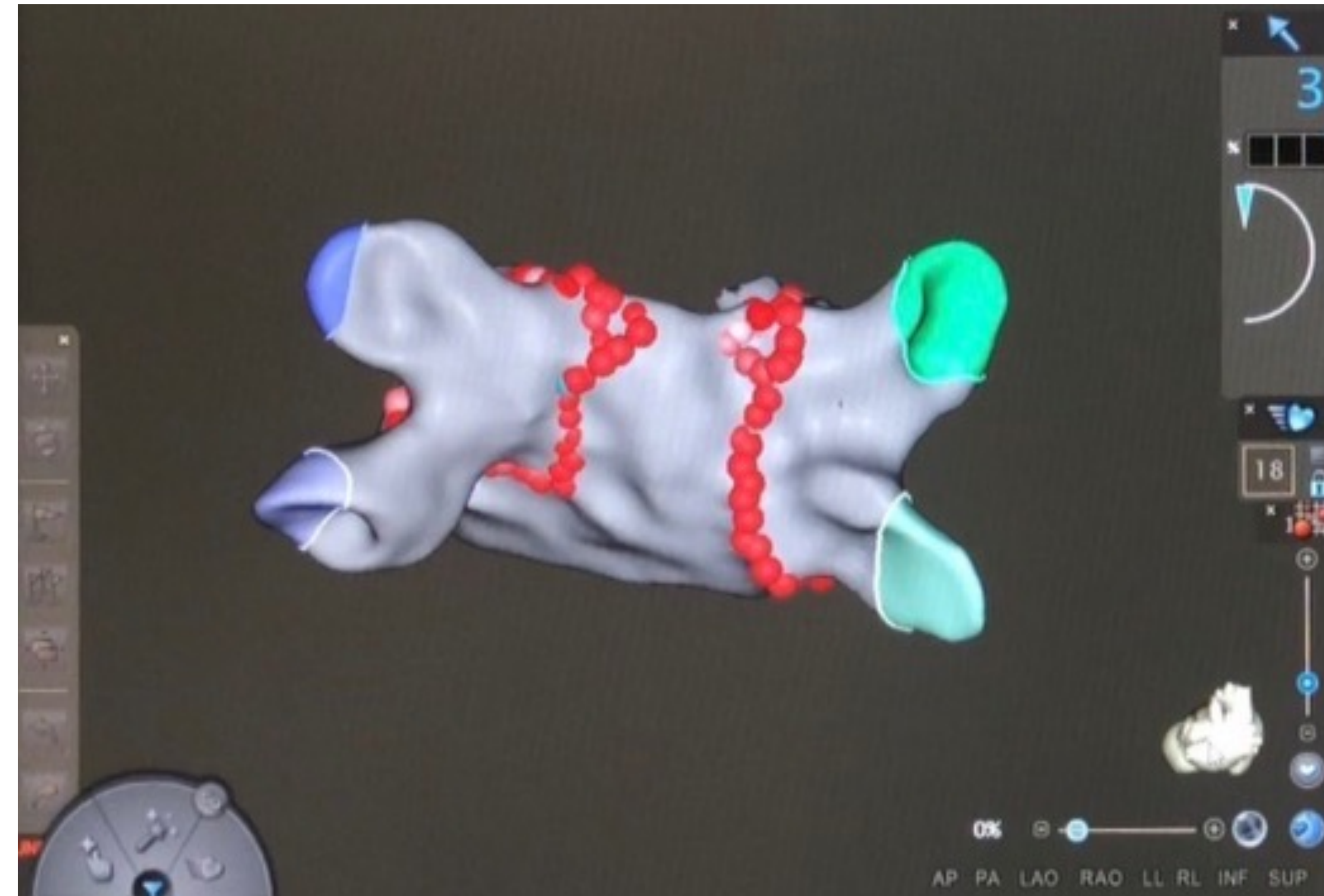
Introduction

- ❖ Traditionally, cause of death with Brugada Syndrome has been attributed to ventricular arrhythmia.
- ❖ Recent studies show these patients are also predisposed to atrial fibrillation
- ❖ Treatment of atrial fibrillation in this population is complicated by incidence of inappropriate ICD discharge in the setting of elevated heart rates.

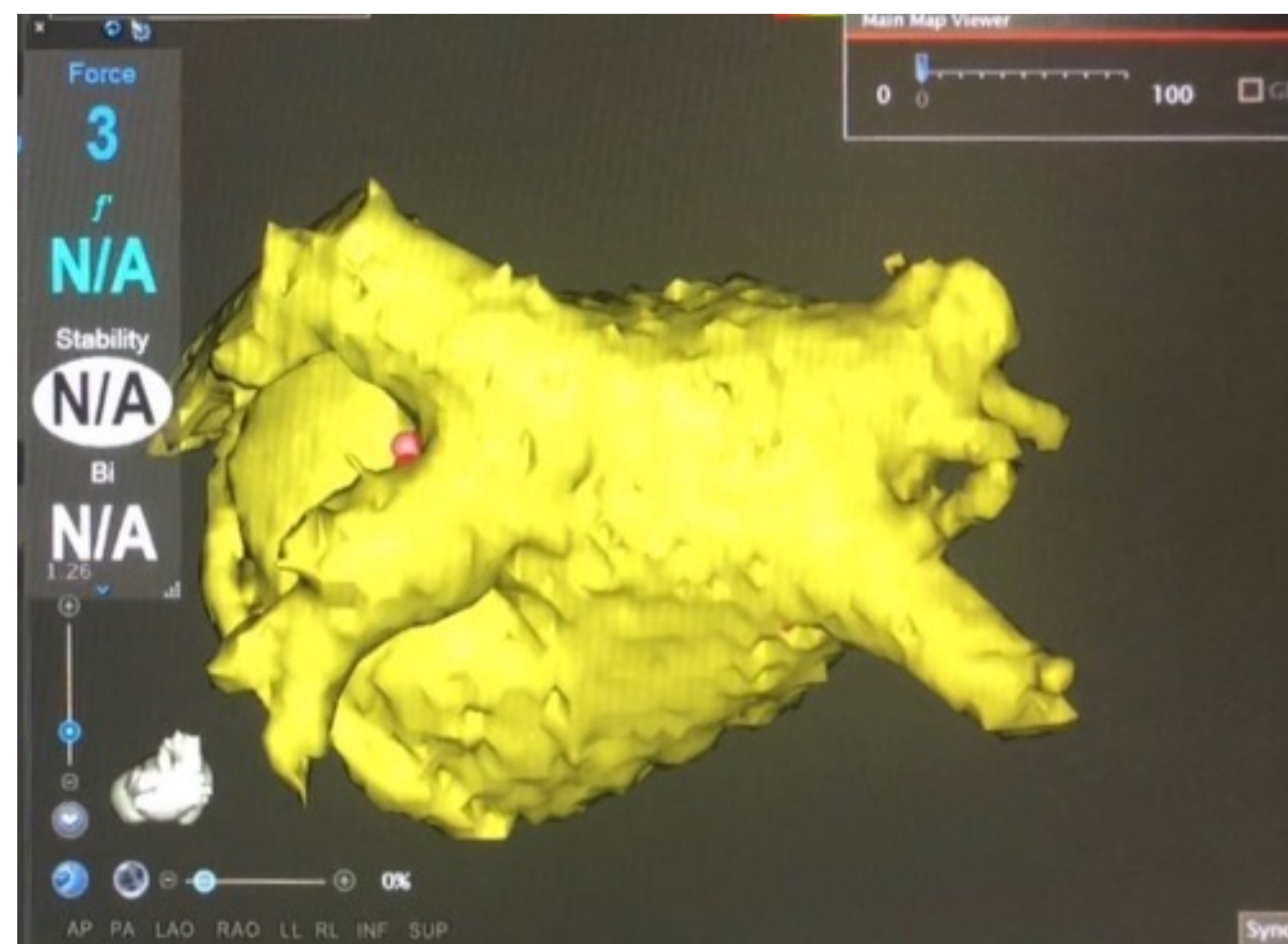
Case Presentation

27yo M with a past medical history significant for syncopal episodes secondary to Brugada Syndrome Type I status post dual chamber ICD who presented with palpitations.

- ❖ In the emergency room, found to have atrial fibrillation with rapid ventricular response with heart rate 180s
- ❖ Labs significant for hypokalemia 3.1 and hypomagnesemia 1.7
- ❖ Treated with electrolyte repletion, IV metoprolol 5mg and PO metoprolol 25mg with conversion to normal sinus rhythm.
- ❖ Seen by EP, started on diltiazem and discharged home.
- ❖ On outpatient follow up, continued to have palpitations, confirmed to be atrial fibrillation via ICD interrogation.
- ❖ Decision made to undergo PVI ablation. Since ablation patient has had no episodes of atrial fibrillation.



Figures 1 and 2: Ablation Maps



Discussion

- ❖ Current gold standard of care for patients with Brugada Syndrome is ICD placement for prevention of sudden cardiac death due to ventricular arrhythmia.
- ❖ Standard of care treatment of atrial fibrillation for these patients is still evolving.
- ❖ Treatment of this specific subset is important as literature shows patients with both Brugada Syndrome and atrial fibrillation have a more malignant course with higher incidence of stroke and sudden cardiac death despite low CHADsVASC scores.
- ❖ Majority of these patients who are taken for PVI ablation do not have recurrence of atrial fibrillation.
- ❖ We propose that PVI ablation becomes part of the mainstay of therapy in Brugada Syndrome patients with atrial fibrillation as it carries the benefit of preventing sudden cardiac death in this high-risk group of patients.

References

- Francis, Johnson, and Charles Antzelevitch. "Atrial Fibrillation and Brugada Syndrome." *Journal of the American College of Cardiology* 51.12 (2008): 1149–1153. Web.
- Kewcharoen, Jakrin et al. "Atrial Fibrillation and Risk of Major Arrhythmic Events in Brugada Syndrome: A Meta-analysis." *Annals of noninvasive electrocardiology* 24.6 (2019): e12676–n/a. Web.
- Kim, Andrew S., and Linda Huffer. "Atrial Fibrillation and Brugada Syndrome." *Cardiac electrophysiology clinics* 4.2 (2012): 249–257. Web.
- Kitamura, Takeshi et al. "Long-Term Efficacy of Catheter Ablation for Paroxysmal Atrial Fibrillation in Patients with Brugada Syndrome and an Implantable Cardioverter Defibrillator to Prevent Inappropriate Shock Therapy." *Heart rhythm* 13.7 (2016): 1455–1459. Web.
- Mugnai, Giacomo et al. "Long-Term Outcome of Pulmonary Vein Isolation in Patients with Paroxysmal Atrial Fibrillation and Brugada Syndrome." *Europace (London, England)* 20.3 (2018): 548–554. Web.
- Sairaku, Akinori et al. "Ablation of Atrial Fibrillation in Brugada Syndrome Patients with an Implantable Cardioverter Defibrillator to Prevent Inappropriate Shocks Resulting from Rapid Atrial Fibrillation." *International journal of cardiology* 168.6 (2013): 5273–5276. Web.
- Vlachos, Konstantinos et al. "Atrial Fibrillation in Brugada Syndrome: Current Perspectives." *Journal of cardiovascular electrophysiology* 31.4 (2020): 975–984. Web.