Local Signal to Guide Ablation in Almost Simultaneous Left and Right Ventricle Activation Time in a Patient with VT Storm

Introduction: Recurrent episodes of ventricular tachycardia (VT) in patients with structural heart disease are associated with increased mortality and morbidity, despite the life-saving benefits of implantable cardiac defibrillators. Reducing implantable cardiac defibrillator therapies is important, as recurrent shocks can cause increased myocardial damage and stunning, despite the conversion of VT/VF. Catheter ablation has emerged as a potential therapeutic option either for primary or secondary prevention of these arrhythmias, particularly in post-myocardial infarction cases where the substrate is well defined.

Methods: N/A.

Result: A 60-year-old man with three-vessel coronary CAD on ICD, CHF low EF (28.8 %) with LV apical thrombus, history of VT/VF on ICD, acute on CKD, and pre-diabetes, experienced VT storm and multiple appropriate ICD shocks in 24 hours. VT storm with multiple appropriate ICD shocks during continuous monitoring. (Figure B) Being positive in V1, we map the RV first, showing earliest site to be at septal RV, but this earliest LAT did not yield good (>90%) pace-mapping. LV mapping was done, showing a near simultaneous earliest activation in the septal LV corresponding to the RV earliest site. (Figure C) Local signal in the LV side showed fragmented low potential whereas in the RV side, it was not fragmented. (Figure D) Ablation was done in the LV side during VT and terminates the VT within 10 seconds. After ablation to the surrounding LAVA, no VT inducible using RV S1S3. (Figure E) In the last 1 month, the patient only experienced VT 1 time and terminated by ATP. (Figure F)

Conclusion: When we are faced with two equally possible site for ablation, looking for low, fragmented local signal could help to decide which site is better for ablation.