Electromagnetic Interference during Radio Frequency Ablation Near Lead: A Case Report

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Introduction: The number of patients with Cardiac Implanted Electronic Devices (CIED) has increased. As implantation CIED increases, the risk of arrhythmias in patient also increases. Eventually, some of these patients might need catheter ablation for cardiac arrhythmia. Radiofrequency Ablation (RFA) is the important treatments in arrhythmias patients. Electromagnetic Interference (EMI) due to ablation is an important phenomenon to be understood by Electrophysiology (EP) personals. We describe a case of pacemaker patient underwent ablation that develops EMI. It is also important for the EP personals to understand possible interactions between pacemaker and RFA.

Methods: N/A.

Result: A 39-year-old woman with of corrected Tetralogy of Fallot (ToF) on dual chamber pacemaker for a year was referred to arrhythmia division due to atrial flutter. The electrocardiogram (ECG) showed Atrial Flutter with positive flutter wave in II, III and AVF and negative in V1. Atrial rate was 270 bpm and Ventricular rate was 99 bpm. She planned to proceed with electrophysiology study (EPS) and Radio Frequency ablation (RFA) with 3D mapping. We proceed to do line ablation in the reentrant circuit and cavitricuspid isthmus. Bidirectional block of CTI cannot be confirmed due to extensive low voltage area. Flutter wave terminated with 35 watt 50°C ablation in posteroseptal RA using 8 mm non-irrigated catheter. Atrial flutter cannot be induced after burst pacing and S1S2 in RA. During ablation using 8 mm non-irrigating at CTI, the pacemaker suddenly develop asynchronous DOO pacing mode (Figure 1). The fluoroscopy showed the position of ablation catheter and PPM lead. (Figure 2).

Conclusion: Asynchronous pacing may occur during catheter ablation near (<2 mm) of PPM leads. It cannot be prevented by programming, but should this phenomenon occurs urge the need to reprogram after ablation.