Comparison of Ventricular Tachyarrhythmia Characteristics in Patients with Non-Ischaemic vs. Ischaemic Cardiomyopathy with Defibrillators

Simon Stolcman
Raymond Tjong
DeepChandh Raja
Melissa McLean
Michelle McAlpin
Walter Abhayaratna
Muayad Alasady
Rajeev Pathak

Introduction: The benefit of an implantable cardioverter-defibrillator (ICD) in significantly reducing the risk of sudden cardiac death in patients with both ischaemic (ICM) and non-ischaemic cardiomyopathy (NICM) has been well demonstrated. In addition, catheter ablation is being increasingly performed as a treatment to prevent recurrent ICD therapies in patients with NICM. The aim of our study was to investigate the characteristics of ventricular tachycardias (VT) between ICM and NICM patients who received ICD therapy.

Methods: Over a 2 year period, fifty-eight patients (male = 50; age = 66 ± 16 years; ICM = 26, NICM = 32) presented to our institution after receiving device therapy (anti-tachycardia pacing (ATP) or shock) from their ICD. ICD stored data of ICM and NICM patients were utilized. The cycle length of the tachyarrhythmia (TCL) requiring therapy and time from implant to first presentation were analysed. VT/VF occurrences and electrical storm (ES) events were analysed.

Result: Between August 2015 and August 2017, 158 patients had an ICD implanted (74 NICM and 78 ICM). Baseline characteristics including mean ejection fraction (EF) and the mean duration of follow up in the two groups were similar. Mean follow up duration was 4.3 ± 3.5 years. 32 presented with therapy (17 ATP and 15 Shock) in NICM and 26 in ICM group. 4 in ICM and 4 in NICM presented with VT storm. TCL was significantly faster in NICM patients versus ICM patients (272 ± 48ms vs. 307 ± 47ms; p = 0.01). There was no significant difference in the time from implant to first presentation between NICM vs ICM groups (27 ± 24 months vs. 25 ± 25 months; p = 0.83).

Conclusion: NICM and ICM patients had a same rate of ICD therapy for primary prevention of SCD in everyday practice. NICM patients had a faster TCL compared to ICM patients. There was no difference between groups in terms of time from implant to first presentation. These findings have implications for the approach to catheter ablation and appropriate programming of ICD therapies in these patients.