Rate of Appropriate and Inappropriate Therapy in Patients with Non-Ischaemic Cardiomyopathy: A Comparison Between Primary and Secondary Prevention Implantable Cardioverter-Defibrillator Patients

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

**Introduction**: Implantable cardioverter defibrillators (ICDs) have proved their favourable outcomes on survival in selected patients with cardiomyopathy. However, recent studies have questioned the protective role of ICD in non-ischemic cardiomyopathy (NICM) for primary prevention. The aim of our study was to investigate the differences in ICD therapy in primary and secondary prevention ICD patients.

**Methods**: Between 2014-2017, 182 patients (male = 117; age = 63 ± 17 years, female = 65; age = 63 ± 17 years) had ICD for NICM. The patients were divided into primary and secondary prevention groups based on the indication for the device implantation. 97 was for primary prevention and 85 for secondary prevention. The patients left ventricular ejection fractions (LVEF) were determined by transthoracic echocardiogram. ICD stored data of ICM and NICM patients were utilized. The cumulative first shock rate, type and appropriateness of therapy were determined.

**Result**: There was no significant difference in clinical characteristics between the primary prevention group and secondary prevention group. The mean follow-up was 30 months after ICD implantation. The overall ICD therapy rate was about 19%. The cumulative probability of a first appropriate shock was higher in the secondary prevention group (p=0.03). Overall, ICD therapy was significantly more frequent in the secondary prevention vs. primary prevention group (25% vs 19%, p=0.02). Inappropriate device therapy rate was insignificantly higher in primary prevention group (23% vs 19%, P=NS).

**Conclusion**: Our study found that rate of appropriate device therapy was significantly greater in secondary prevention group. Inappropriate device therapy was significantly high in both groups. Due to the inherent risks associated with ICD implantation, generator changes and inappropriate therapy, further risk stratification is required for risk of sudden cardiac death.