Utilization of Implantable Cardioverter Defibrillators in Heart Failure with Reduced Ejection Fraction Patients in the Specialized Multidisciplinary Outpatient Clinic

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Introduction: Prophylactic insertion of implantable cardioverter defibrillators (ICD) in patients with heart failure (HF) and reduced ejection fraction is lifesaving. Around one fifth of patients in randomized HF trials had ICD implanted. However, ICD utilization rate in the multidisciplinary clinics in Thailand is poorly defined. The aim of this study is to determine the rate of ICD implantation among patients with HF reduced ejection fraction in a specialized multidisciplinary clinic.

Methods: We conducted a cross-sectional study of 344 patients with chronic heart failure treated in the multidisciplinary outpatient heart failure clinic in King Chulalongkorn Memorial Hospital between 2015 and 2019. Patients with left ventricular ejection fraction (LVEF) \( \leq \) 35% at first visit and had minimal follow-up period of 12 months were enrolled in the study. ICD-eligibility (LVEF \( \leq \) 35% and New York Heart Association (NYHA) Class II-III, or LVEF \( \leq \)30% and NYHA Class I) and utilization were reviewed through medical records during outpatient visits at 12-month follow-up. T-test and Chi-square test or Fisher's exact test were used.

Result: A total of 84 ICD-eligible patients enrolled in this study had mean age 51.8 ± 13.5 years, LVEF 24.5 ± 6.74% and 78.6% were men. ICDs were implanted in 51 (60.7%) patients. There was no statistical difference between ICD group and non-ICD group in age (53.2 ±14.1 vs 49.7 ±12.5; \( p = 0.58 \)), male gender (82.4% vs 72.7%; \( p = 0.29 \)), NYHA Class II/III ( 94.1% vs 90.3%; \( p = 0.67 \)), coronary artery disease ( 47.1% vs 34.4 %, \( p = 0.26 \) ) and comorbidities including diabetes mellitus (15.7% vs 25.0%; \( p = 0.30 \)), hypertension ( 27.5% vs 34.4%; \( p = 0.50 \)), cerebrovascular disease or peripheral arterial disease (7.80% vs 3.10%; \( p = 0.64 \) ), dyslipidemia (31.4% vs 28.1%; \( p = 0.75 \)) and chronic liver disease (8.30% vs 22.2%; \( p = 0.21 \)).

Conclusion: From our multidisciplinary clinic setting, the rate of ICD utilization among heart failure with reduced ejection fraction patients who were eligible for ICD is over 60%. However, to improve utilization rates, further research is needed to explore the reasons behind higher proportion of ICD utilization in the multidisciplinary clinic compared to a general outpatient clinic.