An Overview of Clinical Outcomes in Implantable Cardioverter Defibrillator Implantation in Thailand: A Single-Center Experience

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**Introduction**: The implantable cardioverter defibrillator (ICD) is an important tool to prevent sudden cardiac death. There was long experience of ICD implantation in Thailand, but the incidence of ICD shocks in Thai patients has never been studied.

**Methods**: This study was conducted in a tertiary referral center. The study protocol was approved by the University Institutional Review Board (IRB). Between January 1, 2002 and December 31, 2017, 310 consecutive patients (79% men, mean age 55 ± 18 years) with ICD implantation at King Chulalongkorn Memorial Hospital were evaluated.

**Result**: From 310 patients, the ICDs were implanted for primary prevention in 117 (38%) patients and for secondary prevention in 193 (62%) patients, single-chamber ICDs were implanted in 234 (75%) patients and dual-chamber ICDs were implanted in 76 (25%) patients. Over a median follow-up of 30 months, 112 (36%) patients had experienced of ICD therapy which were appropriated therapy in 80 (26%) patients, and 98 (32%) patients had experienced of ICD shock which were appropriate shock in 66 (21%) patients. The incidence of ICD therapy and shock were higher in the secondary prevention patients compared with the primary prevention patients (P=0.01 and P=0.01, respectively). Inappropriate ICD shock occurred in 46 (15%) patients. No difference of incidence of inappropriate ICD shock between single and dual chamber groups (P=0.36). By multivariate analysis, age ≤ 60 years [HR= 4.01 (95% CI=1.68 to 9.61); P = 0.002], new onset AF [HR= 6.22 (95% CI=3.62 to 11.83); P <0.001], and new onset SVT [HR = 3.53 (95% CI=1.95 to 6.40); P < 0.001] were independent predictors of inappropriate ICD shocks.

**Conclusion**: This was the first study from Thailand to report outcomes in an ICD cohort. A quarter of patients in this study received appropriate ICD therapy, suggesting significant benefit of ICD. Although, supraventricular tachyarrhythmia was the main cause of inappropriate ICD shock, the benefit of dual-chamber ICD over single-chamber ICD in terms of shock appropriateness was not observed in this study.