INFLUENCE OF CHRONIC KIDNEY DISEASE ON THE EFFICACY OF PRIMARY PREVENTION IMPLANTABLE CARDIOVERTER DEFIBRILLATORS: A META-ANALYSIS OF THREE RANDOMIZED TRIALS

Poster Contributions
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Authors: Patrick Hank Pun, Sana M. Al-Khatib, Rex Edwards, Gust Bardy, J. Thomas Bigger, Alfred Buxton, Arthur Moss, Kerry Lee, Richard Steinmann, Paul Dorian, Al Hallstrom, Riccardo Cappato, Alan Kadish, Peter Kudenchuk, Daniel Mark, Lurdes YT Inoue, Gillian D. Sanders, Duke Clinical Research Institute, Durham, NC, USA, University of Washington, Seattle, WA, USA

Background: The benefit of primary prevention ICD among patients with CKD is uncertain. We conducted a meta analysis using patient-level data from 3 randomized controlled trials of ICDs to assess whether estimated glomerular filtration rate (eGFR) modifies the association between ICD treatment and mortality, rehospitalizations, and complications.

Methods: We included data from the Multicenter Automatic Defibrillator Implantation Trial I (MADIT I), MADIT II, and the Sudden Cardiac Death in Heart Failure Trial (SCD-HeFT). Inclusion criteria were symptomatic heart failure, a left ventricular ejection fraction of < 35%, and the availability of data on important covariates. We adjusted for covariates using Bayesian Weibull survival and logistic regression models to combine trial data.

Results: The study included 2,904 patients; 36.4% had at least stage 3 CKD with a mean eGFR of 45 ml/min. After adjustment for baseline differences, there was evidence that the survival benefit of ICDs in comparison to usual care depends on eGFR (Figure). We also found evidence that eGFR modifies the association between ICD therapy and complications, but we did not find evidence that it modifies the association with rehospitalizations.

Conclusions: Our meta analysis suggests that the efficacy of primary prevention ICD therapy on mortality and complications depends on eGFR. Uncertainty in our estimates, as shown by broad intervals, suggests additional trial data in patients with varying levels of eGFR could be of value.