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Assessment of Chronic Disease to Determine Appropriateness of Implantable Cardioverter-Defibrillator Therapy

Bilal M. Omery

Maharaj Singh

Randy S. Turkel

Robyn Shearer

Arshad Jahangir

M. Eyman Mortada

Jasbir S. Sra

Indrajit Choudhuri

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Journal of Patient-Centered Research and Reviews (JPCRR) is a peer-reviewed scientific journal whose mission is to communicate clinical and bench research findings, with the goal of improving the quality of human health, the care of the individual patient, and the care of populations.
BACKGROUND: Implantable cardioverter-defibrillator (ICD) therapy is considered appropriate when a patient is felt to have a reasonable expectation of 1-year survival. Chronic diseases have been estimated to be associated with greater than 10% annual mortality and may reduce benefits of ICD therapy. Frailty has been estimated to be associated with greater than 20% annual mortality and has been suggested to contraindicate ICD therapy.

PURPOSE: Determine a risk score that may identify patients in whom ICD implantation may not be appropriate.

METHODS: Patients who received an ICD for primary and secondary prevention from 2008 through 2013 at the Aurora Health Care network were studied retrospectively. Using Cox regression, a scoring system based on hazard ratios was devised to reflect risk associated with comorbidities. Survival was evaluated by Kaplan-Meier estimates.

RESULTS: The study cohort includes 1,558 patients (mean age: 61.3 years; 495 female). Comorbidities associated with mortality included in the risk score were need for hemodialysis, myocardial infarct within 3 months prior to ICD implantation, sustained monomorphic ventricular tachycardia, New York Heart Association functional class III, age greater than 70 years, intraventricular conduction delay, diabetes mellitus, and chronic lung disease. A risk score of greater than or equal to 6 was associated with 10% mortality at 1 year and more than 20% mortality by 2 years.

CONCLUSION: Chronic comorbidities have a cumulative effect on mortality. Using our scoring system, patients with a risk score of 6 or greater have at least 10% mortality at 1 year and more than 20% mortality by 2 years.