

60th Annual Scientific Session & Expo

E15

JACC April 5, 2011

Volume 57, Issue 14



CARDIAC ARRHYTHMIAS

SINGLE VERSUS DUAL CHAMBER IMPLANTABLE CARDIOVERTER DEFIBRILLATORS: ARE SINGLE CHAMBER DEVICES REALLY OBSOLETE?

ACC Oral Contributions

Ernest N. Morial Convention Center, Room 238

Monday, April 04, 2011, 11:45 a.m.-Noon

Session Title: Device Prevention of Sudden Cardiac Death

Abstract Category: 29. Defibrillation/Implantable Antiarrhythmia Devices

Presentation Number: 909-7

Authors: *Akif A. Mohammed, Pradeep K. Bhat, Kyle Unsdorfer, Ottorino Costantini, Metro Health Medical Center, Cleveland, OH*

Background: National registry data shows the majority of implanted cardioverter defibrillators (ICD) are dual chamber devices (D-ICD). While D-ICDs are indicated in patients with concomitant pacing indications, whether to implant D-ICDs for the sole purpose of avoiding inappropriate shocks or a future upgrade procedure is equivocal. Given that D-ICDs may cause deleterious ventricular pacing, and given the problems with lead recalls, we hypothesized that in patients receiving an ICD, without a pacing indication, implanting single chamber defibrillator (S-ICD) will not result in frequent device upgrades and the clinical outcomes will be comparable to D-ICDs.

Methods: We conducted a retrospective chart review of patients with ICDs implanted from January 1996 to January 2009 with ≥ 18 months of follow-up. Demographic, clinical, ECG and echocardiographic data were compared between patients with S-ICDs and D-ICDs. Patients were followed until their last office visit. Patients who had an upgrade were censored at that point.

Results: Of the 924 patients with an ICD implant, 556 patients met inclusion criteria. 338/556 patients (61%) had S-ICDs. The mean duration of follow-up was 5 years in both groups. Patients with S-ICDs were younger (58 vs. 63 yrs; $p < 0.001$), had faster heart rate at implant, (77 vs. 62 bpm; $p = 0.01$) and had a shorter QRS duration (110 vs. 126 ms; $p < 0.001$). Although the mean ejection fraction (EF) was identical at baseline (0.30 in both groups), on last follow-up, S-ICD patients had a significant improvement in EF compared to D-ICD patients (0.37 vs. 0.31; $P < 0.001$). Only 37/338 (10%) patients needed an upgrade, 10 (3%) to a biventricular ICD. Importantly, hospitalization for heart failure were higher in patients with D-ICDs (36% vs. 24%, $p < 0.001$), while inappropriate therapy was identical in both groups (17% in S-ICDs vs. 18% in D-ICDs $p = NS$).

Conclusions: The majority of patients implanted with S-ICDs do not require an upgrade to a D-ICD and have similar rates of inappropriate therapy compared to patients with D-ICDs at a mean follow-up of 5 years. Since D-ICDs may lead to higher rate of hospitalizations for heart failure, S-ICD should be the device of choice in patients without pacing indications.