

CKD AND INCIDENCE OF ARRHYTHMIAS IN PATIENTS WITH INTERNAL CARDIAC DEFIBRILLATORS

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Epidemiological studies have shown a significant rise in the numbers of patients with CKD. However, there is a steep drop between stages III-V and those actually starting dialysis, which is attributed to the high mortality rate of this population. Furthermore, there is an undeniable link between kidney dysfunction and cardiovascular risk, including ventricular arrhythmias and sudden cardiac death. The purpose of this study was to study the association, if any, of decreasing estimated GFR (eGFR) in CKD with incidence of arrhythmias.

We performed a retrospective chart review of 235 patients, age > 18 years, who underwent first-time internal cardiac defibrillator (AICD) placement between January 2004 and December 2006, with a minimum follow up of one year. Demographic characteristics and MDRD GFR (using serum creatinine levels at the time of AICD implant) were recorded. eGFR was dichotomized as <30 or ≥ 30 ml/min, and was divided into 3 categories: <30, 30-60 and 61-90 ml/min. Outpatient and inpatient AICD interrogation reports were reviewed to determine occurrence of any subsequent shock, anti-tachycardia overdrive pacing (ATP), or other arrhythmia, as well as time to first shock.

eGFR of <30 ml/min was significantly associated with shock occurrence ($p=.048$ by chi-square) but not with ATP, or other arrhythmias such as Atrial Fibrillation/Flutter, SVT, NSVT, etc. Time to first shock (Cox analysis) also showed increased hazard of eGFR <30 ml/min, while adjusting for age and sex. No significant associations were found for eGFR categories 30-60 or 61-90 ml/min.

In summary, severely reduced renal function, defined as eGFR <30 ml/min, was associated with a significant increase in the incidence of AICD shocks, which might otherwise have been fatal arrhythmias.

	eGFR > 30	eGFR <30	P-Value	Hazard Ratio
% Pts with Shock	22.1% (N=47)	40.9% (N=9)	.048	2.2 (95% CI 1.1-4.5), $p=.03$