Long - Term Safety and Feasibility of ICD Programming to Reduce Shock Burden in Primary Prevention

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Aim: To evaluate whether strategically chosen detection and treatment parameters affect the incidence of device shock delivery and of among patients implanted with an ICD for primary prevention. The associations with the incidence of NSVT and various types of SVT's were evaluated as well. Background Previous studies have demonstrated that the utilization of strategic programming to reduce the burden of shock is both feasible and safe during medium-term follow up.
Methods: The study cohort comprised of 300 patients with ICD's of various manufacturers implanted between 2005-2009. The ICD's of 160 patients were programmed in a manner aimed to reduce the incidence of shocks (group 1). This strategy comprised of a VT monitoring zone for rates between 167 and 181 beats per minute, anti-tachycardia pacing for stable VT at rates between 182 and 250 beats per minute maintained for 30 beats and high energy shock delivery for rates above 250 beats per minute. SVT discrimination was enabled as well. The ICD's of the remaining 140 patients were programmed according to traditional parameters(group 2).
Results: Baseline characteristics were similar, and the average follow up was 3.5 years. Cox regression analysis showed that the occurrence of both appropriate and inappropriate shocks was significantly reduced for group 1 (3.8% Vs. 7.9%, $p=0.01$ and 1.3% Vs. 10%, $p<0.001$, respectively). The incidence of syncope was lower as well in group 1 (0.6% Vs. 5%,$p=0.001$). The incidence of NSVT was lower for group 1 patients (3.6% Vs. 15%, $p=0.004$), while no difference existed in SVT events. In accordance, a multivariate model showed that device programming conferred a 65% and 76% reduction in the incidence of appropriate and inappropriate shock deliveries, respectively.
Conclusions: Long-term follow up results of strategically chosen VT detection and therapy parameters show consistent efficacy in reducing shocks, as well excellent safety profile for a primary prevention patient population.