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Why Patients with Implantable Defibrillator are Frequently Hospitalized? A Long Term Follow-up Study

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Introduction: Rehospitalization of patients (pts) following implantable cardioverter defibrillator (ICD) implantation is an important factor affecting quality of life and cost effectiveness associated with this therapy.

Aim: To evaluate hospital readmission characteristics in pts with ICD.

Methods: we retrospectively studied hospital admission records of all the pts who underwent ICD implantation in our hospital from December 1996 to January 2000. Current vital status was assessed by 1/11/2008.

Results: Forty-eight consecutive pts were included in the study. Thirty-seven male, mean age at implantation 63±11 years, mean LVEF 30.8±9.4%, Coronary artery disease in 39 (81%) pts, NYHA class I, II, III in 2, 35, 11 pts, respectively. ICD implantation was for secondary prevention of symptomatic ventricular arrhythmia in all but one patient. No patient was lost to follow-up. There were 380 hospitalizations after initial ICD implantation. Five pts (11%) had no rehospitalizion, 7 pts had only one (15%), 20 pts (42%) had 2-10 and 16 pts (33%) had had more than 10 rehospitalization. The primary diagnosis for hospitalization was ventricular arrhythmia in 61 (16%), atrial arrhythmia in 8 (2%) inappropriate shock in 12 (3%), ICD replacement in 26 (7%), device complication in 14 (3.6%), cardiac non arrhythmic in 117 (31%) and non cardiac in 142 (37%). 28 pts (58%) had died 3-12 years after initial ICD implantation. In these pts, 5 had no rehospitalization, 7 pts had only one and 16 had more than one rehospitalization.

Conclusion: In our secondary prevention ICD pts, rehospitalization rate was high. However, most of the hospitalizations were unrelated to arrhythmia or ICD issues.

The Influence of Heart Failure Unit on the Volume of Electrophysiology Procedure

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Background: Although MADIT indication for primary prevention in patients with coronary artery disease and reduced left ventricular function is an established Class 1 indication for ICD implantation its implementation is referral dependant. The same is true for resynchronization therapy. The purpose of this study was to evaluate the influence of a new heart failure unit on these two electrophysiology procedures.

Methods: The number of ICD and CRT implantation during 6 years was evaluated using our ICD database. The number of electrophysiology studies and ICD implantation as a consequence was also evaluated.

Results: The Heart Failure Unit was opened in 2007. The data on the number of ICD and CRT implantation between 2003 and 2008 is summarized in the table:

Year	ICD	CRT	CRTD	CRTP	EP NSVT	EP Syncope
2003	57	2	0	2	18	10
2004	57	3	1	2	12	10
2005	44	8	4	4	6	14
2006	50	1	1	0	5	17
2007	**66**	**17**	**17**	**0**	**11**	**12**
2008	**114***	**39***	**31***	**8***	**31***	**3**

Significant increase ($p>0.0001$)

There is significant increase in the volume of ICD, CRT and MADIT indication EPS in 2007 and 2008 parallel with the opening of the Heart Failure Center.

Conclusions: Organized and systematic referral of patients with heart failure and non-sustained VT to electrophysiology study and for CRTD implantation increased significantly the ICD and CRT implantation. These procedures are referral dependent.

The Impact of Combined Resynchronization and Implantable Defibrillator Therapy vs. Stand Alone Implantable Defibrillator on Medical Services Utilization and Quality of Life: The Patients' View

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Background and objectives: Implantable cardioverter-defibrillator (ICD) implantation with or without cardiac resynchronization therapy (CRT) reduces mortality and has some impact on quality of life (QOL) and medical resources utilization. Our aim was to evaluate patients' subjective view regarding the influence of ICD or ICD-CRT implantation on utilization of medical services and QOL.

Methods: patients who underwent implantation of ICD or ICD-CRT in the cardiology department of Barzilai Medical Center between 1.1.2006 to 30.04.2006 were asked to fill-out a phone-questionnaire intended to evaluate quality of life and utilization of medical services throughout one year prior to and one year following the implantation

Results: Ninety four patients participated in our study (ICD-CRT=62, ICD=32). Mean age 67.7±9.7, 77% men. Mean EF 25.1% ± 8%; Mean NYHA FC = 2.9 ± 0.4. ICD pts reported a 57% reduction in hospital admissions following implantation (2.7±3.5 vs. 1.2±1.9, respectively P=0.038). However no statistically significant difference was found in the number of visits to the family physician (14.7+13.7 vs. 15.3+14.8 respectively p=0.8). The ICD-CRT group reported a decrease of 52% in the mean number of admissions (2.3±3 vs. 1.1±1.9, respectively p=0.009) and as well as a 20% decrease in the number of visits to their family physician (16.9±16.2 vs. 13.5±10.4, respectively p<0.001) following implantation. Mean QOL score was significantly higher in both groups following implantation (P<0.001).

Conclusions: ICD and ICD-CRT implanted patients report a reduction in number of hospital admissions and improvement in QOL following implantation. ICD-CRT patients reported a reduction in number of visits to the family physician.