

## **Outcome of Patients with Advanced Heart Failure who Receive Device-Based Therapy for Primary Prevention of Sudden Cardiac Death: Insights from the Israeli ICD Registry**

**Mahmoud Suleiman**<sup>1</sup>, Guy Amit<sup>2</sup>, Nimer Samniah<sup>3</sup>, Alexander Pekar<sup>4</sup>, Shlomit Ben-Zvi<sup>6</sup>, Raphael Rosso<sup>5</sup>, Natalie Gavriellov-Yusim<sup>6</sup>, Ibrahim Marai<sup>1</sup>, Ilan Goldenberg<sup>6</sup>, Michael Glikson<sup>7</sup>

<sup>1</sup>*Cardiology, Rambam Medical Center, Israel*

<sup>2</sup>*Cardiology, Soroka University Medical Center, Israel*

<sup>3</sup>*Cardiology, Bnai Zion Medical Center, Israel*

<sup>4</sup>*Cardiology, Rivka Ziv Hospital,, Israel*

<sup>5</sup>*Cardiology, Sourasky Tel-Aviv Medical Center, Israel*

<sup>6</sup>*IACT-Neufeld Cardiac Research Institute, Sheba, Israel*

<sup>7</sup>*Cardiology, Sheba Medical Center, Israel*

### **Background:**

It is widely believed that patients with more advanced heart failure (HF) symptoms are less likely to die from a cardiac arrhythmia and therefore would not benefit from ICD implantation. Using the Israeli ICD Registry data, we sought to examine the effect of HF functional class on the outcome of patients who receive device therapy in a real world setting.

### **Methods:**

Between July 2010 and June 2012 a total of 2108 consecutive patients (84% male, mean age 64.9± 12) undergoing ICD/CRT-D implantation for primary prevention indications were prospectively enrolled in the Israeli ICD Registry. NYHA class < III was present in 1307 (62%) and class ≥ III in 801 patients (38%). A subset of 1218 unselected registry patients was prospectively followed for a median period of 317 days for the occurrence of appropriate ICD therapy and hospitalization for HF.

### **Results:**

Patients with higher NYHA were older, had more co-morbid conditions, lower LVEF, wider QRS duration and were more likely to receive CRTD therapy (all p<0.001). Kaplan-Meier survival analysis showed that among ICD recipients the risk of appropriate device therapy for ventricular tachyarrhythmia was similar in the 2 NYHA groups (P=0.16). The risk for the development of HF events during follow-up was different between ICD and CRTD recipients. In the former group patients with NYHA≥III were more likely to develop HF events during follow-up (HR= 2.82; p<0.01), whereas among CRTD recipients the risk for the development of HF events was similar between the 2 groups (HR=1.15; P=0.74)

### **Conclusion:**

Based on a large cohort of real-life ICD/CRTD multicenter registry, there is no evidence that severe heart failure patients are less likely to benefit from ICD therapy. Our data suggest that the association between advanced NYHA class and development of HF is attenuated among patients implanted with CRT-D devices.