

## **Safety and Beneficial Effect of Low Altitude (Dead Sea Location) in Patients with Systolic Heart Failure after ICD / ICD CRT Implantation**

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**Introduction:** Patients with systolic congestive heart failure (sCHF) after implantable cardioverter defibrillator (ICD) implantations are considered high risk patients and tend to avoid regular, recreational lifestyle. The Dead Sea area (415 m below sea level) has been conceived as a dangerous place for heart patients regardless of several encouraging studies that demonstrated its benefit.

The purpose of this study was to evaluate the safety, impact on QOL, exercise capacity, heart failure and arrhythmia parameters in pts. with sCHF and ICD

**Methods:** Heart failure parameters including: BNP, echocardiography and arrhythmia / ICD parameters of 19 pts with sCHF, NYHA FC II-III after ICD implantation (age 65.3±9.6 years, 16 (84 %) males, 18 (95 %) with CRTD) were evaluated. The parameters were tested at sea level one week prior to the decent to the Dead Sea, during 4 days stay in the Dead Sea and one week after return to sea level.

**Results:** The trip to and from the Dead Sea as well the 4 days of stay were uneventful and well tolerated. No significant arrhythmias were recorded by the ICDs. The QOL parameter improved by 11 points and six minute walk ability increased by 60 meters ( $p < 0.001$ ). The BNP levels increased slightly with no statistical significance. The HRV decreased ( $p=0.018$ ). No significant changes in blood pressure, O<sub>2</sub> saturation weight and LV function were found.

**Conclusion:** Descending and staying in Dead Sea is not only safe for patients with sCHF and ICD implantation but after a brief stay in the Dead Sea area there was a trend toward improvement in clinical and laboratory parameters and improvement in QOL and exercise capacity.