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Subcutaneous implantable cardioverter defibrillator implantation: an analysis of the Italian clinical practice and its evolution

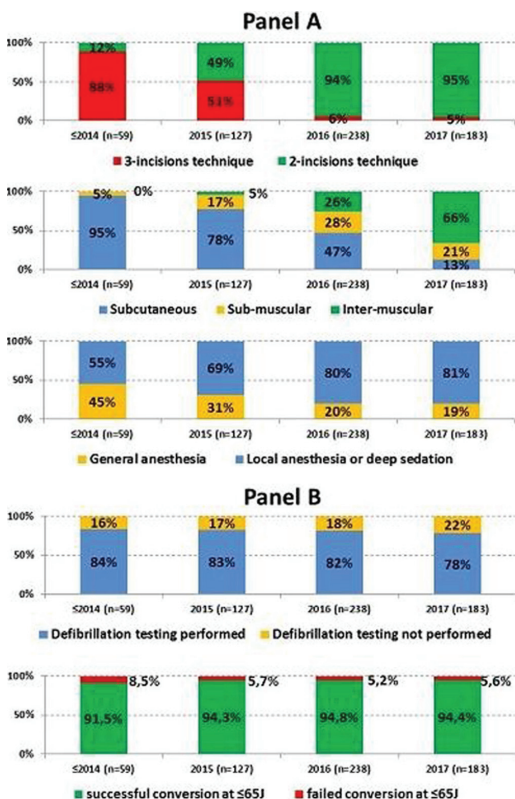
S. Viani¹, A. D'Onofrio², P. Pieragnoli³, M. Biffi⁴, G. Nigro⁵, F. Migliore⁶, P. Francia⁷, P. De Filippo⁸, A. Capucci⁹, G.L. Botto¹⁰, M. Giammaria¹¹, P. Palmisano¹², E. Pisano¹³, M. Campari¹⁴, M.G. Bongiorno¹. ¹ Azienda Ospedaliero-Universitaria Pisana, Cardiology, Pisa, Italy; ² AO dei Colli-Monaldi Hospital, Naples, Italy; ³ Careggi University Hospital (AOUC), Florence, Italy; ⁴ Bologna University Hospital, Bologna, Italy; ⁵ Second University of Naples, Naples, Italy; ⁶ University Hospital of Padova, Padua, Italy; ⁷ Sant' Andrea Hospital, Rome, Italy; ⁸ Ospedale Papa Giovanni XXIII, Bergamo, Italy; ⁹ University Hospital Riuniti of Ancona, Ancona, Italy; ¹⁰ Sant'Anna Hospital, Como, Italy; ¹¹ Maria Vittoria Hospital, Turin, Italy; ¹² Cardinale G. Panico Hospital, Tricase, Italy; ¹³ Vito Fazzi Hospital, Lecce, Italy; ¹⁴ Boston Scientific Italy, Milan, Italy

Background: The subcutaneous implantable cardioverter defibrillator (S-ICD) is a relatively novel alternative to the transvenous ICD for the treatment of life-threatening ventricular arrhythmias and is currently adopted in the clinical practice of several centers.

Purpose: The aim of this analysis was to describe current Italian practice associated with S-ICD implantation and its evolution over the years.

Methods: We analyzed 607 consecutive patients (78% male, 48±16 years) who underwent S-ICD implantation in 39 Italian centers from 2013 to 2017.

Results: Structural cardiomyopathy was present in 78% of patients and 30% of patients received their device for secondary prevention. The proportion of patients with dilated cardiomyopathy and with left ventricular ejection fraction ≤35% increased from ≤2014 to 2017 (from 38% to 58%, from 33% to 53%, respectively; both p<0.05). 97% of procedures were performed in the EP lab. Over the last 4 years (Panel A), the procedure evolved toward a wide adoption of the 2-incision technique, with the sub- or inter-muscular positioning of the generator, under local anesthesia or deep sedation (≤2014 versus 2017: all p<0.001). Defibrillation testing was performed in 81% of patients. Shock energy of ≤65J was successful in 93.9% of patients and the overall cardioversion success rate with ≤80J was 99.8%. The use of testing slightly decreased over time, while the rate of successful conversion at ≤65J remained stable (≤2014 versus 2017: both p>0.05; Panel B).



Conclusions: Our analysis confirmed that the S-ICD continue to be preferably adopted for specific patients (younger, less frequently with dilated cardiomyopathy and low ejection fraction, etc.). Nonetheless, over the years we noticed a trend to wider use of S-ICD. The implantation technique evolved and novel approaches

were adopted. Nonetheless, the acute efficacy of the system remained stably high.

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His bundle pacing in patients with low ejection fraction: long-term follow-up

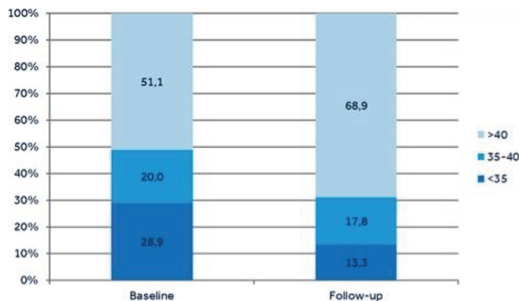
F. Zanon, L. Marcantoni, G. Pastore, E. Baracca, M. Carraro, C. Picariello, S. Giatti, D. Lanza, S. Aggio, K. D'Elia, L. Roncon. *General Hospital, Rovigo, Italy*

Background: His bundle pacing (HBP) can avoid the detrimental effects of right ventricular apical pacing especially in patients with depressed ejection fraction (EF) at implant without a clear indication for CRT.

Purpose: Aim of the study was to compare the EF in a long term follow-up in patients implanted in HBP, splitting the implanted population in two groups 1) group of depressed EF with an arbitrary cut-off of less than 45% 2) group of patients with EF more than 45%

Methods: From May 2004 to February 2016 all consecutive patients implanted with a pacemaker and a lead screwed in His and at least a follow up duration of 1 year have been considered for this analysis. Patients with CRT indication were excluded. Intracardiac intervals, QRS duration, New York Heart Association functional class, EF, echocardiography evaluation, and lead performance were measured at baseline and at follow-up.

Results: HBP was successfully implanted in 305 patients (mean age 75.5±8.1, 58% male, mean QRS 126±29ms) with standard pacemaker indications. The mean follow up duration was 6.2±3.2 years. On the whole population, the mean EF was 56.9±11.0 and 45 (14.8%) patients were included in group 1. Considering only the patients in group 1 (EF≤45%), at baseline the 51% of patients had EF in the range between 40% and 45%, the 20% of patients between 35–40% and the 29% of patients ≤35%. At the last follow up the percentage of patients with EF in the range 40%-45% was increased to 69%, while the percentage of patients with EF ≤35% was decreased to 13.3% (p=0.004), as shown in figure 1. Conversely, considering the patients in group 2 (EF>45%), the 97.7% of patients maintains the EF >45% in the follow up, and only 0.8% reduced the EF to <35% (P=0.2)



HBP improved EF in low EF pts

Conclusions: Permanent HBP significantly improved EF in long term follow-up in patients with baseline reduced EF.

TRICUSPID: THE UNDERESTIMATED VALVE

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Prognostic implications of staging significant tricuspid regurgitation: new paradigm for risk stratification

M.F. Dietz, E.A. Prihadi, P. Van Der Bijl, L. Goedemans, E. Gursoy, O.S. Van Genderen, N. Ajmone Marsan, V. Delgado, J.J. Bax. *Leiden University Medical Center, Cardiology, Leiden, Netherlands*

Background: In patients with significant (moderate and severe) tricuspid regurgitation (TR), the decision to intervene is influenced by right ventricular (RV) function and remodeling. However, RV remodeling in significant functional TR has been poorly characterized and its prognostic implications are underexplored.

Purpose: The aim of this study was to characterize RV remodeling in a large registry of patients with significant functional TR and to investigate the prognostic implications.

Methods: RV remodeling was characterized by transthoracic echocardiography in 1292 patients with significant functional TR (median age 71 (62–78), 50% male). Four patterns of RV remodeling were defined according to the presence of RV dilation (defined as a tricuspid annulus ≥40mm) and presence of RV systolic dysfunction (defined as a tricuspid annular plane systolic excursion [TAPSE] <17 mm): pattern 1) non-dilated RV and TAPSE≥17 mm; pattern 2) dilated RV with TAPSE≥17 mm; pattern 3) non-dilated RV with TAPSE<17 mm; pattern 4) dilated RV with TAPSE<17 mm. The primary endpoint was all-cause mortality and the event rates were compared across the four patterns of RV remodeling.

Results: A total of 183 (14%) patients showed pattern 1 RV remodeling, 256 (20%) showed pattern 2 RV remodeling, 304 (24%) presented with pattern 3 whereas 549 (43%) had pattern 4 RV remodeling. Patients with pattern 4 RV remodeling were more frequently male (p<0.001), had more often known coronary artery disease (p<0.001), worse renal function (p<0.001), impaired left ventricu-