Idiopathic HFrEF. Is there room left for defibrillators?

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Background and aim: Prophylactic implantation of an implantable cardioverter-defibrillator (ICD) is class 1 recommendation for heart failure (HF) patients with reduced ejection fraction (HFrEF) even though its proven advantage is weaker among nonischemic aetiology. In fact, in an era where both optimal medical therapy (OMT) and cardiac resynchronization therapy (CRT) significantly reduce sudden cardiac death (SCD), it is questionable whether ICD still have additional value. The aim of this study was to assess the current benefit of ICDs in preventing sudden cardiac death through resuscitated cardiac arrest (RCA), appropriate therapy for sustained ventricular tachycardia (VT) or fibrillation (VF) in a contemporary population of idiopathic HFrEF patients.

Methods: Single-centre retrospective study of consecutive symptomatic (NYHA class II to IV) idiopathic HFrEF patients with an ICD (either alone or in association with CRT), and remote monitoring with the corresponding software (MerlinTM, LatitudeTM, CarelinkTM, MicroPortTM or BiotronikTM) to assure appropriate event supervising. Idiopathic aetiology was assumed after excluding other probable causes. Coronary angiogram was required to exclude ischemic aetiology. Only those with prophylactic ICD implantation were included. RCA was defined as collapse with clinical signs of cardiac arrest and VF or VT appropriately terminated by ICD. In order to be sustained, VT episode had to have last at least 30 seconds.

Results: From 781 remote monitoring controlled patients, a total of 187 consecutive symptomatic idiopathic HFrEF patients with an ICD (125 men, mean age 64±18 years) were enrolled. Patients were on optimal medical therapy (ACEi/ARB: n=168, 90%; BB: n=154, 82%; mineralocorticoid antagonists: n=91, 49%; CRT: n=130, 70%; see Table). After a median follow-up of 99 months (IQR 62.2), RCA occurred in 10.7% (n=20) and 36.9% (n=69) had appropriately terminated VT. Both left ventricular ejection fraction (LVEF) improvement and CRT implantation did not independently reduce the incidence of RCA and VT requiring ICD therapy (OR, 1.02; 95% CI, 0.99–1.05; P=0.146 and OR, 0.85; 95% CI, 0.34–2.13; P=0.728; respectively). All cause mortality was 20 (10.7%). Inappropriate therapy was given as shocks to 41 patients (21.9%) and as antitachycardia pacing (ATP) to 30 (16%), opposing with appropriately given therapy to 43 (23%) and 63 (33.7%) patients, respectively (see Figure), contributing to a net clinical benefit (NCB) of 18.8%, favouring ICD implantation.

Conclusion: In this contemporaneous real-world population of symptomatic idiopathic HFrEF patients, episodes of impending cardiac death were frequent. Prophylactic ICD implantation seems to have added further benefit reducing SCD on top of optimal medical therapy, LVEF improvement and coexisting CRT.

	N=187	
All cause death - No.(%)	20	10.7
Resuscitated cardiac arrest - No.(%)	20	10.7
Appropriately terminated VT - No.(%)	69	36.9
Appropriate therapy - No.(%)		
Shock	43	23.0
ATP	63	33.7
Inappropriate therapy - No.(%)		
Shock	41	21.9
ATP	30	16.0
LVEF - median (IQR)	28	11
ACEi/ARB - No.(%)	168	90
BB - No.(%)	154	82
Mineralocorticoid Antagonists - No.(%)	91	49
CRT - No.(%)	130	70

Table: Outcome and baseline population characteristics

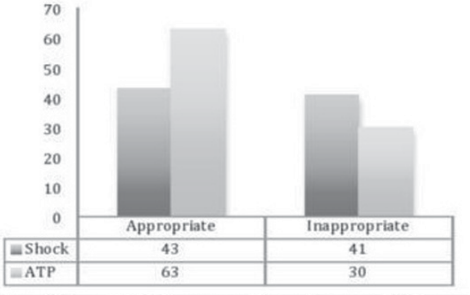

Figure: Outcome depicted as appropriate and inappropriate therapy