Abstract: P1138

Appropriate and inappropriate ICD therapy with evidence-based programming: a real-world comparison with trial data

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Topic(s):
Implantable Cardioverter / Defibrillator

Citation:
Introduction
Both appropriate and inappropriate ICD therapies are associated with increased mortality. MADIT-RIT and PainFree SST showed that with novel programming strategies, inappropriate therapy can be as low as 2.3%/yr. Both trials featured exclusion criteria that may limit application of research findings to a real-world population. We retrospectively compared both appropriate and inappropriate therapy rates to the published data.

Method
Data were collected retrospectively from all patients implanted with an ICD or CRT-D between June 2014 and May 2017. Patients were included for analysis if their device was programmed to the detection intervals and duration of PainFree SST or the delayed therapy arm of MADIT-RIT (arm C) as per local practice. Patients were excluded if they hadn’t attended our clinic within the last year. All transmissions were analysed by a senior physiologist and a cardiologist. Devices programmed to PainFree SST were split into VR devices and DR/CRT. As total numbers in each arm were relatively small, data were pooled for meta-analysis using an inverse variance model to apply weighting.

Results
166 patients were included, mean age at implantation 65.8 (±10.2) years, 79% male. All patients met international guidance for defibrillator therapy at first ICD implant. 86% were de-novo implants, 10% generator changes and 4% upgrades. 85% were primary prevention devices at initial implant. A CRT device was implanted in 39% (of which 83% had an atrial lead), VR in 45% and DR 16%. 88 patients were programmed as per MADIT-RIT and 78 as per PainFree SST. 35% of patients had a known history of supra-ventricular tachycardia at implant (vs 37% in PainFree SST and only 10% in MADIT-RIT, where permanent and recent AF patients were excluded). Mean follow-up was 2.1 years (±0.8) compared to 1.8 years in Painfree SST and 1.4 years in MADIT-RIT. In total, 9 patients received 68 appropriate shocks and a further 3 patients received appropriate ATP. Inappropriate therapy was only seen in 2 patients (1 inappropriate shock and 1 inappropriate ATP, both for atrial tachycardia). Figure one highlights both appropriate and inappropriate shock rates in the observed group vs trial group.

Conclusion
There is an observed trend towards fewer inappropriate shocks and therapies than quoted in previous clinical trials, despite a greater observational period and a higher proportion of patients with pre-existing supra-ventricular arrhythmia in this real-world cohort.

Appropriate therapy also appears less frequent than previously reported, although marked heterogeneity exists between groups and this data should be interpreted with caution.
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Appropriate ICD Therapy

Inappropriate ICD Therapy