Remote monitoring of implantable cardioverter defibrillators: A 6-month real-world experience of >4000 patients

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Introduction: Remote monitoring (RM) has been demonstrated to improve outcomes and mortality in patients with implantable cardioverter defibrillators (ICD) with and without cardiac resynchronisation therapy (CRT-D). However, the RM burden of monitoring ICDs is not well characterised. The purpose of this study was to assess alert burden and type in a large cohort of ICD patients undergoing managed RM.

Methods: We retrospectively analysed all patients with a standard ICD, CRT-D or subcutaneous ICDs (S-ICD), from a large multi-centre cohort undergoing RM over a six-month time period. Analysis included specific device type, and all alerts according to type.

Result: Of the 12,521 RM patients in our cohort, 4385 (35%) had an ICD in situ, comprised of 2202 standard ICDs (50.2% of the ICD cohort), 2079 (47.4%) CRT-Ds, and 104 (2.4%) S-ICDs. 1477 ICDs (33.7% of the ICD cohort) transmitted at least one alert. ICD alerts accounted for 17.4% (3110) of all alerts (17,839), transmitting 399 (58.3% of all) red alerts, and 2711 (15.8% of all) yellow alerts. 988 alerts for ventricular tachycardia (VT) and ventricular fibrillation (VF) were transmitted by 7% (306) of ICD patients, and 212 alerts for shock, transmitted by 2.6% (115) of ICD patients. There were 1403 alerts for atrial tachycardia/atrial fibrillation.

Conclusion: In this large cohort of ICD patients undergoing managed RM, ICDs represented 35% of the RM cohort but contributed only 17.4% of all alerts, with only one-third of ICD patients transmitting an alert. Despite transmitting the majority of red alerts (58.3%), ICDs are generally under-represented in RM alert burden.