A retrospective analysis of atrial fibrillation alerts in a large remote monitoring cohort: Implications for anticoagulation

Catherine O'Shea

**Introduction**: Remote monitoring (RM) of cardiac implantable electronic devices (CIEDs) allows for the early detection of both subclinical AF and symptomatic AF, providing an opportunity to evaluate the need for anticoagulation for stroke prevention. The purpose of this study was to assess the burden of AF alerts, and impact of anticoagulation status, in a large multi-centre RM patient cohort.

**Methods**: We performed a retrospective analysis of 12,521 consecutive patients with a CIED who underwent managed RM during a six-month window (May to November 2018), via PaceMateTM, an automated vendor-neutral software system, with 24/7 rapid RM alert processing by IBHRE-certified technicians. Analysis included CIED type, all AF alerts, and anticoagulation status at the end of the six-month window. Anticoagulation status at the time of RM enrolment was unknown but was intermittently updated following each transmission of an AF alert via bidirectional software system-based communication between PaceMate and clinic staff or integrated electronic medical.

**Result**: 5771 AF alerts were transmitted, accounting for 28.4% of all RM alerts during the six-month period. 2112 patients (16.9% of the RM cohort) transmitted at least one AF alert during this time. There was considerable variability in device type resulting in AF alerts (p<0.001): 49.3% from implantable loop recorders (ILR); 23.5% from pacemakers (PPM); 12.9% from implantable cardioverter defibrillators (ICD); 11.4% from cardiac resynchronisation therapy defibrillators (CRT-D); and 2.9% from cardiac resynchronisation therapy pacemakers (CRT-P). The average age of patients with an AF alert was 72.6+/-13 years, compared with 68.6+/-14 years in patients transmitting non-AF alerts (p<0.0005). At the end of the six-month window, 64.3% of all patients with AF alerts were receiving anticoagulation. 48% of patients with AF alerts were aged 75 years or above (corresponding to a minimum CHA2DS2-VASc score of 2); however, 329 (32.4%) of these patients remained unanticoagulated. 21.4% of patients with AF alerts were aged 65-74 years, with an ICD or CRT-D in situ, many of whom likely reach the CHA2S2-VASc threshold for anticoagulation due to underlying heart failure; however, 181 (40.1%) of these patients remain.

**Conclusion**: In a large RM patient cohort, 16.9% of patients transmitted at least one AF alert during a 6-month window, totalling over 2,000 AF alerts. AF alerts accounted for more than one-quarter (28.4%) of all alerts over a six-month period. Despite participation in an intensively managed automated RM software system, a significant proportion of patients at risk of stroke due to AF remained unanticoagulated after having transmitted an AF alert. These data highlight the need for the development of clinical response pathways and an integrated care approac