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THE BURDEN OF PAROXYSMAL AF IN HEART FAILURE PATIENTS WITH IMPLATABLE DEVICES: QUANTIFYING THE VARIABILITY

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doi:10.1136/heartjnl-2013-304019.3

Introduction Implantable electrical cardiac devices capable of continuous rhythm monitoring offer a new opportunity to study the burden of AF in patients with heart failure (HF). The thromboembolic risk of AF is higher in patients with HF, but the length and frequency of episodes of AF necessary to warrant antithrombotic therapy in HF patients is not known. We sought to describe the AF burden in a typical HF population with implantable devices.

Method Data from all HF patients using the Medtronic CareLink system at one centre in the UK were collected. Only dual chamber devices were included as the atrial lead was necessary for AF detection. Most patients with persistent AF at the time of implant do not have an atrial lead implanted and therefore were not included. Demographic data were obtained from electronic patient records. Using CareLink, graphs showing frequency and length of daily AF episodes were collated. Visual analysis of the charts was performed and patients were grouped according to the length of the longest episodes of AF and the frequency of recurrent episodes.

Results In total, 175 patients were found with devices capable of reporting data in a suitable format and with adequate transmissions for analysis. Mean age was 60 years (±16.0) and 72% were male. There were 67 ICDs, 99 CRT-Ds and 4 CRT-P. 128 patients (75%) had some device reported AF. 70%

Table 1

Group	n	Mean age (SD)
I	17	13% 66 (±10.8)
II	15	12% 64 (±10.2)
III	47	37% 60 (±16.9)
IV	49	38% 58 (±16.7)

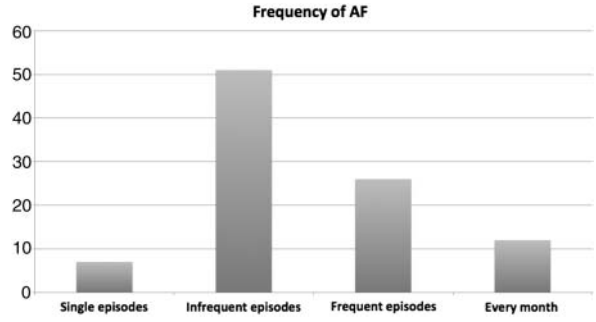

Figure 1

of ICD, 78% of CRT-D and 100% of CRT-P patients had some AF during the monitoring period.

The shortest length of time in AF per day that is measurable on the QuickLook graph is 2.5 min. The longest episode the devices could report was 100 h. 4 groups were identified based on length of AF episodes (table 1).

I. One episode of AF >100 h and no sinus rhythm since onset of that episode (n=17; 13%)

II. Episodes >100 h with episodes of sinus rhythm between (n=15; 12%)

III. At least 1 episode of AF >2.5 min, but none >100 h (n=47; 37%)

IV. No episode of AF >2.5 min (n=49; 38%)

32 patients (25%) had episodes of AF longer than 100 h. 15 patients (12%) had AF at the time of or immediately following implantation, 3 of whom reverted to sinus rhythm at some point following implant. To separate those with shorter or infrequent episodes of AF from those with longer or more frequent episodes, patients in groups III and IV were subcategorised further:

(a) Single episode of AF

(b) >50% months with no AF ('infrequent')

(c) <50% months with no AF ('frequent')

(d) No months without AF ('every month')

The distribution of these subcategories is given in figure 1.

Conclusions Some AF is detected in the majority of HF patients with dual-chamber implantable devices. There are many different patterns of paroxysmal AF and these can be described by frequency and distribution. Further studies are needed to understand the clinical features of these patterns and the association with thromboembolic risk. Our data suggests that the majority of HF patients with an implantable device are at increased thromboembolic risk.