101 ROLE OF CARDIAC AUTONOMIC FUNCTION IN PATHOPHYSIOLOGY OF PERMANENT AF

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Introduction Atrial fibrillation (AF) is the commonest abnormal heart rhythm with significant related morbidity and mortality. There is increasing evidence that abnormalities of the cardiac autonomic nervous system (ANS) are involved in the pathogenesis of AF. Exploring the ANS is possible through heart rate variability (HRV) evaluation. We aimed to investigate whether HRV is more abnormal in patients with permanent AF compared to paroxysmal AF.

Methods In a cross-sectional comparison, we studied two patient groups: permanent AF (n = 30) and paroxysmal AF (n = 31). Time-domain, frequency-domain and non-linear measures of HRV were determined using eMotion Faros ECG sensor. Participant's breathing was controlled with a metronome. Data was analysed using SPSS software.

Results Time-domain and non-linear indices of HRV were significant higher in permanent AF group compared to paroxysmal AF (table 1). Permanent AF was the only independent predictor of HRV on multivariable analysis in this cohort of patients (p=0.006).

Conclusions HRV indices were significantly higher in permanent AF compared to paroxysmal AF which may suggest pronounced cardiac autonomic influence in the pathophysiology of permanent AF.

Conflict of Interest None

Abstract 101 Table 1 Differences in HRV

	Permanent AF group (n = 30)	Paroxysmal AF group (n = 31)	p
Clinical Demographics	**Mean ± SD / Median [IQR]**	**Mean ± SD / Median [IQR]**	
Age, years	70 ± 8	72 ± 11	0.64
CHA_2DS_2-VASc score	3 [2 – 4]	3 [2 – 4]	0.56
BMI (kg/m^2)	31.1 ± 5.1	31.0 ± 6.3	0.95
Systolic BP (mmHg)	140 [128 – 148]	144 [134 – 153]	0.24
Diastolic BP (mmHg)	81 ± 13	76 ± 15	0.16
Ejection fraction (%)	55 [55 – 62]	62 [55 – 68]	0.22
HRV measurements	**Mean [95% CI] / Median [95% CI]**	**Mean [95% CI] / Median [95% CI]**	**p**
Mean heart rate (bpm)	75 [68 – 82][a]	66 [60 – 71][a]	**0.03**
SDNN (ms)	90 [82 – 113][b]	39 [28 – 59][b]	**<0.001**
rMSSD (ms)	103 [97 – 118][b]	33 [23 – 54][b]	**0.002**
pNN50 (%)	64 [61 – 70][b]	11 [4 – 28][b]	**<0.001**
SD1 (ms)	72 [69 – 80][b]	23 [17 – 38][b]	**<0.001**
SD2 (ms)	104 [96 – 137][b]	51 [35 – 65][b]	**<0.001**

Normally distributed data are expressed as mean [95% confidence intervals (CI)]. Identified by superscript a.Non-normally distributed data are displayed as median [95% CI]. Identified bysuperscript b. Normality test was performed using Shapiro-Wilk test. Statistical differences were tested using independent t-test (for parametricdata) or Mann-Whitney U test (for non-parametric data). Significance p > 0.05.
AF = atrial fibrillation; SDNN = standard deviation of all NN intervals; rMSSD = square root of the mean of the sum of thesquares of differences between adjacent NN intervals; pNN50 = NN50 countdivided by the total number of all NN intervals

102 DETECTION OF ATRIAL HIGH-RATE EPISODES ON REMOTE MONITORING OF CARDIAC DEVICES: ARE WE FOLLOWING GUIDELINES TO DETERMINE THE NEED FOR ORAL ANTI-COAGULATION?

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Background Atrial High-Rate Episodes (AHRE), as detected by implantable cardiac devices, increase stroke risk. Remote monitoring (RM) provides physicians with timely notification of such episodes through automatic downloads from home. The AHRE burden required to increase thromboembolic risk is unclear albeit the European Society of Cardiology (ESC) AF guidelines recommend initiating oral anticoagulation (OAC) in patients with at least a single episode of long duration (≥ 1 hour) and an overall 'high' daily burden of AHRE (total duration of all episodes), having considered the CHA2DS-VAS2C score. Moreover, device manufacturers are inconsistent with their nominal AHRE notification settings.

Aim In light of the ESC AF guidelines (2020), this study reviewed the current practise of RM for AHRE detection to determine OAC in patients with AHRE and CHA2DS-Vas2c ≥ 2 (Male) or 3 (Female).

Methods We retrospectively collected data from 50 patients with RM devices at a district hospital in the UK. Patients were selected to allow comparison between the 4 different manufacturers (Abbott, Biotronik, Boston Scientific, and Medtronic) used at the centre **(figure 1)**. The latest AHRE notification alert settings and clinical data were obtained from electronic patient records. **Table 1** shows the nominal settings.

Results Of the 50 patients, 50% had dual chamber pacemaker **(figure 2)**, mean age 74 (SD ± 9) years, 38 patients (76%) had no documented history of atrial fibrillation at device implantation: 37 of them had an elevated CHA2DS-Vas2c score or previous TIA/stroke. Of these 37 patients, 33 patients had nominal RM settings with 8 of these patients later anticoagulated for AF; 4 patients had AHRE burden settings reduced to 1 hour, with one of these patients later anticoagulated for AF. DiscussionAbbott can alert for single, prolonged AHRE episodes in accordance with ESC guidance. However, episode detection is nominally set at 3 hours. AHRE burden can be determined by all manufacturers and may be used solely (without supporting guidance) in the absence of single episode alerts, pending robust trial data to conclusively alter the current OAC recomendation. Also, it is apparent that RM nominal settings are not actively altered by device implanting physicians but this may change as a result of the recently revised ESC AF guidance.In our cohort, 37 patients without a history of AF at device implantation were at significant risk of thromboembolism in the event of