Abstract 26 Table 1

CH ₄ ADI score	Risk category	AF prevalence in Derivation cohort	AF prevalence in Validation cohort
0	Low risk	0%	0%
1-2	Intermediate risk	19.2%	13.8%
3-4	High risk	58.8%	36.8%
5+	Very high risk	87.5%	50.0%

CH₄ADI score, arbitrary risk category and AF prevalence rates (%) in derivation and validation cohorts. A CH₄ADI score of 0 appears to exclude the possibility of AF. Those with very high scores have a very high probability (>50% chance) of having AF.

representing 75–240 fold greater prevalence by age group compared to the non-TM population. We identified five significant cardiovascular risk factors: Conduction disease (OR 6.11, 95% confidence interval (CI): 1.08–34.44, $p=0.04$), history of Heart failure (OR 17.85, CI: 2.06–154.50, $p=0.009$), Atrial enlargement (OR 3.68, CI: 1.36–9.92, $p=0.01$), Diabetes (OR 4.25, CI: 1.57–11.54, $p=0.005$) and myocardial Iron overload ($T2^* < 15\text{ms}$) (OR 4.01, CI: 1.43–11.21, $p=0.008$). Atrial area is a surrogate for left ventricular diastolic dysfunction: similar ORs were found in association with the Doppler indices, E/A and E/e'.

Interestingly, we found an age-dependent deterioration of diastolic function that was absent in non-AF patients, suggesting an interaction between AF and progressive diastolic dysfunction which may predict future morbidity in these patients.

Based on the risk-factor odds ratios, we were able to construct a risk score (CH₄ADI) with a ROC AUC of 0.823 (CI: 0.730–0.917, $p<0.001$ figure 1A) that was corroborated in the 189 patient validation cohort with good reproducibility with a ROC AUC of 0.720 (CI 0.560–0.751, $p<0.001$ figure 1B).

Conclusion We demonstrate an extremely high prevalence of early-onset AF in TM patients, identifying five clearly definable risk factors and constructed a reproducible AF prediction score (table 1). Given the thromboembolic risk associated with AF, we believe that clinicians should consider active rhythm monitoring of patients who we may now be able to identify as at being at high risk of developing AF.

Conflict of Interest None

27 CIED ADVISORIES: IMPACT AND EFFECT ON PACING CLINIC AND PATIENT CARE

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Introduction Implanting of cardiac implantable electrical devices (CIEDs) has become routine practice in the majority of acute hospitals. The numbers of patients receiving CIEDs are increasing rapidly due to a growing elderly population and adherence to NICE guidance. CIEDs have been subject to

safety advisories potentially resulting in intensive patient follow up. Recent experience indicates that the number of advisories we deal with is increasing. We sought to quantify the additional burden this has placed on the cardiac device clinic and patients.

Methods A retrospective review was undertaken on all advisories & recalls issued by device company field safety notices and the MHRA website from 2008 to 2018.

We assessed 24 hardware and 13 software advisories

Then the number of patients affected by each at Eastbourne District General Hospital (EDGH) were recorded ($n=1720$), and the impact on the device clinic (additional hours) was calculated.

Results 5188 patients in total were seen in our device clinic over 10 years.

Abstract 27 Figure 1 This chart illustrates the breakdown of mechanical issues versus software issues for each of the major manufacturers. The left side of the donut graph shows the percentage of mechanical problems which include lead, device battery and circuitry. The predominant issue in more recent years are as a result of software. Half of software updates related to pacemakers including CRTD. Battery issues accounted for the largest proportion of mechanical malfunctions, 60% due to ICD battery technology.

1720 patients were found to be subject to an advisory. Of these patients, 1234 were software advisories and 486 mechanical advisories.

This resulted in 1237 patients requiring device follow up to be intensified.

One hour of additional support was calculated per patient advisory. This was made up of 20 minutes for the initial interrogation and 40 minutes for extra administration and subsequent follow up if required. An average of 1720 hours was spent on patient advisories over a 10-year period resulting in one extra clinic session per week.

Conclusion We calculated that 33% of all patients seen in clinic in the last 10 years have been subject to an advisory. On average over the ten year period this has required an additional 1720 hours per patient advisory resulting in an extra whole physiology clinic session per week. This represents a significant challenge to the Pacing workforce.

Our data shows that there are more software related advisories than hardware advisories. Software solutions resolve the issue but are often delayed.

Device advisories have now become a major complication in pacemaker implantation with a significantly higher frequency than procedural complications. One could consider adding this finding to the discussion with the patient prior to device implant.

Conflict of Interest None at time of writing

28 A META-ANALYSIS ON THE IMPACT OF CONTACT FORCE SENSING CATHETERS ON OUTCOMES IN ATRIAL FIBRILLATION ABLATION: A FOCUS ON STUDY DESIGN

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Background One determinant of failure of atrial fibrillation (AF) ablation is the lack of transmural lesions. Contact force sensing (CFS) catheters enable real-time assessment of the amount of force applied at the catheter-tissue interface, with higher contact force associated with lesions of greater size. Previous meta-analyses have pooled results from randomized controlled trials (RCTs) and observational studies (OSs) and concluded that CFS catheters improve clinical outcomes. This meta-analysis sought to compare the efficacy and safety of CFS catheters with non-CFS catheters for AF radiofrequency ablation.

Methods A total of 28 studies were identified using Embase and Medline databases; 8 RCTs and 20 OSs. For the primary outcome of atrial tachyarrhythmia recurrence, data from RCTs and OSs were analysed according to study design. Secondary outcomes included ablation time and all procedure-related complications. Summary estimates for each variable were calculated using the random-effects model based on DerSimonian and Laird's meta-analytic statistical method.

Results In the 8 RCTs there were a total of 844 patients (419 in CF group and 425 in non-CF group). In the 20 OS there were 3900 patients (1523 in CF group and 2377 in non-CF group). The median age of patients was 60.3 years (59.0 years in RCTs and 60.7 years in OSs). The majority were male (74.0% in RCTs and 69.6% in OSs). The median follow-up time post-AF ablation was 12 months in both RCTs and OSs.

While CFS did not lead to a significant reduction in atrial tachyarrhythmia recurrence in RCTs (n=844, risk ratio (RR) 0.98, 95% confidence interval (CI) 0.80 to 1.19, p=0.81), a significant reduction was observed in OSs (n=2,259, RR 0.74, 95% CI 0.65 to 0.84, p<0.0001), both at a median follow-up of 12 months.

Data on ablation time were available for 6 RCTs (n=751) and 14 OSs (n=3,152). The use of CFS catheters had no significant impact on ablation time in both RCTs (-0.36 minutes, 95% CI -3.32 to 2.59, p=0.81) and OSs (-3.68 minutes, 95% CI -7.91 to 0.55, p=0.09).

For both RCTs (n=706) and OSs (n=3,427), the incidence of all procedure-related complications was similar in the CFS and non-CFS groups (RCTs, RR 0.99, 95% CI 0.55 to 1.78, p=0.97; OSs, RR 0.78, 95% CI 0.53 to 1.16, p=0.22).

Conclusion Although OSs have demonstrated positive results, data from RCTs have failed to show any significant benefit from CFS catheters in terms of procedural success in AF ablation. The safety profile of CFS catheters was similar to non-CFS catheters in both RCTs and OSs.

Conflict of Interest No conflicts on interest

29 THE SHORT PR INTERVAL IN YOUNG ATHLETES

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Background International recommendations for interpreting the athlete's ECG define a short PR interval as <120ms. Despite the recommendation that asymptomatic athletes do not require further investigation unless an accessory pathway is suspected, athletes are not infrequently referred for further evaluation. The prevalence of a short PR in athletes has not previously been reported.

Purpose To investigate the prevalence of short PR in young athletes and its association with age, gender and ethnicity.

Methods Between 2011–2014, 15,572 athletes aged 14–35 underwent cardiac screening including an ECG. An athlete was defined as an individual participating in sport 6hrs/wk. ECGs were analysed by 2 independent experts. Athletes in whom the PR interval was not fixed were excluded. A short PR was defined as <120ms.

Results Amongst 15,572 athletes (mean age 18.6 years, 92% white, 80% male), the mean PR interval was 151msec and shorter in females vs. males, white vs. non-white and adolescent (≤16 years) vs. older (17–35 years) athletes (table 1).

An isolated short PR was present in 765 (4.9%) athletes and was more common in females vs. males (6.2% vs. 4.2%; p<0.0001) (figure 1). The prevalence of short PR in athletes reduced significantly with advancing age, present in 9% of 14 year olds but only 3.2% of 17–35 year olds (p<0.0001). The prevalence of short PR was similar between ethnic groups (4.7% white vs 4.2% non-white; p=0.55). The overall prevalence of the Wolff-Parkinson-White pattern was 0.08%.

Conclusions A short PR interval is a fairly frequent finding in this cohort with a predilection for younger and female athletes. Possible explanations for shorter conduction time include anatomically smaller hearts, higher sympathetic tone or