

Atrial fibrillation in ventricular-paced rhythm: under-recognised, underdiagnosed and potentially dangerous

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ABSTRACT

Background There is only scant published evidence demonstrating the importance of diagnosing atrial fibrillation (AF) in patients with a ventricularly paced rhythm. This potential pitfall to recognise AF has the implication of devastating outcomes.

Method A short survey was undertaken in order to gauge the ability of doctors of all grades to recognise AF, and adequate anticoagulation, in the patient with chronic right ventricular pacing (RVp), based on ECG interpretation. Participants were trainee doctors from different grades including foundation doctors, core medical trainee, specialist registrars and consultants.

Results Only 11.3% of doctors correctly identified the need for oral anticoagulation. There was no association between four groups (F1, F2, core medical training (CMT) and SpR) and incorrect answers (Fisher's exact test, value=4.082, p=0.252). However, there was a trend of better AF recognition towards registrar but this has not reached statistical significance.

Conclusions Our study demonstrates severe systemic under-recognition of this fairly common condition among hospital doctors. This may lead to a lower rate of anticoagulation and a higher incidence of thromboembolic events

INTRODUCTION

Atrial fibrillation (AF) is the most common sustained cardiac arrhythmia, occurring in 1–2% of the general population. AF confers a fivefold increased risk of stroke. One in five of all strokes is attributed to this arrhythmia. Effective treatment strategies exist which have shown to significantly reduce thromboembolic events.¹ There is only scant published evidence demonstrating the importance of diagnosing AF in patients with a ventricularly paced rhythm. This potential pitfall to recognise AF^{2–3} has the implication of devastating outcomes.

METHOD

A short survey was undertaken in order to gauge the ability of doctors of all grades to recognise AF in the patient with chronic right ventricular pacing (RVp), based on ECG interpretation. Doctors were given an ECG (figure 1) showing AF and RVp, and were given a brief clinical history stating, 'A 75-year-old asymptomatic, independent lady with a background history of ischemic heart disease and transient ischemic attacks had an ECG performed as a part of routine health check-up. Kindly answer

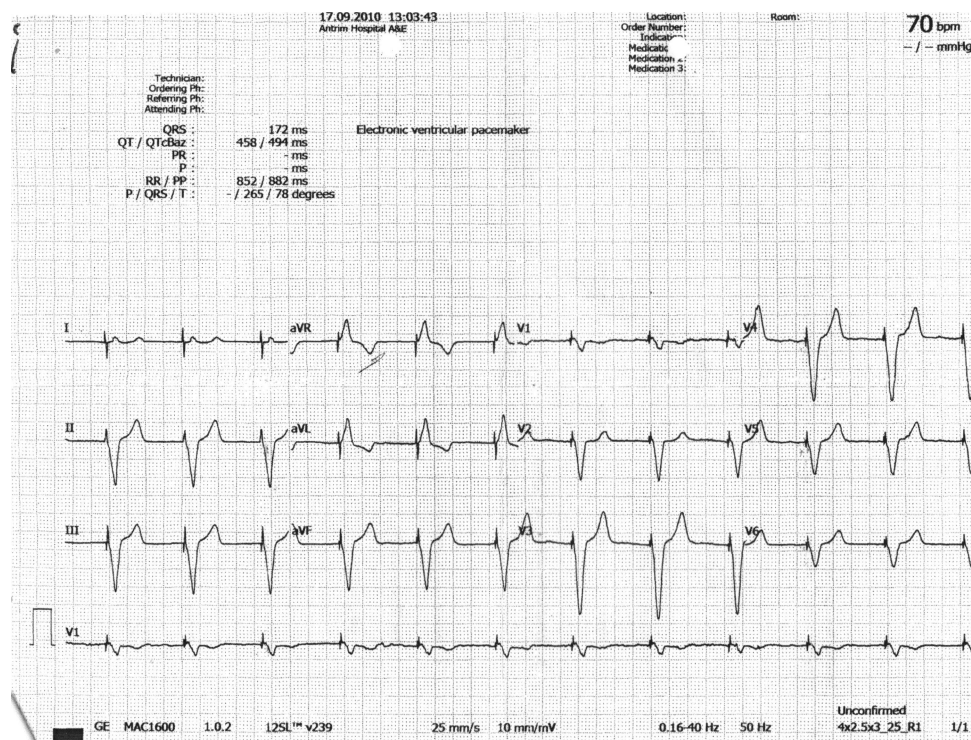


Figure 1 Atrial fibrillation and paced rhythm ECG.



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the following questions based on the history and ECG findings⁷. They were then asked to identify the rate, axis, underlying rhythm and whether they would consider any further intervention. The patient has a CHA₂DS₂VASc score of at least five, with a nearly 7% annual risk of stroke, and requires oral anticoagulation.¹

One hundred and forty-one participants from four different hospitals were involved. Four different ECGs were used among a heterogeneous group of doctors, including foundation years 1 and 2, core medical trainees, medical specialty trainees and consultants. The responses were obtained anonymously. Statistical analysis was performed using Fisher exact test.

RESULTS

AF was correctly identified by 23% (32 of 141) of doctors, 60% (85 doctors) reported paced rhythm with no further comment on the missing P waves (see table 1), while the remaining 24 (17%) reported various rhythms including left bundle branch block or sinus rhythm. The correct axis was recognised in 42 (30%) of participant doctors. Only 11.3% of doctors correctly identified the need for oral anticoagulation, and that represents only 50% (16 out of 32) of doctors who were able to recognise the correct rhythm. Further analysis comparing doctors training level is presented in table 2

There was no association between the four groups and incorrect answers (Fisher's exact test, value=4.082, p=0.252). However, there was a trend of better AF recognition towards registrar, but this has not reached statistical significance.

DISCUSSION

AF in paced rhythm is diagnosed by ECG interpretation of missing P waves and can also be picked up by electrophysiologists during pacemaker checks. It is not possible to comment on the axis as it is continuous paced rhythm. The risk of thromboembolic events in AF is comparable among paced and non-paced patients. Hence, it is very important to diagnose underlying AF in patients with paced rhythm.

Table 1 Shows rate, axis, underlying rhythm and whether they would consider any further treatment, warfarin in particular

	% Identified correctly	% Identified incorrectly
Rate	96 (135)	4 (6)
Axis	30 (42)	70 (99)
AF diagnosed	23 (32)	77 (109)
Warfarin (recommended)	11 (16)	89 (125)

AF, Atrial fibrillation.

Table 2 Shows summary of the results of the survey

Grade of participants	% Number of participants	% AF diagnosis correctly identified	% Oral anticoagulant recommended
Specialist trainee+consultant	32 (45/141)	33 (15/45)	20 (9/45)
Core medical trainee	26 (38/141)	16 (6/38)	8 (3/38)
Foundation year 2	21 (30/141)	20 (6/30)	7 (2/30)
Foundation year 1	19 (28/141)	18 (5/28)	7 (2/28)

AF, Atrial fibrillation.

Our study demonstrates severe systemic under-recognition of this fairly common condition among hospital doctors. Additionally, despite recognising rhythm abnormality, significant numbers of doctors did not recommend appropriate anticoagulation. This certainly leads to a lower rate of anticoagulation and a higher incidence of thromboembolic events, especially cerebrovascular accidents.

This highlights the need for increasing awareness among trainees in recognising this common pitfall of diagnosing AF in patients with paced rhythm. It is also very important to draw their attention towards AF management in terms of oral anticoagulation. Although the patient is asymptomatic, thromboembolic prophylaxis is indicated in a high-risk population. Hence, we recommend that ECG in paced rhythm should be examined closely for underlying AF in order to prevent under-recognition and undertreatment with anticoagulants, and to significantly reduce mortality and morbidity associated with this condition.

Contributors Corresponding author is responsible for the overall content. MA planned the survey. MA and SP circulated the questionnaire. MA, SP and NC contributed in writing the paper.

Competing interests None.

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