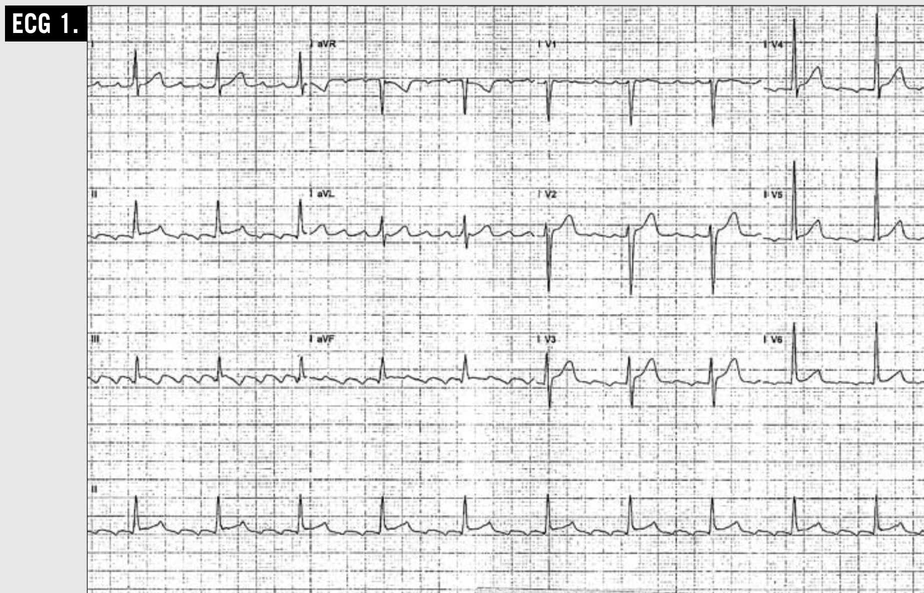
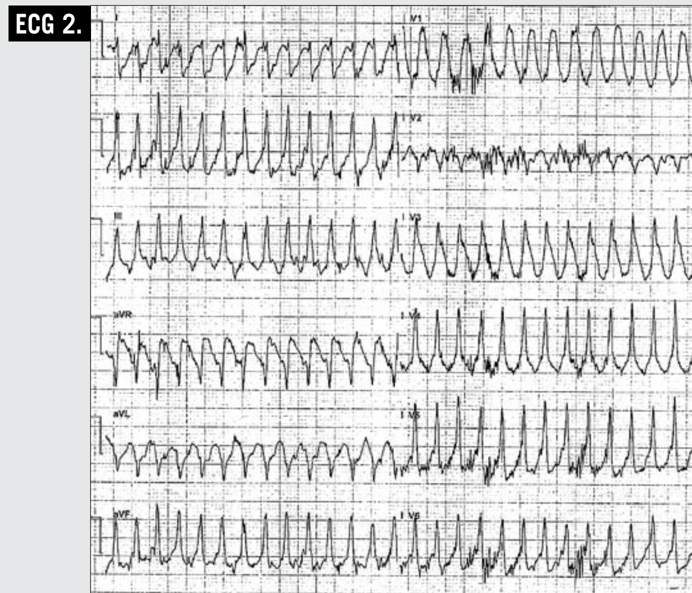

ECG 1.


ECG 2.

Courtesy of Dr Stephen Fenton

Busy lifestyle and dizziness

Dr Stephen Fenton

Dr Stephen Fenton is a cardiologist in private practice with the Sydney Cardiology Group.

PRESENTATION

A 45-YEAR-OLD chief financial officer presents feeling generally unwell with a recent history of dizziness with activities such as going up hills or stairs. This has been associated with a mild degree of breathlessness but no chest discomfort. He is a non-smoker and there is no history of palpitations, syncope or hypertension.

He has been under considerable work-related stress lately, completing several long-haul overseas trips within the last month and has been consuming more alcohol than usual, averaging 6-8 drinks on most days.

On examination, his resting pulse rate was regular at 68 per minute and BP was elevated at 145/90mmHg. His FBC, MBA and TFTs were normal.

The patient's resting ECG is shown above (ECG 1).

To further evaluate this patient a stress echo was performed. At peak exercise the patient complained of dizziness and another ECG was recorded (ECG 2).

Q. What would you regard as the best description of ECG 2?

1. Wide complex tachycardia of uncertain origin
2. Ventricular fibrillation
3. Ventricular tachycardia
4. Sinus tachycardia with rate-dependent left bundle branch block
5. Atrial flutter with aberrancy.

DISCUSSION

The exercise test has induced a significant wide complex tachycardia. The patient's resting pulse rate was 68 per minute and regular which would suggest he had a normal sinus rhythm.

However, close inspection of ECG 1 shows that this is not the case. While the ventricular rate is regular there is evidence of atrial flutter. This is manifest as a regular sawtooth appearance of atrial waves at a rate just slightly less than 300 per minute. They are seen best in the limb leads, particularly lead III.

There is also a fixed AV block of 4:1 giving the ventricular rate of 68 per minute. This case demonstrates the inability to state with certainty that a patient with a regular normal rate is in sinus rhythm without an ECG tracing.

When this patient exercises the rate of AV block diminishes. He went into 2:1 block at one stage giving him a ventricular rate of just under 150, which is also typical of atrial flutter.

As he approached peak exercise the rate of AV block diminished further and he then conducted 1:1 into the ventricles. This gave him an effective ventricular rate of just under 300 per minute with associated aberrancy with a bundle branch type pattern. The correct answer is therefore No. 5.

OUTCOME

This patient had normal left ventricular size and function with an ejection fraction in the order of 60% and there was no valvular abnormality. There was no evidence of ischaemia on the stress echo. The problem therefore is essentially one of atrial flutter. This could have been exacerbated by alcohol consumption, stress and possible recent hypertension which needs follow up. He was treated with radio frequency ablation involving the area of the tricuspid valve isthmus and was successfully reverted to sinus rhythm.

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