Management of Palpitations

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He used to be my heart-throb, now he just gives me palpitations.
Definition

Sensation of rapid, irregular, or forceful heartbeats or an awareness of one's own heartbeat

It does not necessarily imply pathology

It is not usually constant but occurs intermittently

Sometimes it is awareness of an intermittent thump in the chest when one heartbeat is rather more forceful than the rest.
Epidemiology

Around 30 to 40% or referrals to cardiology clinics

In most cases, there is no significant organic pathology

May be serious and potentially fatal disease

The elderly are more likely to be aware of their heartbeat but they are also more likely to have cardiac disease

In athletes, the incidence of palpitations varies from 0.3% to 70%. More common in the elderly doing endurance sport. AF is common
Causes - 1

Cardiac arrhythmias

- Supraventricular/ventricular extrasystoles
- Supraventricular/ventricular tachycardias
- Bradyarrhythmias: severe sinus bradycardia, sinus pauses, second- and third-degree atrioventricular block
- Anomalies in the functioning and/or programming of pacemakers and ICDs

Structural heart diseases

- Mitral valve prolapse
- Severe mitral regurgitation
- Severe aortic regurgitation
- Congenital heart diseases with significant shunt
- Cardiomegaly and/or heart failure of various aetiologies
- Hypertrophic cardiomyopathy
- Mechanical prosthetic valves
Causes - 2

Psychosomatic disorders

- Anxiety, panic attacks
- Depression, somatization disorders

Systemic causes

- Hyperthyroidism, hypoglycaemia, postmenopausal syndrome, fever, anaemia, pregnancy, hypovolaemia, orthostatic hypotension, postural orthostatic tachycardia syndrome, pheochromocytoma, arteriovenous fistula

Effects of medical and recreational drugs

- Sympathicomimetic agents in pump inhalers, vasodilators, anticholinergics, hydralazine
- Recent withdrawal of β-blockers
- Alcohol, cocaine, heroin, amphetamines, caffeine, nicotine, cannabis, synthetic drugs
- Weight reductions drugs
History

• Check what the patient means by palpitations. It should mean an awareness of the heart beating
• Ask the patient how often it happens, how long it lasts and if there are any precipitating or relieving factors. Sometimes people are only aware of it whilst lying down at night
• Is the rate regular or irregular?
• Ask the patient to tap out the beat
• Any other symptoms, such as sweating or breathlessness?
• Assess caffeine, alcohol, drugs and smoking
• Sportsmen - imperative to get an accurate diagnosis before high-intensity training is resumed
• Ask about general health and wellbeing. Anxiety?
• Does the patient have palpitations at present?
Examination

If the patient currently has the palpitations, it’s easy!

Signs of thyrotoxicosis? Is the patient anxious?

Pulse – character + regularity

Count the rate over an adequate interval. This will need to be longer if the rate is irregular or slow.

Check the blood pressure

Heart

Exam often unhelpful!
Differential

Anxiety diagnosis of exclusion

"Missed beat" - premature beat (usually ectopic) followed by a prolonged refractory period

AF or flutter is often paroxysmal before AF becomes established. It is often quite fast but can be slow. Can be the only feature of thyrotoxicosis

VT + SVT

Drugs – nitrates, calcium channel blockers and beta agonist inhaler

Consider cardiomyopathy

Bradycardia may produce palpitations

Rarities – phaeochromocytoma, insulinoma (can be part of MEN syndrome)
Investigation

Often necessary

Gold standard is a full 12 lead ECG at the time of palpitations

ECG should be performed anyway

Basic blood tests

24-hour ECG – usually done. Value depends on symptoms

Holter recorders – longer period / Event recorder

Consider ETT if symptoms exertional

Echo – often normal, but valuable
Diagnostic flow-chart of patients with palpitations. *Indicated only in selected cases; § refers to ECG–symptom correlation available.


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Beware of Holter monitors!!

Simple
Can document asymptomatic arrhythmias
Duration limited to 1-7 days (typically 24 hour)
May limit activity
Diary
Don’t be falsely reassured!!
Too late!
Urgent!

Any heart disease that could predispose to a dangerous arrhythmia?

- Ischaemic heart disease
- Heart failure
- Cardiomyopathy
- Valve disease

Warning symptoms:

- Breathlessness?
- Chest pain?
- Syncope or near syncope (for example, dizziness)?
Specialist referral

Symptoms suggestive of VT or SVT.

Other symptoms

Risk factors for a serious arrhythmia:

- A family history of sudden cardiac death before 40 years of age.
- Evidence of major structural heart disease.
- A major ECG abnormality.

Following ambulatory monitoring, refer people with proven:

- VT
- SVT
- Atrial flutter
- Tachy-brady syndrome
Urgency

All people with suspected or proven VT

Clinical judgement should be used for other patients, based on:

- The frequency of symptoms and their duration
- Other symptoms - syncope, chest pain, or breathlessness

If anxiety felt to be the cause, try reassurance.

Investigations may be helpful to put patient’s (and your) mind at rest
Don’t refer?

Characteristic symptoms of extrasystoles if:

- No evidence of IHD
- No major structural heart disease
- No major ECG abnormalities.
- Patients with sinus tachycardia if a non-cardiac cause is identified

Better to refer if unsure!
Treatment

Prognosis?
Therapy should be directed towards the aetiological cause.
Patients should be reassured in case of a benign cause.
Use of adrenergic substances such as caffeine or alcohol-containing beverages should be restrained.
Good control of cardiovascular risk factors, specifically of hypertension, should be ensured.
If there is a recent stressful life-event, psychiatric counselling may be of help.
In patients with symptoms of anxiety and depression, a specific therapy is warranted.
If a specific arrhythmia is found, the appropriate therapy may be antiarrhythmic drugs, ablation, or even an implantable defibrillator.
In the case that arrhythmias are found to be related to systemic diseases or to the use of pro-arrhythmic drugs, therapy, of course, must aim to remove the underlying conditions.
Case 1

24 year old man

- No history
- Fit – does triathlons
- Noticed that was running out of steam during event
- Symptoms usually around end of bike / beginning of run
- Otherwise well

Next step?
Case 2

54 years old

- Bus driver
- Hypertension
- Palpitations
- Black – out (single event). Referred from neurologists
- Normal resting ECG
- Normal echo
- Normal Holter (including 7 day)

What next?
12 months later…….

Further black-out

Further black-out on way to appointment
Case 3

72 years old

- Female
- ‘Nasty flu’ 6 weeks ago
- Previously very fit, now struggling
- Hypertension
Doing well

HR ~ 80-90 with small dose beta blocker

Back to normal

Echo – mild LVH, LA slightly dilated, good LV function

What next?
Rhythm-control for paroxysmal AF

Treatment

1. Patients with paroxysmal AF
   - Administer appropriate thromboprophylaxis
2. Is 'pill-in-the-pocket' therapy appropriate?
   - 'Pill-in-the-pocket'
   - Standard beta-blocker
   - Treatment failure?
     - Yes
       - Coronary artery disease (CAD) or LV dysfunction (LVD)?
         - Sotalol
         - Class IC agent or sotalol
         - Treatment failure?
           - Yes
             - Amiodarone or referral
     - No
       - Sotalol to be progressively titrated from 80 mg twice daily up to 240 mg twice daily.

3. Consider a 'pill-in-the-pocket' strategy for those who i) have no history of LV dysfunction, or valvular or ischaemic heart disease, ii) have a history of infrequent symptomatic episodes of paroxysmal AF, iii) have a systolic blood pressure > 100 mmHg and a resting heart rate above 70 bpm, iv) are able to understand how and when to take the medication.

4. Referral for further specialist investigation should be considered, especially in those with lone AF or ECG evidence of an underlying electrophysiological disorder (e.g. WPW syndrome) or where pharmacological therapy has failed.
Rhythm-control for persistent AF, including cardioversion

Rhythm-control treatment

1. Patients with persistent AF who have been selected for a rhythm-control treatment strategy.
2. Based on stroke risk stratification algorithm and cardioversion treatment algorithm.
3. An antiarrhythmic drug is not required to maintain sinus rhythm for those patients in whom a precipitant (such as chest infection, fever etc.) has been corrected and cardioversion has been performed successfully.
4. Routine follow-up to assess the maintenance of sinus rhythm should take place at 1 and 6 months post cardioversion. Any patients found at follow-up to have relapsed back into AF should be fully re-evaluated for a rate-control or rhythm-control strategy.
5. Class 1c agents include flecainide and propafenone. Sotalol to be progressively titrated from 80 mg twice daily up to 240 mg twice daily.

See cardioversion treatment algorithm on page 12

Successful cardioversion

Administer appropriate thromboprophylaxis

Is antiarrhythmic drug therapy needed to maintain sinus rhythm post cardioversion?

Yes

Structural heart disease present?

No

If drug is ineffective, not tolerated or contraindicated; or previous relapse to AF while on beta-blocker and further cardioversion planned/attempted

Amiodarone®

If drug is ineffective, not tolerated or contraindicated; or previous relapse to AF while on beta-blocker and further cardioversion planned/attempted

Class 1c agent or sotalol
Rate-control for persistent and permanent AF

1. Patients with permanent AF includes those with persistent AF who have been selected for a rate-control treatment strategy.

2. Based on stroke risk stratification algorithm (see page 7).

3. Target a resting heart rate of less than 90 bpm (110 bpm for those with recent-onset AF). Target an exercise heart rate of less than 110 bpm (inactive), 200 minus age (active).

4. Referral for further specialist investigation should be considered especially in those with lone AF or ECG evidence of an underlying electrophysiological disorder (e.g., WPW syndrome) or where pharmacological therapy has failed.
Stroke risk stratification and thromboprophylaxis

**Stroke risk stratification**

1. Patients with paroxysmal, persistent or permanent AF
   - Determine stroke/thromboembolic risk

2. High risk
   - Previous ischaemic stroke/TIA or thromboembolic event
   - Age ≥75 with hypertension, diabetes or vascular disease
   - Clinical evidence of valve disease or heart failure, or impaired LV function on echocardiography
   - Anticoagulation with warfarin
     - Contraindications to warfarin?
       - No
         - Warfarin, target INR 2.5 (range 2.0 to 3.0)
       - Yes
         - Consider anticoagulation or aspirin

3. Moderate risk
   - Age ≥65 with no high risk factors
   - Age <75 with hypertension, diabetes or vascular disease
   - Consider anticoagulation or aspirin
     - Yes
       - Anticoagulation with warfarin
     - No
       - Aspirin 75 to 300 mg/day if no contraindications

4. Low risk
   - Age <65 with no moderate or high risk factors
   - Reassess risk stratification whenever individual risk factors are reviewed
## CHADS

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<th>Condition</th>
<th>Points</th>
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<tr>
<td>C</td>
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</tr>
<tr>
<td>H</td>
<td>Hypertension</td>
</tr>
<tr>
<td>A</td>
<td>Age &gt; 74</td>
</tr>
<tr>
<td>D</td>
<td>Diabetes mellitus</td>
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<tr>
<td>S2</td>
<td>Prior stroke or TIA</td>
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### CHADS 2 score x Stroke risk %

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# CHA2DS2-VASC

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<tr>
<td>H Hypertension</td>
<td>1</td>
</tr>
<tr>
<td>A2 Age&gt;74</td>
<td>2</td>
</tr>
<tr>
<td>D Diabetes mellitus</td>
<td>1</td>
</tr>
<tr>
<td>S2 Prior stroke, TIA or thromboembolism</td>
<td>2</td>
</tr>
<tr>
<td>V Vascular disease – PVD, MI. aortic plaque</td>
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<tr>
<td>A Age 65-74</td>
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<tr>
<td>SC Sex category (i.e. females)</td>
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Pros and cons

Pro

- Not much monitoring
- No anti-coag visits
- Lack of interactions
- Not rat poison
- Daily Mail says it’s good - ‘£2.50 a day pill to beat strokes: A million Britons could benefit from drug available for use within weeks’

Con

- Expensive
- Reversibility?
Say “warfarin is rat poison!”
Questions?