Palpitations and Management of Arrhythmias

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Palpitations

- A sensory symptom
- An unpleasant awareness of the forceful, rapid or irregular beating of the heart
- Can be described as:
  - Rapid fluttering in the chest
  - Flip-flopping in the chest
  - Pounding sensation in chest or neck

Differential Diagnosis

Cardiac Causes
- Arrhythmia
- Cardiac and extracardiac shunts
- Valvular Heart Disease
- Atrial Myxoma
- Cardiomyopathy
- Pericarditis

Psychiatric
- Panic Attack
- Obsessive Disorder
- Somatization
- Depression
- Loneliness
- Grief

Medications
- Sympathomimmetic Agents
- Vasodilators
- Anticholinergics
- Beta Blocker withdrawal

Habbits
- Caffeine
- Nicotine
- Cocaine
- Amphetamines
Differential Diagnosis

Metabolic Disorders
- Hypoglycemia
- Thyrotoxicosis
- Pheochromocytoma
- Argentaffinoma
- Scromboid Food poisoning

High Output States
- Anemia
- Pregnancy
- Paget’s Disease
- Fever

History

Symptoms:
- “flip-flopping in chest” – isolated PACs or PVCs
  - Often caused by supraventricular or ventricular premature contraction

Symptoms:
- “rapid fluttering in chest”
  - Sustained supraventricular or ventricular arrhythmia including sinus tachycardia
  - May be regular or irregular
Diagnosis and Management of Palpitations and Arrhythmias

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History

Symptoms:
- “pounding in the neck”

• Irregular pounding of the neck is caused by atrioventricular dissociation where the atria contract against an occasionally closed AV valve. Cannon A waves are formed.
• Examples include PVC’s, third degree heart block or ventricular tachycardia

Palpitations

Most patients with Palpitations will have benign supraventricular or ventricular ectopy

- PVC’s and non sustained ventricular tachycardia come in less often.
- The above are not associated with increased mortality in pts with structurally normal hearts

Palpitations – Structurally Normal

- No history of cardiovascular disease, congenital anomalies

- Normal ECG

History

Mode of Onset:
• Abrupt suggests paroxysmal abnormal tachycardia, though sinus tach may start abruptly in anxiety.

Mode of Termination:
• Abrupt suggests paroxysmal arrhythmia, though high adrenergic tone caused by arrhythmia may result in consequent sinus tach.

History

Characteristics:
• Rapid, irregular – AF, AFL, Atrial tachycardia, multiple PACs or PVCs
• Rapid, regular – SVT, VT

Circumstances:
• Panic/anxiety – the chicken or the egg?
• Catecholamine excess
  - Exercise – idiopathic RVOT VT, AF
  - Emotional startle – Long QT syndrome
Palpitations – Other rhythms

- Atrial Fibrillation
  - Wolf Parkinson White
  - Prolonged Q-T Syndrome

Palpitations – Other rhythms

Atrial Fibrillation

Three Questions to ask:

- Hemodynamically Stable?
  - Anticoagulate?
  - Rate vs. Rhythm Control?

Palpitations – Atrial Fibrillation

Hemodynamic Stability

- Chest Pain
  - Signs of heart failure
  - Other perfusion Abnormalities

Palpitations – Atrial Fibrillation

Anticoagulation

- Lone Atrial Fib
  - Intermittent Atrial Fibrillation
  - Persistent Atrial Fibrillation
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**Palpitations – Other rhythms**

- **Atrial Fibrillation**
  - Wolf Parkinson White
  - Prolonged Q-T Syndrome

**Palpitations – Other rhythms**

Wolf Parkinson-White Syndrome

- Characterized by delta wave

**Palpitations – Other rhythms**

- Increased risk of torsade de pointes
  - Primary Sx: palpitations, syncope, seizures and cardiac arrest
  - Can be congenital or acquired

**Palpitations – Other rhythms**

Prolonged QT Interval

- Characterized by delta wave

- Can be congenital or acquired

**Palpitations – Other rhythms**

Prolonged QT Interval

- Characterized by delta wave

- Can be congenital or acquired
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Palpitations – Other rhythms

QTc = QT interval / square root of RR

QT is measured in lead II, maybe V2-3, V56

QT is not always prolonged and varies over time

Prolonged QT interval

Drugs that cause prolonged Q-T Intervals:

Antiarrhythmics:
- Amiodarone
- Disopyramide
- Dofetilide, sematilide, ibutilide
- Quinidine
- Sotalol

Antihistamines:
- Astemizole
- Terfenadine

Antimicrobials:
- Erythromycin, azithro, clarithro
- Some fluoroquinones
- TMP/SMZ
- Other: Pentamidine, chloroquine mefloquine
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Palpitations – Prolonged QT

Metabolic Disorders:

- Anorexia nervosa
- Hypocalcemia
- Hypokalemia
- Hypomagnesemia
- Hypothyroidism (sporadic case reports)
- Liquid protein diets
- Starvation

Palpitations: oth Considerations

Mitral Valve Prolapse

- Organic Heart Disease
- Obsession

Palpitations: oth Considerations

Framingham Heart Study compared 84 patients with MVP to 3403 control subjects; chest pain, dyspnea, syncope, CHF, AF and ECG abnormalities were equally prevalent in matched controls.

Palpitations: oth Considerations

Mitral Valve Prolapse

- Elevated urine and plasma catecholamine levels
- Exaggerated heart rate response to phenylephrine
- Decreased bradycardic response to dive reflex
- Isoproterenol reproduces symptoms

Palpitations-other Considerations

Mitral Valve Prolapse

- Organic Heart Disease
- Obsession

Palpitations-other Considerations

Mitral Valve Prolapse

- Symptoms sometimes characterizes the arrhythmia
- Arrhythmia is almost always benign in healthy pts.
- A normal ECG supports above
- Look out for atrial fib, prolonged QT intervals, WPW
- Look out for other signs of organic disease: Q waves, ST changes, hypertrophy
Palpitations-Further Workup

- Holter Monitoring
- Event Monitoring
- Echocardiogram
- CXR
- EPS Mapping

Palpitations - Management

- Caffeine, caffeine, caffeine, sleep
- Nutritional support of the heart
- Hepatodoron, donkey thistle, aurum stibium hyoscyamus
- Beta blockade may not suppress arrhythmia but associated symptoms
- Other antiarrhythmics

Palpitations: Baseline ECG

Wolff-Parkinson-White

LVH with strain and LAE

Old ASMI

Long Q-T interval
**Palpitations: Baseline ECG**

- **Atrial Fibrillation**

**Palpitations: Brief Discussion on Atrial Fib**

- Common, especially in middle age
- Rule out Hyperthyroidism
- “Lone Atrial Fibrillation” – No pharmacological treatment necessary
- “Intermittent Atrial Fibrillation” – Studies show high likelihood of mural thrombi and possible embolization
- “Persistent Atrial Fibrillation” – Requires anticoagulation

**Palpitations: Baseline ECG**

- **Normal ECG**

**Palpitations: ECG with Symptoms**

- **Narrow QRS Tachycardia**

- **Take the “Adenosine Challenge”**

  - Sudden termination → AVNRT, AVRT, SNRT
  - Persistent A-tach, high-degree AV block → AFL, AT
  - Gradual slowing, then reacceleration → ST, JT
  - No change in rate → inadequate dose, VT

**Palpitations: Narrow QRS Tachycardia**

- Regular? No → AF, AT/AFL with variable block, MAT
- Visible P waves? No → AVNRT
- Atrial rate greater than ventricular rate? Yes → AT/AFL
- Short RP interval? AVNRT, AVRT, AT
- Long RP interval? AT, PJRT, Atypical AVNRT
Palpitations: ECG with Symptoms

Wide QRS Tachycardia

Palpitations: Wide QRS Tachycardia

- Regular? No → AF/AFL/AT with BBB or AP
- Is QRS identical to that of SR? Yes → SVT with BBB, antidromic AVRT
- A-V dissociation or fusion beats? Yes → VT
- QRS morphology? Bizarre → VT
- Previous MI or structural heart disease? Yes → VT

Palpitations: Workup

- 24 hour Holter monitor
- Continuous loop event recorder
- Echocardiogram
- Treadmill test (for sx with or after exercise)
- E.P. testing

Palpitations: Management

- Reassurance
- AV node blocking meds
- Antiarrhythmic therapy
- Catheter ablation