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
Differential Diagnosis

Habits
- Caffeine
- Nicotine
- Cocaine
- Amphetamines

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

Differential Diagnosis

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

History

Symptoms:
• “rapid fluttering in chest”

• Sustained supraventricular or ventricular arrhythmia including sinus tachycardia

• May be regular or irregular

Palpitations and Management of Arrhythmias
**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

*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**

- 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

Palpitations – Other rhythms

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

Palpitations – Other rhythms

Atrial Fibrillation

Palpitations – Atrial Fibrillation

Three Questions to ask:

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

Palpitations – Atrial Fibrilation

Hemodynamic Stability

- Chest Pain
- Signs of heart failure
- Other perfusion Abnormalities
Palpitations – Atrial Fibrillation
Anticoagulation
- Lone Atrial Fib
- Intermittent Atrial Fibrillation
- Persistent Atrial Fibrillation

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
Prolonged QT Interval
- 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

\[ \text{QTc} = \frac{\text{QT interval}}{\sqrt{\text{RR interval}}} \]

QT is measured in lead II, maybe V2-3, V5-6

QT is not always prolonged and varies over time

Palpitations – Prolonged QT

Drugs that cause prolonged Q-T Intervals:

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

Drugs that cause prolonged Q-T Intervals:

**ANTIHISTAMINES:**
- Astemizole
- Terfenadine
Palpitations – Prolonged QT

Drugs that cause prolonged Q-T Intervals:

**ANTIMICROBIALS:**
- Erythromycin, azithro, clarithro
- Some flooroquinones
- TMP/SMZ
- Other: Pentamidine, chloroquine mefloquine

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

- Mitral Valve Prolapse
- Organic Heart Disease
- Obsession

Palpitations-other Considerations

Mitral Valve Prolapse

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-other Considerations

Mitral Valve Prolapse

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

Palpitations and Management of Arrhythmias
Palpitations - Main Points

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

Palpitations - Management

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

Palpitations - Further Workup

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

Palpitations: Baseline ECG

LVH with strain and LAE

Old ASMI
Palpitations and Arrhythmias

Palpitations: Baseline ECG
Long Q-T interval
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Palpitations: Baseline ECG
Atrial Fibrillation
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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
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Palpitations: Brief Discussion on Atrial Fib
Rhythm vs. Rate control
Rule
“Lone
“Intermitt
“Persistent Atrial
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Palpitations: Baseline ECG
Normal ECG
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Palpitations: ECG with Symptoms
Narrow QRS Tachycardia
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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

Take the “Adenosine Challenge”

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

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's with or after exercise)
- E.P. testing

Palpitations: Management

- Reassurance
- AV node blocking meds
- Antiarrhythmic therapy
- Catheter ablation
Palpitations: Management

- Reassurance
- AV node blocking meds
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