Tachycardias
Case #1

- 73 y/o man with h/o HTN and CHF admitted with dizziness and SOB
- Treated for CHF exacerbation with Lasix
- Now HR 136
Initial Assessment

- Check Telemetry screen if pt on tele
Telemetry Strip
Initial Assessment

- Check Telemetry screen if pt on tele
- Vitals
  - BP
  - RR
  - Oxygen Saturation
  - Temperature
- EKG (maybe the nurse will do it for you)
Initial Assessment

- Check Telemetry screen if pt on tele
- Vitals
- EKG (maybe the nurse will do it for you)
  - A-FIB: irregularly irregular with no P waves
    - Look for evidence of ischemia (inferior or lateral ST-depressions)
- Symptoms: Chest Pain, SOB, Mental Status
- Exam: S3, JVD, Murmurs, Lung Crackles
Evaluation

- **Stable or Unstable?**
  - Our patient: BP 105/65, RR 18, O2 sat 98%

- **Symptomatic or Asymptomatic?**
  - Our patient: Palpitations, Dizziness

- **Etiologies**
  - Prior A-fib
  - HTN
  - CHF
  - Valvular disease
  - Post-surgical
  - Ischemia – rare, more likely to be a consequence of aFib
  - Thyrotoxicosis - would likely have been identified on admission
  - Stress - Hyperadrenergic state
  - Hypokalemia/Hypomagnesemia
Treatment

- **Stable Asymptomatic Pt**
  - Consider PO Lopressor or Diltiazem only

- **Stable Symptomatic Pt**
  - Diltiazem – start with 10-20 mg IV over 1-2 minutes, can give subsequent IV pushes q10-15 minutes (but recheck BP prior to 2\textsuperscript{nd} dose)
    - Add PO – can start with 15-30 mg PO q6
  - Alternative: Lopressor – 5 mg IV, can repeat every 5-10 minutes (if BP okay)
    - PO: 12.5-25 mg PO q6
What if they are already on PO Diltiazem?

- Can still give IV push of Diltiazem but less likely to be effective
- Can give IV Lopressor and start PO Lopressor but careful with overaggressive AV nodal blockade → bradycardia, heart block
Other Options

- **Digoxin**
  - Onset of action in six hours so not ideal for symptomatic patient
  - Load: 1 gram over 3 doses. Start with 0.5 mg IV and then 0.25 mg six and twelve hours later
  - Half dose if pt with renal insufficiency (don’t use for advanced renal failure)
  - Start PO dose (.125 mg) after load
Other Options

- **Amiodarone**
  - Can cause hypotension but less than diltiazem or metoprolol
  - Check to make sure your floor can do an amiodarone drip
  - IV bolus: 150 mg
  - Drip: 1.0 mg/min x 6 hours, 0.5 mg/min x 18 hours
Don’t Forget…

- Repleting the electrolytes can’t hurt
- Pt needs to be on telemetry if not already
- Anticoagulation
Your patient is unstable

- **DC Cardioversion:**
  - Start with 75-100J on biphasic defibrillators
  - Can try successively higher shocks if unsuccessful
  - If you have time, please sedate your pt
- Is there a CCU bed available?
Case #2

- 66 y/o woman S/P Mitral Valve Repair admitted with pyelonephritis and borderline sepsis. Now tachycardic to 145.
- Other Vitals are stable
- EKG shows regular narrow complex tachycardia
Regular Narrow Complex Tachycardia

- What are the possible rhythms?
  - Sinus Tachycardia
Sinus Tachycardia
Sinus Tachycardia

- Identify and treat the cause:
  - Fever
  - Pain
  - Dehydration
  - Bleeding
  - Sepsis
  - Iatrogenic: Albuterol
  - Anxiety
  - Don’t forget PE!
  - Post cardiac transplant (loss of vagal enervation)
What are the possible rhythms?

- Sinus Tachycardia
- Atrial Flutter
Atrial Flutter
Sometimes it is less obvious...

Atrial Flutter with 2:1 AV block
Aflutter – not always regular

Atrial Flutter with variable conduction
Atrial Flutter

**Diagnosis**
- Look for flutter waves
- Be suspicious if rate is near 150
- If not sure, can use vagal maneuvers or 6 mg of IV Adenosine to slow AV conduction and reveal flutter waves

**Management**
- Same as Atrial Fibrillation
- Can start cardioversion at 50J (don’t forget to sync)
- Anticoagulation usually needed
Regular Narrow Complex Tachycardia

What are the possible rhythms?
- Sinus Tachycardia
- Atrial Flutter
- AVNRT
- AVRT
A review of reentry

- Bidirectional Conduction
- Unidirectional Block
- Recovery of Excitability & Reentry
AVNRT
- Reentry within AV node
- Rate usually 160-180
- P wave follows QRS complex
AVNRT - Treatment

- **Stable**
  - Vagal maneuvers/Carotid Massage
  - Adenosine 6 mg IV followed by 6-12 mg IV
    - Need to flush immediately
    - High rate of recurrence
  - Rate control with centrally acting calcium channel blockers (Verapimil/Diltiazem)
  - Replete electrolytes

- **Unstable**
  - Synchronized cardioversion – start with 50J
Termination of SVT by Vagotonic Maneuver (Carotid Sinus Massage)
Accessory Pathway with Ventricular Preexcitation (Wolff-Parkinson-White Syndrome)

- Sinus beat
- "Delta" Wave
- Fusion activation of the ventricles
- Hybrid QRS shape
- PR < .12 s
- QRS ≥ .12 s

Orthodromic AV Reentrant Tachycardia

- Anterograde conduction via normal pathway
- Retrograde conduction via accessory pathway (AP)
Diagnosis
- Need to know about preexcitation on baseline EKG

Treatment
- No adenosine
  - enhances conduction down accessory pathway
- Procainamide
- Ibutilide
- Cardioversion if unstable
- Time to call cardiology
Last case...

- 84 y/o man with COPD, transferred to floor after prolonged MICU course for pneumonia.
- Now HR in 130’s and irregular
Multifocal Atrial Tachycardia

- 3+ p-wave morphology
- Irregular rate
- Variable PR interval
- Usually seen in critically ill pts with pulmonary disease
- Treat pulmonary disease
- Correct electrolytes
- CCB if needed