Different types of arrhythmias

- Bradycardias
- Atrial fib/flutter
- Supraventricular tachycardia
- Ventricular tachycardia
- Wolfe-Parkinson-White syndrome

Bradycardia and pauses

- 2 mechanisms
  - Sinus node
    - Almost never life-threatening
  - AV node
    - May be life-threatening

Sinus node dysfunction

- Sinus bradycardia (sinus rate <60 bpm)
- Sino-atrial exit block
- Sinus arrest
- Tachy-brady syndrome
- Chronotropic incompetence

72 y/o male with presyncope

X
X
2X
72 y/o male with recurrent syncope

70 y/o female with Afib and syncope

90 y/o female with Afib

AV Conduction

- 1st degree AVB
  - Mobitz 1
- 2:1 AV block

- 2:1 AV block
  - Mobitz 2
  - Complete heart block

An 86 year-old with hypertension and a history of breast cancer presents with two weeks of general fatigue and exertional dyspnea. Her exam is notable for systolic hypertension 220/50 and a regular, but slow heart rate (<40). Occasional prominent jugular venous pulsations are noted.
She is hospitalized and lab survey is normal. There is no evidence of ischemia and echo is normal. What is the next most appropriate step?

a. Transcutaneous pacing at 80 beats per minute
b. Dual chamber pacemaker implantation
c. Initiate intravenous dopamine at 10mcg/minute.

Simple approach to AV block (‘heart block’)

1° heart block: every P makes a QRS, but with a long PR
2° heart block: Regular P waves; some but not all P waves make QRS complexes
3° heart block: constant and independent atrial and ventricular rates; no P conducts to a QRS

Atrial fibrillation and flutter

• 79 y/o female with HTN and DM presents with 2 weeks of palpitations and fatigue. The following tracing from her EKG is obtained:

This patient’s rhythm is best described as:
1. A-fib
2. A-flutter
3. Fib-flutter
4. Flubber

In addition to restoring sinus rhythm, which of the following would you recommend for this patient?

1. ASA 81 mg
2. ASA and clopidogrel
3. Warfarin
4. Apixaban
Afib treatment goals

- Rate control vs. rhythm control (reduce symptoms).
- Stroke prevention

Stroke prevention in Afib

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<tr>
<th>CHADS: Score</th>
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<tr>
<td>CHF</td>
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<td>Hypertension</td>
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<td>Age (&gt;75)</td>
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<td>Diabetes</td>
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<td>Stroke (2 points)</td>
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<td>Vascular disease</td>
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Score >2= Anticoagulation is appropriate

Supraventricular tachycardias

- 53 y/o female with recurrent palpitations.
- Episodes will terminate with cough or Valsalva.
- No history of heart disease.
- Presents to ER with tachycardia.

SVT

Adenosine restores sinus rhythm. Likely AV node reentrant tachycardia (AVNRT)

AV relationship

2:1 AV conduction = Atrial flutter
1:1 AV conduction = SVT
Types of SVT

- Short RP: AVNRT, Atrial tach
- Long RP: Atypical AVNRT, Atrial tach, WPW
- Mid RP: Atrial tach, WPW

Looking for P waves...

The RP interval is extremely important!

- Acute: Vagal maneuvers, Adenosine, BB, CCB
- Long-term: Ablation, BB, CCB, Digoxin

WPW Pearls

- Accessory pathways may conduct very fast.
- They frequently cause palpitations due to AV reentry.
- They are prone to atrial fibrillation (Know that ECG!).

Wolfe-Parkinson-White
Most SVT from WPW look something like this:

Acute treatment of choice is adenosine.

Something this fast and this ugly is only one thing....

Don’t give AV nodal blockers for this.

65 y/o male with CAD and prior infarct presents with palpitations. BP in ER is 110/55. His EKG is obtained:

You recommend:
1. Electrical cardioversion
2. Carotid massage
3. IV metoprolol

Sudden Death Pearls

Ejection fraction of <35%, ischemic or non-ischemic that is stable and patient is on adequate medical regimen for LV dysfunction = ICD (ala SCD HEFT and MADIT II)

There is no better or additional risk stratifier beyond the EF.

The risk of sudden death increases linearly over time.

No drug has been shown to prevent sudden death in a prospective fashion like an ICD.

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Question 5:
Which of the following statements are correct regarding the management of this woman?

a. Further risk stratification is warranted.
b. A defibrillator is not indicated since MI happened greater than 5 years ago.
c. A defibrillator is indicated on the basis of a consistently low EF of <35% at least 40 days after MI.
d. Her risk of sudden death is related to a recurrent coronary blockage.

A 66 year-old with a history of inferior myocardial infarction 6 years ago, diabetes mellitus II, and hypertension presents for a routine follow-up. She is asymptomatic and her exam is unremarkable. Her medicines include metoprolol, lisinopril, simvastatin, aspirin. A recent echo shows inferior wall akinesis (scar) with EF of 20%. This is comparable to an echo obtained 2 years prior.
Arrhythmia pearls

• Bradycardic rhythms occur because of abnormal sinus or AV nodal function.

• Afib and flutter are treated the same for stroke risk reduction.

• SVTs are treated acutely with adenosine, chronically with meds or ablation.

• Know the unique situation of Afib in setting of WPW.

• For wide complex rhythms, assume it is VT if in doubt.