Don’t Forget the Basics

• 79 yo man with a history of CHF s/p remote ICD presents with progressive, severe dyspnea at rest
• Compliant with his medicines; described some diarrhea after a recent trip to Mexico
• Sitting up, diaphoretic, tachypneic, oxygen saturation ~87%, blood pressure ~88/40
Don’t Forget the Basics

When you have a questionable ECG:

IF you can, always…

1. Compare it to a previous ECG

2. Think about electrolytes (K+, Mg2+, Ca2+)
Tachyarrhythmias- Unstable

**SVT**
- Unconscious, altered mental status, ongoing chest pain
- “Hypotension” is a clinical judgment

**Atrial fibrillation**

**AF with WPW**

**VT/ VF**

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Tachyarrhythmias-quasi-stable

**SVT**

**Atrial fibrillation**

**AF with WPW**

**VT/ VF**

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Tachyarrhythmias-quasi-stable

**SVT**
Tachyarrhythmias-quasi-stable

Vagal Maneuvers

WAIT!

GET A 12 LEAD ECG!

- Carotid sinus massage
- Valsalva
- Will terminate ~20%


Tachyarrhythmias-quasi-stable

Adenosine
The primary method of adenosine clearance is
1. Liver metabolism
2. Renal excretion
3. Red blood cell metabolism

Tachyarrhythmias-quasi-stable

SVT

Adenosine
- Metabolized by red blood cells and endothelium
- Give 6 mg IV with 20 cc flush
- Repeat with 12 mg IV X 2
- How do I know if I’ve given enough?

SVT can be cured with ablation
1. >95% of the time
2. 85-95% of the time
3. 75-85% of the time
4. 65-75% of the time
5. 55-65% of the time
6. 45-55% of the time
The most likely diagnosis is:

1. Ventricular Tachycardia
2. Atrial fibrillation with WPW
3. SVT with aberrancy
Tachyarrhythmias-quasi-stable

Atrial Fibrillation with preexcitation

AV nodal blockers

Give:

Procainamide

Ibutilide

Tachyarrhythmias-quasi-stable

Ventricular Tachycardia

• Scarcity of data
• Amiodarone probably the most effective\(^1,2\)
  -- Can cause bradycardia
  -- Can hinder EP studies/ablation

Extrapolate from cardiac pulseless VT/VF versus placebo:
Tachyarrhythmias-quasi-stable
Ventricular Tachycardia
• Scarcity of data
• Consider
  -- Lidocaine gtt
  -- Procainamide
  - watch for hypotension and prolonged QT

Tachyarrhythmias-quasi-stable
Ventricular Tachycardia
• Get EP involved
• May respond to beta-blockers or calcium channel blockers
• May be amenable to ablation

Tachyarrhythmias
Tachyarrhythmias

Tachyarrhythmias

Tachyarrhythmias

1. **Electrolytes**
Tachyarrhythmias

1. Electrolytes
   - Hypokalemia
   - Hypo-Mg

Tachyarrhythmias

1. Electrolytes
   - Hypokalemia
   - Hypo-Mg2+
   - Hypo-Ca2+

Tachyarrhythmias

1. Electrolytes
   - Hypokalemia
   - Hypo-Mg2+
   - Hypo-Ca2+

2. Drugs

3. Congenital
Tachyarrhythmias

1. IV magnesium
2. Isoproterenol
3. Transvenous pacing
4. Unstable → DC shock

Bradyarrhythmias

AT SYMPATHETIC NERVOUS SYSTEM

PARASYMPATHETIC NERVOUS SYSTEM

Blood Flow
Bradyarrhythmias

†Vagal tone
Lengthening P-P interval before pause

1. Atropine

2. Dopamine
1. Atropine
2. Dopamine
3. Epinephrine

4. Isoproterenol (vasodilating)


Bradyarrhythmias

Beta-blocker
Calcium channel blocker

Glucagon
Calcium

Bradyarrhythmias

Bradyarrhythmias

Bradyarrhythmias

Bradyarrhythmias
Bradyarrhythmias +

Conduction disease

Anterior wall MI or Lev's Disease

1. Atropine
2. Dopamine
3. Epinephrine
4. Isoproterenol

Bradyarrhythmias

1. Atropine
2. Transcutaneous pacing OR Dopamine OR Epinephrine (then mention isoproterenol)
3. Consider consultation ± transvenous pacing


Bradyarrhythmias

Transcutaneous Pacing

Pt. comes in with multiple, recurrent shocks from his ICD

1. Place external pads
2. Place magnet on chest

1. PUTS DEVICE IN “MAGNET MODE”
2. FOR AN ICD: INHIBITS THERAPY DETECTION
3. FOR A PACEMAKER: INHIBITS SENSING
Pt. comes in with catastrophic bleeding on warfarin…but needs warfarin for atrial fibrillation and a high CHADS2 score (>2)

Or

Patient comes in with apparent embolic stroke in atrial fibrillation with an INR of 2.5

Devices for stroke prevention

- All anticoagulants by nature will be associated with an increased risk of bleeding
- In AF patients with thrombus/thromboembolism, the left atrial appendage is thought to be the site of thrombus formation in more than 90%
Appendage Closure Devices and the Guidelines

• No guidelines for now

• Likely indicated for:
  – If CHADS2 score warrants warfarin or dabigatran (Pradaxa) and there are contraindications (mainly bleeding)
  – If patient has a stroke on warfarin or dabigatran (Pradaxa).

Thank You