Pacemaker - Atrial Fibrillation

- Dual Chamber - DDD
  - Paroxysmal Atrial Fibrillation
  - Tachy-Brady Syndrome
    - Fast with A-fib
    - Slow without A-fib
- VVI or DDD
  - Catheter ablation
    of the AV Node
ICD Emergent Defibrillation

Avoid placing paddle or pads directly over pulse generator

12. The most appropriate initial intervention for an unstable patient with 2\textsuperscript{nd} Degree, II:

1. TCP
2. Transvenous Pacing
3. Atropine
4. Epinephrine
20. Temp pacer fails to capture; 3rd Degree AV Block rate of 46. B/P 84/52 & slightly dyspneic. Most appropriate initial intervention is:

1. Reposition the patient
2. Advance the pacing wire
3. Increase the PPM
4. Decrease the mA

ICD Indications

- Survivor cardiac arrest
- Spontaneous sustained VT-stable/unstable
- LVEF < 35%
- Hypertrophic cardiomyopathy
- LV dysfunction due to prior M.I. or syncope
- Long QT syndrome - syncope or VT
- Brugada syndrome -syncope or VT
Pacer ICD Interference

- Pacer unsafe
  - Generators, MRI
  - Ham radio, Arc welding
  - Airport metal wand
- ICD - external defibrillation
  - Do not place over ICD pulse generator

Cardiogenic Shock
**Cardiogenic Shock**

- Systemic arterial hypotension < 90 mmHg
- MAP > 30 mmHg below basal levels
- PAWP > 15 mmHg
- Reduced C.O.
  - Cardiac Index < 2.2 L/min/m²
    - Normal CI 2.6 - 4.2 L/min/m²
- Cool skin, altered mental status
- Diminished urine output
Physical Exam

- Systolic ↓ 90 mmHg - 30 minutes
- ↓ C.O., ↑ Filling pressures
- ↑ Pulse, faint and irregular
- Tachypneic, pulmonary rales
- ↑ JVD, precordial heave

Physical Exam

- Distant S1, S2; + S3 and/or +S4
- MR or VSD Murmur
- Ashen, cyanotic
- Cool skin, mottled extremities
- Clouded sensorium
- Restlessness, agitation
Cardiogenic Shock

Initial Treatment Steps
- Supplemental O2/Mechanical Ventilation
- Venous access, ECG monitoring
- Pain relief
- Hemodynamic support

Tissue Perfusion Remains Inadequate
- Inotropic Agents
- IABP

Adequate Perfusion w/o Congestion

Adequate Perfusion with Pulmonary Congestion
- Diuretics
- Vasodilators

Reperfusion

Cardiogenic Shock

Initial Treatment

- O₂ → Mechanical Ventilation
- Venous access, monitor, pain relief
- Hemodynamic support
  - Fluid challenge (≠ pulmonary edema)
  - Vasopressors for unresponsive ↓ B/P
Tissue Perfusion Remains Inadequate

- Inotropic agents
  - Dobutamine (Systolic > 80 mmHg)
  - Dopamine (Systolic < 80 mmHg)
  - Milrinone (Chronic heart failure)
- IABP
  - ↓ Systolic afterload
  - Augments diastolic perfusion pressure
  - ↑ Cardiac output
- Reperfusion

Adequate Tissue Perfusion with Pulmonary Congestion

- Diuretics
- Vasodilators (Nitroprusside & NTG)
  - Extreme caution
  - Possible ↓ B/P and ↓ Coronary blood flow
  - When stable can ↓ preload and afterload
- Reperfusion
22. Dobutamine is used at a rate of 10-12 mcg/kg/min for cardiogenic shock to:

1. ↓ Myocardial ischemia
2. Improve urinary output
3. Improve myocardial contraction
4. ↓ Oxygen consumption
1. When externally shocking a pt with an ICD pacemaker, you should:

1. If v-fib develops, you should not defibrillate with external paddles
2. CPR is not indicated if ICD is firing correctly and pt is pulseless
3. Avoid placing paddle directly over the ICD pulse generator
4. Turn off all functions of the ICD by applying a magnet

2. After a STEMI, your pt. experiences ↓ LOC, weak & thready pulse, posterior crackles in ↓ half of lung fields bilaterally, B/P 76/43; HR 130; RR 24; UO 5 ml; O2 Sat 88% (↓ 97%). The most likely cause is:

1. CVA
2. **Cardiogenic Shock**
3. Pulmonary Embolus
4. ARDS
3. Which of the following is at the greatest risk for Torsades de Pointes

1. ↓ ST segment
2. Peaked T waves
3. Prolonged Q-T
4. Development of U waves

4. Pt. reports sharp, constant chest pain, worse lying down and better sitting up and leaning forward. Most likely cause is:

1. Acute Coronary Syndrome
2. **Pericarditis**
3. Pulmonary embolism
4. Abdominal aortic aneurysm
5. Which of the following 12-Lead ECG Δs should be expected with ACS involving the Inferior Wall

1. Q, ↑ST, ↓T in V4-V6, I, aVL
2. Q in I & aVL, ↑ST in II, III and V1-V6
3. Q, ↑ST, ↓T in II, III, aVF
4. Q, ↓ST, and ↑T in II, III, aVL

6. Which of the following is indicated for pulmonary edema and cardiogenic shock

1. Alpha-adrenergic drugs to ↑ coronary perfusion
2. Nitrates to ↓ afterload
3. Beta-receptor blockade drugs to ↑ cardiac contractility
4. Mechanical circulatory assist devices to ↑ coronary perfusion
7. Pt with Q waves and ↑ ST in V₁-V₃ develops ↓ B/P and pansystolic murmur @ LLSB. Most likely this is:

1. Idiopathic hypertrophic cardiomyopathy
2. Ventricular aneurysm
3. Cardiac tamponade
4. Ruptured interventricular septum

8. This ECG Strip is Most Indicative of:

1. 2nd Degree AV Block, Type I
2. 2nd Degree AV Block, Type II
3. 1st Degree AV Block
4. 3rd Degree AV Block
9. Pt admitted with CP and 2\textsuperscript{nd} AV Block, Type II. Findings probably a result of occlusion of which artery?

1. Left anterior descending
2. Left circumflex
3. Left main
4. Right

10. Pt has the rhythm below, unresponsive, B/P 72/50; the most appropriate therapy is:

1. **Cardioversion**
2. Defibrillation
3. Lidocaine, 1mg/kg IV
4. Verapamil 5mg IV
11. Your patient reports the following symptoms: Mid-sternal chest pain, radiates down his left arm into his two little fingers and his jaw, short of breath, skin cool and clammy. His symptoms indicate:

1. Variant Angina
2. **Myocardial Infarction**
3. Angina Pectoris
4. Pulmonary Embolism

12. The most appropriate initial intervention for an unstable patient with 2\textsuperscript{nd} Degree, II is

1. TCP
2. Transvenous Pacing
3. Atropine
4. Epinephrine
13. Your patient has the following rhythm and is pulseless and apneic, what should you do first?

1. Defibrillate @ 200 j biphasic
2. Synchronize cardiovert @ 200 j biphasic
3. Wait for the Code Team to arrive
4. Administer 300 mg Amiodarone IV

✓ 1. Defibrillate @ 200 j biphasic

14. Pain associated with M.I. typically presents as:

1. Crushing, constricting, or pressure-like CP
2. Radiating into left arm, ulnar distribution
3. Radiating into jaw, neck or throat
4. Associated with exertion
5. 1, 2 & 3 are correct
15. What is the most appropriate permanent pacer mode to use when a Pt. goes into A. Fib

1. DVI
2. DDD
3. VAT
4. VVI

16. In a patient receiving a beta blocker, identify a CV effect to be expected

1. Wolfe-Parkinson-White Syndrome
2. Prolonged PRI
3. Shortened qTc
4. Increased B/P
17. Pt. with dyspnea, tachypnea, pulmonary congestion, loud pansystolic murmur @ the apex with a thrill. The RN should suspect

1. Mitral regurgitation
2. Mitral stenosis
3. Aortic regurgitation
4. Aortic stenosis

18. Nitrate therapy is indicated for the treatment of unstable angina because it:

1. ↑ Preload ↑ myocardial demand
2. ↓ Preload ↑ myocardial demand
3. ↓ Preload ↓ myocardial demand
4. ↑ Preload ↓ myocardial demand
19. The dysrhythmia most commonly associated with mitral stenosis

1. 2nd Degree AV Block, Type II
2. IVR
3. Sinus Bradycardia
4. Atrial Fibrillation

20. Temp pacer fails to capture; 3rd Degree AV Block rate of 46. B/P 84/52 & slightly dyspneic. Most appropriate initial intervention is:

1. Reposition the patient
2. Advance the pacing wire
3. Increase the PPM
4. Decrease the mA
21. The emergency drug of choice for polymorphic VT with a prolonged QT is:

1. Atropine  
2. Amiodarone  
3. Adenosine  
4. Magnesium

22. Dobutamine is used at a rate of 10-12 mcg/kg/min for cardiogenic shock to:

1. ↓ Myocardial ischemia  
2. Improve urinary output  
3. Improve myocardial contraction  
4. ↓ Oxygen consumption
23. In a temporary pacer, the most common cause of failure to fire is:

1. The sensitivity is too high (mVs are ↓)
2. The sensitivity is too low (mVs are ↑)
3. Current is too low (ma is ↓)
4. Current is too high (ma is ↑)

24. Who is more likely to experience atypical chest pain

1. Diabetic female
2. 60-year old male with known CAD
3. 50-year old man shoveling snow
4. Patient with PAD
25. Pt admitted with R/O MI. Two hours after admission you see the following:

1. Ventricular Tachycardia
2. Orthodromic Tachycardia
3. RBBB
4. Torsades de pointes

26. Pt has loss of consciousness with B/P 78/42, HR 48 and 3\textsuperscript{rd} Degree AV block, you should:

1. Administer atropine 0.5 mg IV.
2. Administer fluids
3. Apply TCP
4. Administer Lidocaine
27. Pt presents in the E.D. with c/o lethargy. Lab reveals a K+ 7.2, & B/P 100/60. The ECG strip is below. The ICU RN should anticipate:

1. Cardioversion
2. 1 amp D50W & 20U of Reg Insulin
3. Defibrillation
4. Ca++ to stabilize cardiac membranes

28. Ischemic chest pain is caused when:

1. Myocardial O2 supply exceeds demand
2. Myocardial O2 demand exceeds supply
3. Hypertension, anemia, cold air, or smoking
4. 2 & 3 are correct
29. Pt admitted with chest pain and nausea. ECG shows new deep Q waves and ↑ST in I, aVL, V₅-V₆

1. Subendocardial infarction
2. Anterior wall MI
3. Inferior wall MI
4. Lateral wall MI

30. The patient has the rhythm below, B/P 120/80, A & O x 4, lungs clear, no chest pain; you should expect the following treatment:

1. Atropine 0.5 mg IV
2. Amiodarone 150 mg IV ★
3. Amiodarone 300 mg IV
4. Defibrillation 200 joules
31. Your patient reports that she is short of breath, fatigued and has the worse toothache of her life. You should:

1. **Call the dentist on call.**
2. **Get a 12-Lead, start an IV, and call the M.D.**
3. **Give her a Tylenol for her toothache.**
4. **Let her rest and check with her in an hour.**