STEP 2 REVIEW

CARDIOLOGY

High-Yield Clinical Presentations
Diagnosis,Therapeutics

MED STUDENT SUCCESS

True Learn Question Bank

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MED STUDENT SUCCESS

Angina Pectoris Types

Stable Angina

Px: Predictable chest pain with exertion. Relieved by rest.

Dx: EKG, Trops, Stress test

Tx: Nitroglycerin (PRN), Beta-blockers.

Unstable Angina

Px: New onset, worsening, or at rest

Dx: Normal troponins (distinguishes from NSTEMI). TIMI Score 3-4

Tx: Admit. Heparin, Antiplatelets. Urgent Cath.

Prinzmetal (Variant)

Px: Cyclical pain at rest (vasospasm).

Dx: EKG - Transient ST Elevation. Normal Trops

Tx: CCB, Nitrates. Avoid Beta-blockers.

Myocardial Infarction (MI)

STEMI

PATHOLOGY

Transmural necrosis due to total occlusion.

DIAGNOSTICS

ECG: ST Elevation >1mm in 2 contiguous leads.

Labs: Elevated Troponins.

TREATMENT (EMERGENCY)

PCI: Door-to-balloon < 90 min.

Meds: Morphine, Oxygen, Nitrates, DAPT, Heparin, High-dose Statin, BB

INFERIOR MI: IVF to help preload, AVOID NITROGLYCERIN

NSTEMI

PATHOLOGY

Partial thickness necrosis due to partial occlusion.

DIAGNOSTICS

ECG: ST Depression, T-wave inversion.

Labs: Elevated Troponins.

TREATMENT

Invasive: Cath within 24-48 hrs.

Meds: Morphine, Oxygen, Nitrates, DAPT, Heparin, High-dose Statin, BB

Heart Failure Syndromes

HFrEF (Systolic)

Def: EF < 40%. Dilated LV.

Dx: Echo showing reduced EF.

Tx: BB + ACEi/ARNI + MRA + SGLT2i. Loop diuretics.

HFpEF (Diastolic)

Def: EF ≥ 50%. Stiff LV.

Dx: Echo shows LVH, diastolic dysfunction.

Tx: Diuretics, SGLT2i, BP control.

High Output HF

Def: High volume but excessive demand.

Causes: Anemia, Thyrotoxicosis, AV fistula, Beriberi.

Tx: Treat underlying cause.

Cardiomyopathies (Structural)

Takotsubo

Px: Mimics STEMI after emotional stress.

Dx: Echo: Transient Regional Wall Motion Abnormality- Apical ballooning.
Cath - negative for stenosis

Tx: Supportive. Resolves spontaneously.

Tachycardia-induced

Px: HF after prolonged arrhythmia.

Dx: Reduced EF reversible with rate control.

Tx: Aggressive rate/rhythm control.

Hypertrophic & Restrictive CM

Hypertrophic (HOCM)

PRESENTATION

Syncope, angina. **Murmur:** Systolic, worsens with Valsalva.

DIAGNOSTICS

Echo: Asymmetric septal hypertrophy (>15mm)

TREATMENT

Beta-blockers (slow HR, ↑ filling). Avoid dehydration.

ICD.

Restrictive (Amyloidosis)

PRESENTATION

Right HF signs (ascites). Kussmaul sign.

DIAGNOSTICS

Echo: "Speckled" myocardium, bi-atrial enlargement.

Biopsy: Congo red stain.

TREATMENT

Rate control. Diuretics. Tafamidis.

Cor Pulmonale (Right HF)

Pathology & Presentation

PATHOLOGY

RV failure from pulmonary disease (COPD, PAH).

PRESENTATION

Edema, JVD, Hepatomegaly. Loud P2 heart sound.

Diagnostics & Treatment

DIAGNOSTICS

Echo: Dilated RV, TR, High PAP.

Right Heart Cath: Gold standard.

TREATMENT

Treat lung pathology (O2). Diuretics.

Aortic Dissection (AD)

Clinical Picture

PRESENTATION

Severe "tearing" chest/back pain. Asymmetric BP.

DIAGNOSTICS

CT Angiography (CTA): First line.

TEE: If unstable or renal failure.

Classification & Management

TYPE A (ASCENDING)

High rupture risk. **Tx:** Emergent Surgery.

TYPE B (DESCENDING)

Distal to subclavian. **Tx:** Medical management. Strict BP control (IV Esmolol) to SBP 100-120.

Pericardial Diseases I

Pericarditis

PRESENTATION

Pleuritic pain, better leaning forward. Friction rub.

Types: Viral, Uremic, Dressler's.

DIAGNOSTICS

ECG: Diffuse ST elevation (concave), PR depression.

TREATMENT

NSAIDs (High dose) + Colchicine. Steroids if refractory.

Pericardial Effusion

PRESENTATION

Muffled heart sounds. Ewart's sign.

DIAGNOSTICS

ECG: Low voltage QRS. Electrical Alternans.

Echo: Anechoic space around heart.

TREATMENT

Small(<10mm during diastole), asymptomatic effusion - Observation

Large(>20mm) ,symptomatic effusions - Pericardiocentesis

Recurrent/Malignant effusion - Pericardial window

Pericardial Diseases II

Cardiac Tamponade

PATHOLOGY

Fluid compresses heart (Obstructive Shock).

PRESENTATION (BECK'S TRIAD)

Hypotension + JVD + Muffled Sounds. Pulsus Paradoxus.

TREATMENT

Emergent Pericardiocentesis.

Constrictive Pericarditis

PATHOLOGY

Calcified pericardium restricts filling.

PRESENTATION

Right HF signs. Kussmaul sign. Pericardial Knock.

TREATMENT

Diuretics. Pericardiectomy.

Valvular Heart Disease

Aortic Stenosis

Px: SAD (Syncope, Angina, Dyspnea). Systolic murmur RUSB.

Dx: Echo (Jet velocity, gradient).

Tx: Valve replacement (SAVR/TAVR).

Mitral Regurgitation

Px: Dyspnea, Holosystolic blowing murmur @ Apex.

Dx: Echo (Volume overload).

Tx: Repair (preferred) or Replacement.

Mitral Stenosis

Px: Rheumatic hx. Diastolic rumble + Opening Snap.

Dx: Echo .

Tx: Valvuloplasty or Replacement.

Tricuspid Regurgitation

Px: Pulsatile liver, JVD. Holosystolic murmur.

Dx: Echo .

Tx: Diuretics. Repair.

Endocarditis & Prosthetic Valves

Infective Endocarditis (IE)

PRESENTATION

Fever + New Murmur. Janeway lesions, Osler nodes.

DIAGNOSTICS (DUKE CRITERIA)

Major: + Blood Cx, + Echo (Vegetation).

TREATMENT

IV Antibiotics (4-6 weeks)
Indications for Surgery: HF, Abscess, large vegetations

Replacement Valve Dysfunction

TYPES

Thrombosis: Mechanical valves. **Failure:** Bioprosthetic.

DIAGNOSTICS

TTE,TEE, Fluoroscopy

TREATMENT

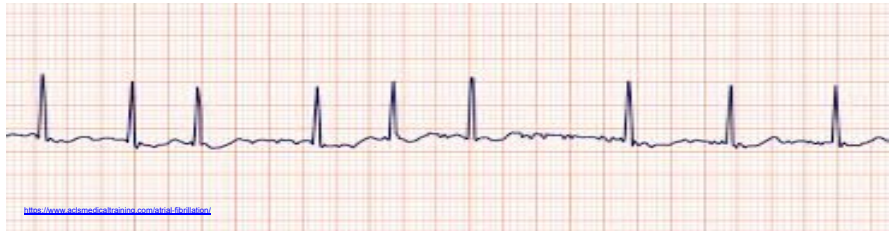
Thrombolysis or Re-do Surgery. Anticoagulation.
Important note
Mechanical Valve require lifelong AC
Prosthetic valves - only require AC during the first 3-6 months

Atrial Arrhythmias

Atrial Fibrillation (Afib)

PRESENTATION

Irregularly irregular. Palpitations, stroke risk.



MANAGEMENT

Rate: Beta-blockers, CCB (Diltiazem).

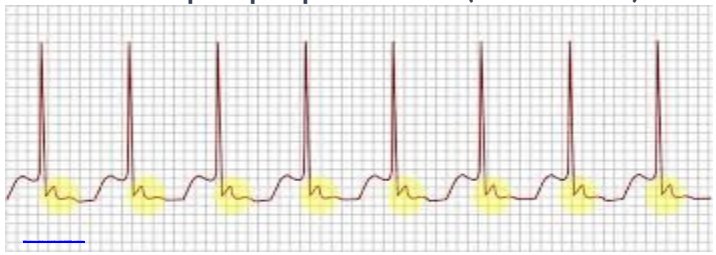
Rhythm: Amiodarone, Cardioversion, Ablation.

Anticoagulation: CHA2DS2-VASc score.

SVT (AVNRT)

PRESENTATION

Sudden rapid palpitations (HR >150). Narrow QRS.



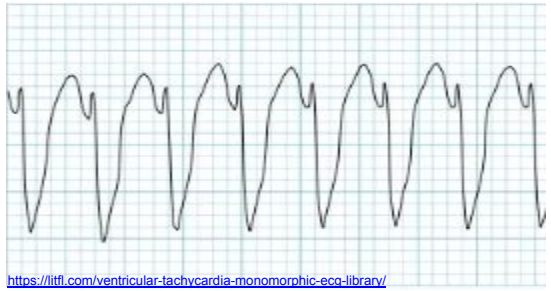
MANAGEMENT

Stable: Vagal maneuvers. Adenosine 6mg.

Unstable: Synchronized Cardioversion.

Ventricular Arrhythmias

Ventricular Tachycardia



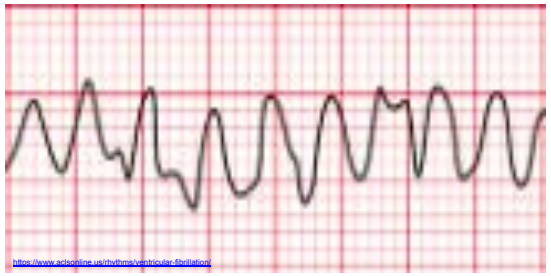
Px: Wide QRS tachycardia.

Stable: Amiodarone.

Unstable: Cardiovert.

Pulseless: Defibrillate.

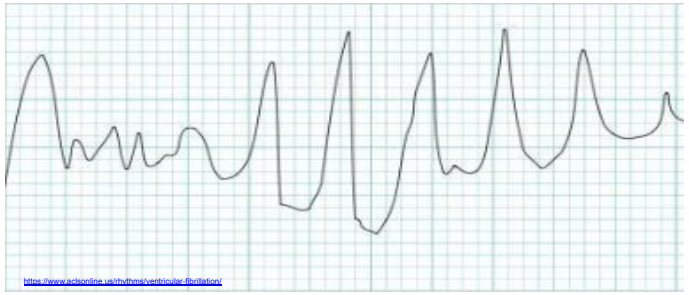
Ventricular Fibrillation



Px: Cardiac Arrest. Chaotic rhythm.

Tx: Defibrillation + CPR + Epinephrine.

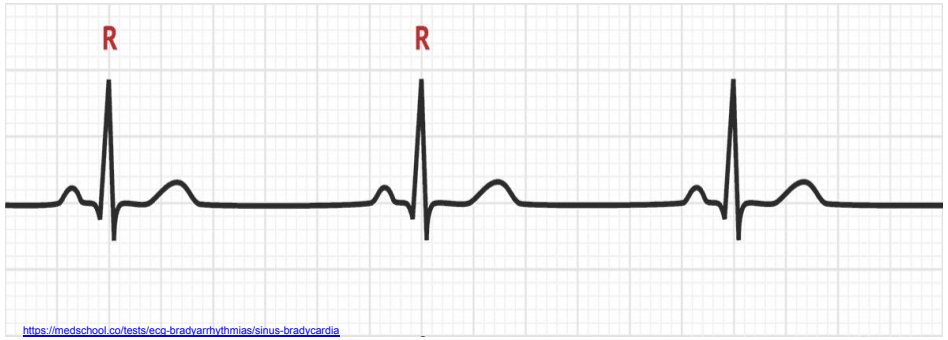
Torsades de Pointes



Px: Polymorphic VT. Long QT.

Tx: IV Magnesium Sulfate. Pacing.

Bradyarrhythmias



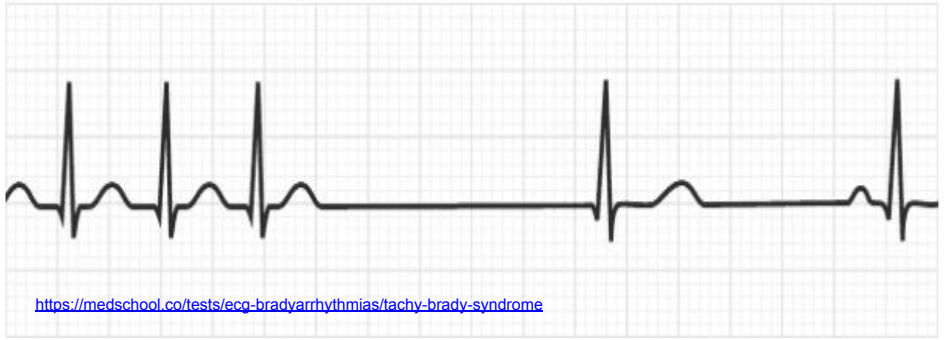
Sinus Brady: Rate < 60

Tx:

Asymptomatic - Do not TX

Symptomatic - Atropine

BB Toxicity - Glucagon



Sick Sinus: Tachy-Brady syndrome.

Tx:

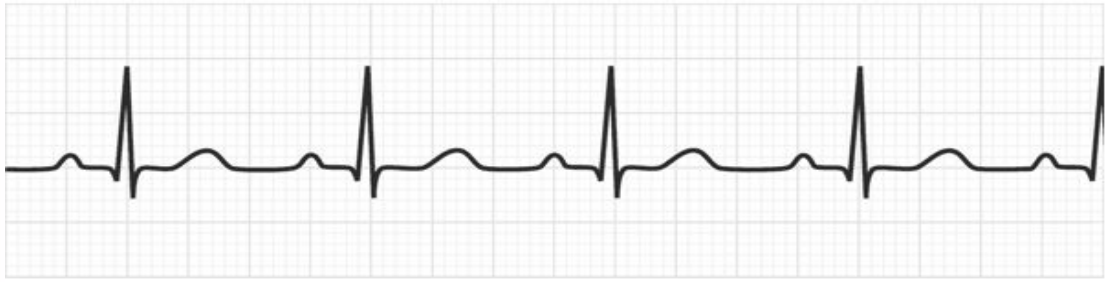
Pacemaker placement for bradycardia

antiarrhythmics to control episodes of tachycardia

Consider AC for if there is Afib

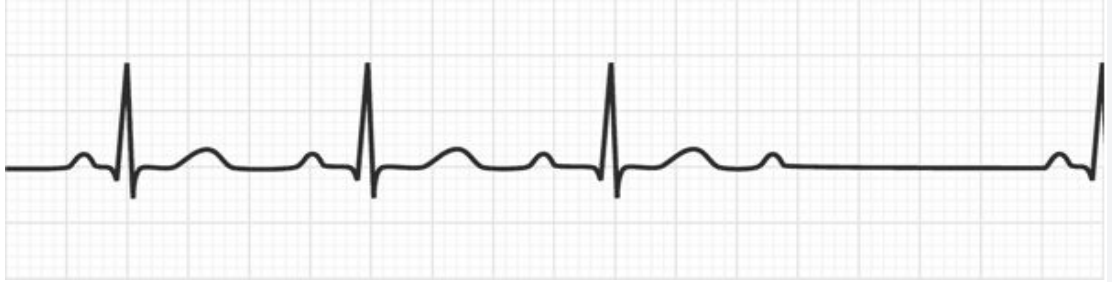
Heart Blocks

1st Degree AV block



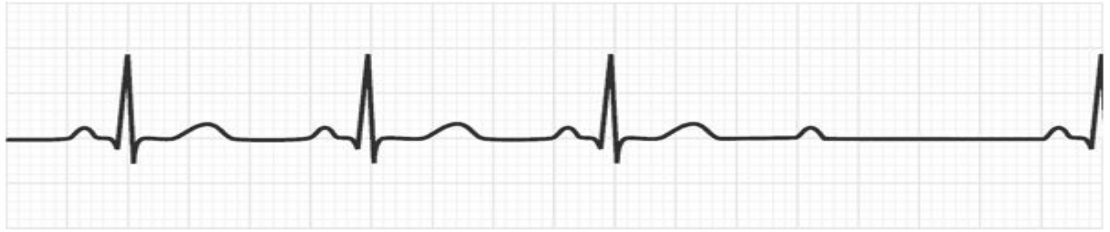
Tx: Observation

2nd Degree AV block: Type 1 Mobitz



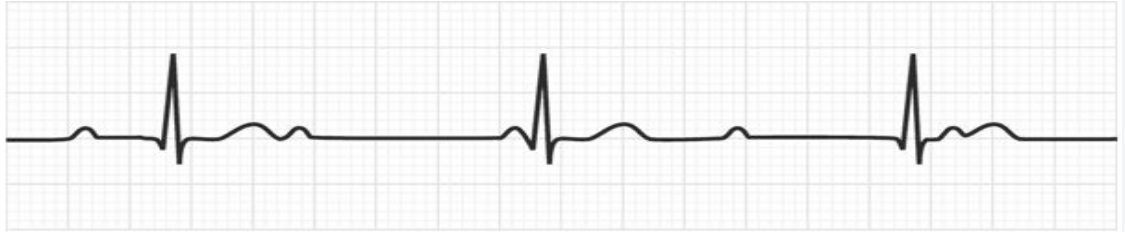
Tx: Observation, rarely requires Atropine/Pacing

2nd Degree AV Block: Type II Mobitz



Tx: Transcutaneous pacing then pacemaker

3rd Degree AV Block



Tx: Transcutaneous/Transvenous pacing and pacemaker

https://medschool.co/tests/ecg-bradyarrhythmias/atrioventricular-block

Hypertension

Systemic Hypertension

STAGES

Stage 1: 130-139/80-89. Stage 2: ≥140/90

Urgency >180/120, Emergency >180/120 w end -organ damage

Diagnostic criteria

2 readings of >BP 130/85 + Home BP >135/85

or 24 hr Ambulatory BP >130/80

https://doi.org/10.1161/HYPERTENSIONAHA.120.15026

Treatment

Weight loss, DASH Diet, Exercise, Na <3g

ACEi/ARB, Thiazide, CCB.

African American: Thiazide or CCB, consider low dose ARB

T2DM & CKD: ACEi/ARB.

Resistant & Pulmonary HTN

Resistant Hypertension

Diagnostic criteria

BP remains elevated despite 3 medications including diuretic or >4 medications required to reach goal BP

Evaluation

Hyperaldosteronism - aldosterone and renin level/ratio

Renal artery stenosis - Renal Ultrasound

Pheo - Urine Metanephrine, CT Abdomen with contrast

Pulmonary Hypertension

DEFINITION

Mean PA Pressure ≥ 20 mmHg.

GROUPS

1 (Idiopathic/hereditary), 2 (Left Heart), 3 (Lung), 4 (Clot).

TREATMENT

Diuretics, O2. Group 1: Sildenafil, Bosentan.

Venous Thromboembolism

Deep Vein Thrombosis

PRESENTATION

Unilateral leg swelling, pain, warmth.

DIAGNOSTICS

Venous Doppler,Well score

TREATMENT

Anticoagulation (DOACs, Heparin/Warfarin).

Pulmonary Embolism

PRESENTATION

Dyspnea, pleuritic pain, tachycardia. S1Q3T3.

DIAGNOSTICS

CT Pulmonary Angiography (CTPA). V/Q Scan.

TREATMENT

Anticoagulation - IV Heparin .

Thrombolytics if SBP <90 or MAP <65 mmHg

THANK YOU!

Questions?

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More STEP Resources: medstudentsuccess.com

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