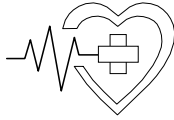


Exercise Arrhythmias, Pt 1

Chapter 13

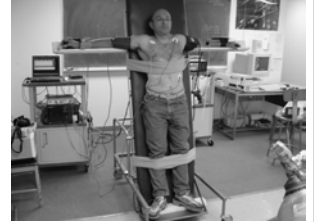
• Brady-Arrhythmias

- Case report
- Sick Sinus Syndrome
- Heart Block
- Treatment of Bradycardia



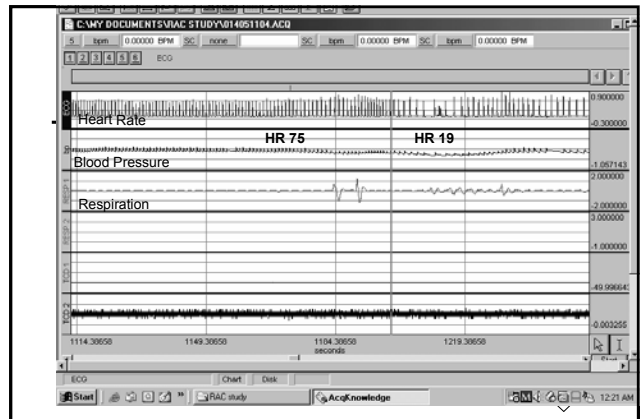
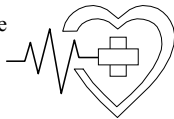
Bradycardia Case Report

- 60+ yr-old, “control” male undergoing a tilt test for diabetic research study
- Variable and low HR during supine baseline and lack of responsiveness
- HUT starts—normal response at first, then HR and BP fall
- Lower tilt table—HR continues to fall, HR 18!
- Loss of consciousness and convulsions
- Call a code



Bradycardia Case Report

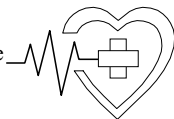
- Treatment
 - Oxygen
 - Feet up, IV fluids
- Diagnosis
 - Previously unknown autonomic disease



Brady-arrhythmia

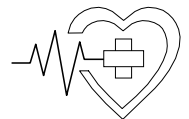


- An inadequate increase in HR during exercise is a sign of:
 - poor ventricular function
 - severe CAD
- A “relative contra-indication” to terminate an exercise test



Sick Sinus Syndrome (chronotropic incompetence)

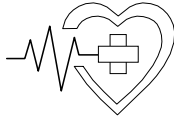
- Symptoms
 - abnormally slow HR at rest
 - attenuated increase in HR with exercise
- Causes
 - high vagal tone
 - disease of the nodal tissue
- Protective effect
 - in ischemia, preserves longer diastole



Junctional Rhythms

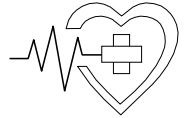


- rhythm originates in av junction
- rate is 40-60, regular
- short PR, if seen
- normal QRS
- P waves inverted in lead II, before, hidden or after QRS



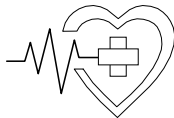
Conduction Disturbances

- Increased Symp tone and decreased PS tone may cause conduction disturbances
 - increased traffic in a-v node
 - fatigue of conduction tissue
 - longer refractory period
- ischemia
 - may slow conduction



Contra-Indications for Exercise

- For starting a test
 - 2nd or 3rd degree AV block (relative)
- For terminating a test
 - heart block (relative)
 - development of BBB (relative)



1st Degree Heart Block



- Often disappears with exercise due to release of vagal tone.
- Rarely, appears with exercise
- Has little clinical significance



2nd degree Heart Blocks

Mobitz I
Wenckebach
Lengthening PR

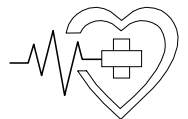


Mobitz II
Multiple Ps



2nd Degree Heart Block

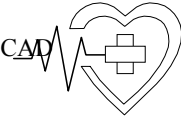
- While 1st degree heart block usually improves with exercise, 2nd degree gets worse.
 - Block is usually lower, below the A-V node, and sympathetic drive does not enhance conduction
- Don't start a test
- Stop a test



3rd Degree (Complete) Heart Block

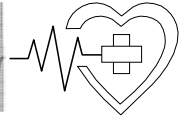


- Dissociated, regular, Ps and QRSs
- Poor prognosis when associated with CAD

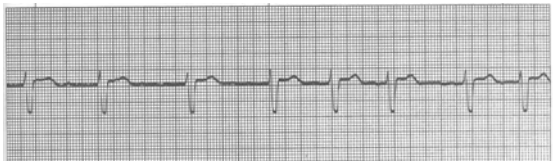
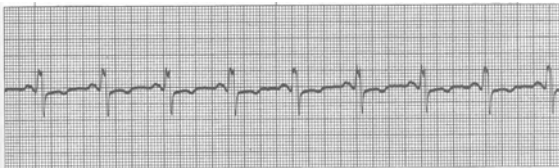


Bundle Branch Block

- Obstruction in one of the branches of the bundle of His
- Wide and sometimes bizarre QRS complexes
- Almost always indicates serious myocardial damage
- Relative contra-indication to stop a test

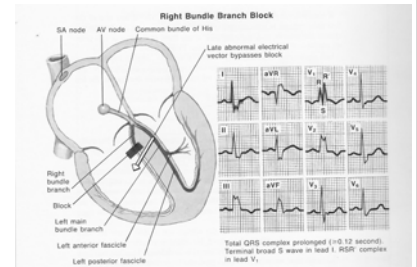


Bundle Branch Block



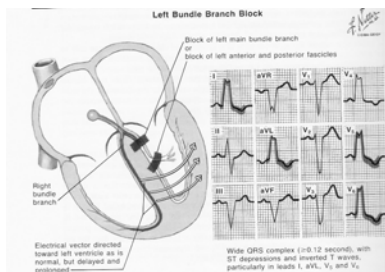
RBBB

- Less serious than LBBB
- Wide QRS
- Lead I, broad S wave
- Lead V1, RSR'



LBBB

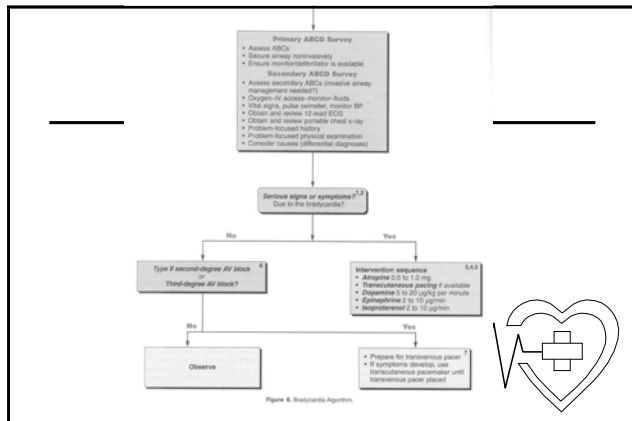
- Usually indicates severe myocardial disease
- Wide QRS
- Bizarre QRS
- ST depressions
- Inverted T waves



Brady-arrhythmia Treatments

- What is bradycardia?
 - Heart rate < 60
 - HR less than expected relative to the underlying condition or cause
- When do you do something about it?
 - With serious signs or symptoms
- Interventions
 - drugs or pacing

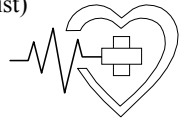




All Trained Dogs Eat IAMS

- Atropine (most common, except AV block, Mobitz II)
- Transcutaneous pacing
- Dopamine
- Epinephrine
- Isoproterenol (beta adrenergic agonist)

Caution: don't use these drugs with ischemia!
increase myocardial oxygen consumption



Brady-arrhythmias, Summary

- What are some of the causes of an inappropriately small increase in HR during exercise?
- What should you do if HR does not increase during an exercise test?
- How might a physician treat a patient with severe symptoms from bradycardia?

