Approach to bradyarrythmias

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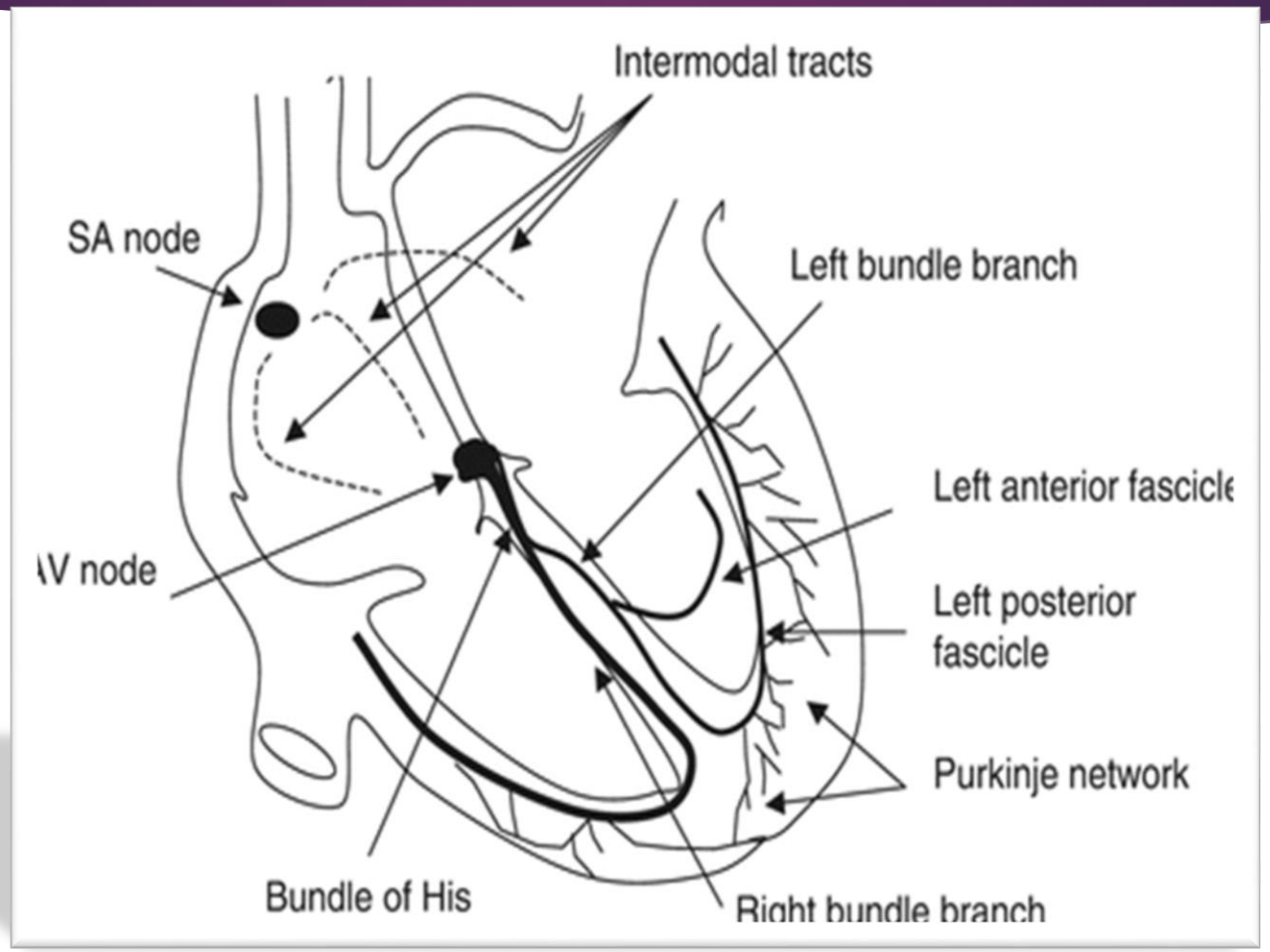
- Defined as heart rate less than 60 beats/min
- Physiologic : well conditioned athletes or during sleep

- bradyarrhythmias can be categorized on the basis of the level of disturbance in the hierarchy of the normal impulse generation and conduction system (from sinus node to AV node to His-Purkinje system)

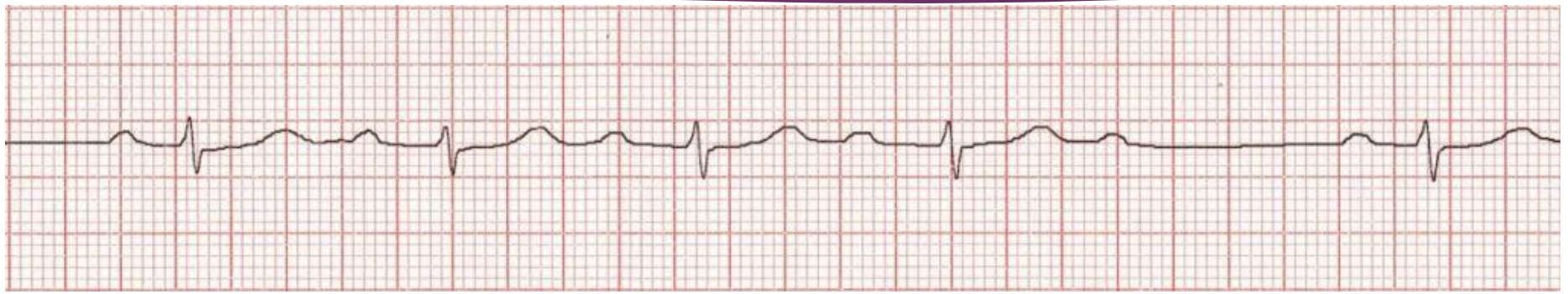

Intermodal tracts
SA node
Left bundle branch
Left anterior fascicle
AV node
Left posterior fascicle
Purkinje network
Bundle of His
Right bundle branch

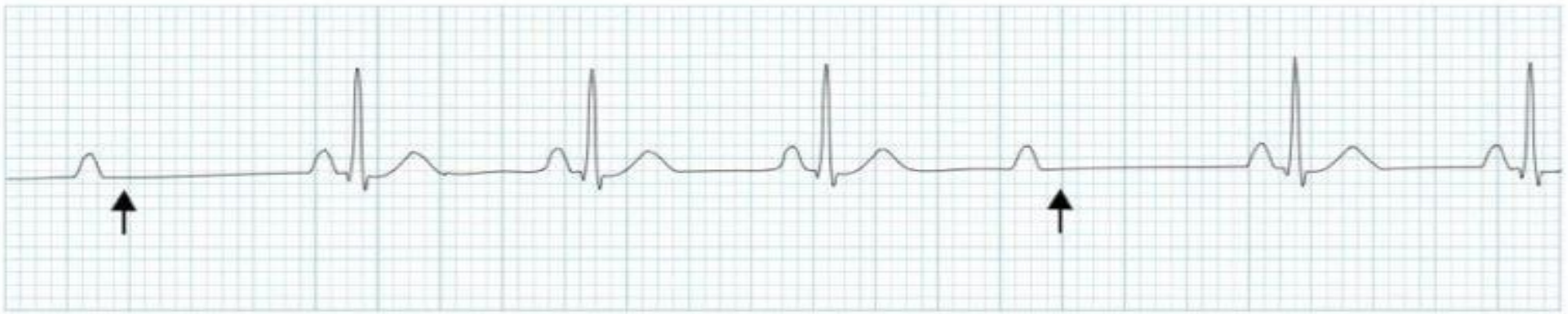
- Sinus bradycardia
- Sinus arrhythmia
- Sinus arrest or sinus pause
- Sinoatrial exit block
- Wandering pacemaker
- Hypersensitive carotid sinus syndrome
- Sick sinus syndrome
- Atrioventricular block

Atrioventricular block

- **First degree AV block:**
- During first-degree AV block, every atrial impulse is conducted to the ventricles and a regular ventricular rate is produced, but the PR interval exceeds 0.20 second in adults.
- **Second degree AV block:**
- Blocking of some atrial impulses conducted to the ventricle at a time when physiologic interference is not involved constitutes second-degree AV block
- Mobitz type 1(wenckebach)
- Mobitz type 2


PR





- Third degree (complete) AV block
- Third-degree or complete AV block occurs when no atrial activity is conducted to the ventricles and therefore the atria and ventricles are controlled by independent pacemakers.


R
P

causes

- Increased vagal tone
- Trained athletes
- Inferior MI
- Mitral valve surgery
- Myocarditis (lyme disease)
- Electrolyte disturbances
- drugs

Management

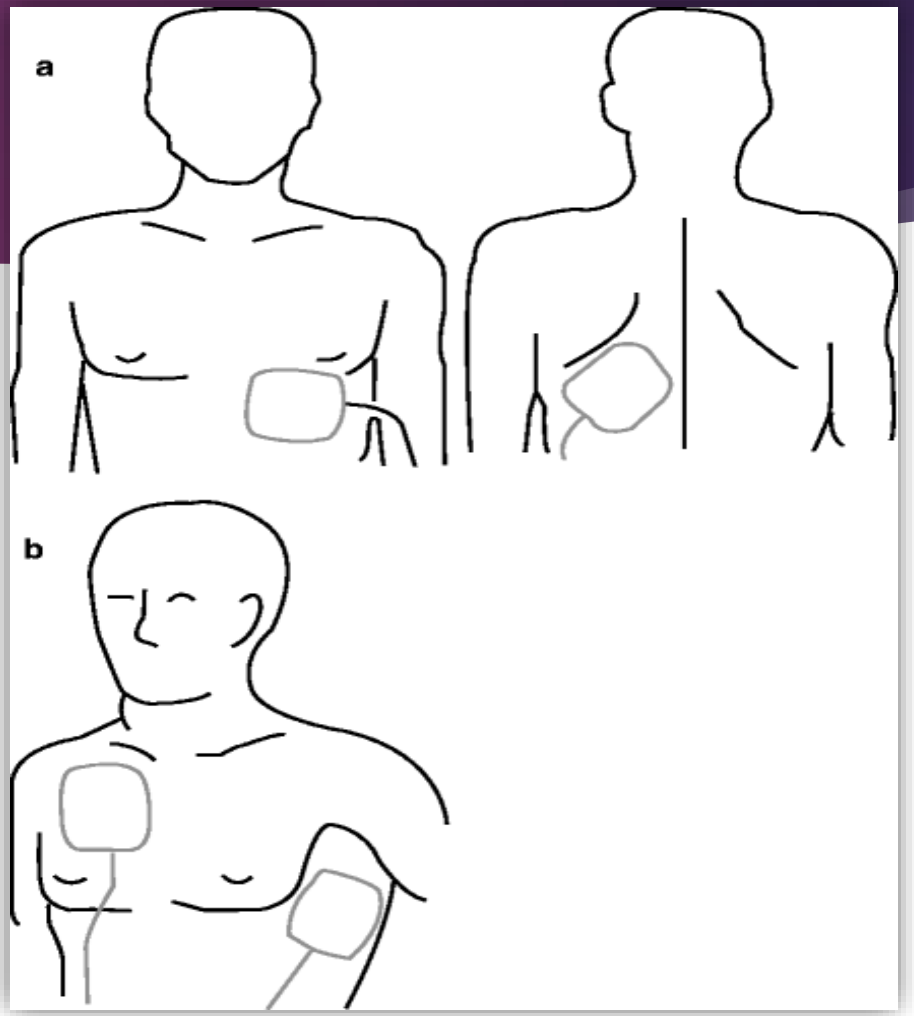
- Ambulatory monitoring (Holter or external loop recorders) can be useful, but monitoring for longer periods may be necessary, with extended (>3 weeks) Holter or external loop recorders being required.
- EPS

treatment

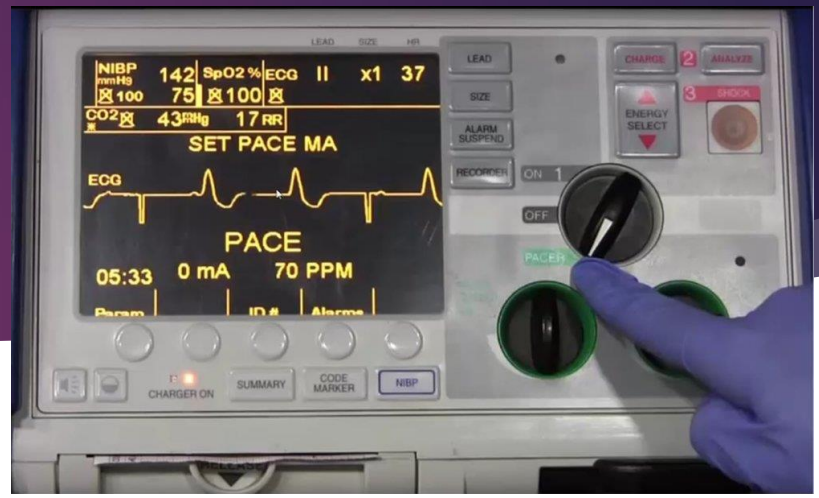
- Atropin
- Isoproterenol
- Percutaneous pacemaker
- Temporary or permanent pacemaker

a. antero-posterior (standard)

b. antero-lateral (optional)



Transcutaneous pacing



The rate should be set between 60 to 90 beats per minute with the electrical output, also known as the current, set to its lowest setting. The output should be slowly increased until a pacer spike is seen on the monitor. Continue to increase the output until a QRS complex follows each spike. This indicates electrical capture. Confirmation of mechanical capture should be done by feeling for a pulse. Additionally, mechanical capture can be confirmed using ultrasound and by observing ventricular contraction.