



SNS COLLEGE OF ALLIED HEALTH SCIENCES

SNS Kalvi Nagar, Coimbatore - 35

Affiliated to Dr MGR Medical University, Chennai



**DEPARTMENT : OPERATION THEATRE AND
ANAESTHESIA TECHNOLOGY**

COURSE NAME : PHARMACOLOGY

UNIT : ANTIARRHYTHMIC AGENTS

**TOPICS : DEFINITION, CLASSIFICATION, MECHANISM OF
ACTION, PHARMACODYNAMICS, PHARMACOKINETICS,
INDICATIONS, CONTRAINDICATIONS, SIDE EFFECTS**



ANTIARRHYTHMIC AGENTS



- Antiarrhythmic agents are drugs designed to correct or control irregularities in the heart's rhythm, known as arrhythmias.
- These medications act on the electrical signaling pathways of the heart to restore a normal rhythm.



CLASSIFICATION



- Class I: Sodium channel blockers (IA, IB, IC)
- Class II: Beta-adrenergic blockers
- Class III: Potassium channel blockers
- Class IV: Calcium channel blockers



MECHANISM OF ACTION



Class I (Sodium Channel Blockers):

- IA: Block sodium channels, prolonging action potential duration and refractory period.
- IB: Block sodium channels, shortening action potential duration.
- IC: Potent sodium channel blockers with minimal effect on action potential duration.



Class II (Beta-Adrenergic Blockers):

- Block beta receptors, reducing sympathetic stimulation and heart rate.

Class III (Potassium Channel Blockers):

- Prolong the repolarization phase of the cardiac action potential by blocking potassium channels.



Class IV (Calcium Channel Blockers):

- Block calcium channels, reducing the influx of calcium during depolarization.



PHARMACODYNAMICS



- The pharmacodynamics of antiarrhythmic agents involve their effects on cardiac ion channels, membrane potentials, and neurotransmitter receptors.
- These actions collectively aim to stabilize the electrical activity of the heart.



PHARMACOKINETICS



- The pharmacokinetics of antiarrhythmics vary widely. They are absorbed through the gastrointestinal tract, undergo metabolism in the liver, and are eliminated via renal or hepatic pathways.
- Individual drugs within each class may have specific pharmacokinetic properties that influence their dosing and frequency.



INDICATIONS



- Antiarrhythmic agents are used for various types of arrhythmias, including atrial and ventricular arrhythmias.
- Specific indications may include atrial fibrillation, atrial flutter, ventricular tachycardia, and others, depending on the drug and its class.



CONTRAINDICATIONS



- Known hypersensitivity to the drug
- Severe bradycardia (for certain drugs)
- Heart block
- Hypotension
- Severe hepatic or renal impairment



SIDE EFFECTS



- Proarrhythmia (inducing new arrhythmias)
- Bradycardia or tachycardia
- Hypotension
- Gastrointestinal disturbances
- Central nervous system effects (dizziness, fatigue, tremors)
- Pulmonary toxicity (especially with amiodarone)



TECHNICIAN ROLE



- Electrocardiogram (ECG) Monitoring
- Blood Pressure Monitoring
- Heart Rate Monitoring
- Serum Drug Levels
- Renal and Hepatic Function
- Lung Function Tests
- Thyroid Function Tests
- Electrolyte Levels
- Symptom Monitoring



ASSESSMENT



- What is the Classification of Antiarrhythmic agents ?
- What all are the Contraindications of Antiarrhythmic agents ?