



SNS COLLEGE OF ALLIED HEALTH SCIENCES

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Affiliated to Dr MGR Medical University, Chennai



**DEPARTMENT : CARDIO PULMONARY PERFUSION CARE
TECHNOLOGY**

COURSE NAME : PHARMACOLOGY

UNIT : ALPHA BLOCKERS

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



ALPHA BLOCKERS



- Alpha blockers, also known as alpha-adrenergic antagonists, are a class of medications that primarily block the effects of the alpha-adrenergic receptors.
- These drugs act by inhibiting the action of norepinephrine and epinephrine (also known as adrenaline) on these receptors.



- This inhibition leads to relaxation of smooth muscles in blood vessels and certain other tissues, resulting in dilation of blood vessels and decreased resistance to blood flow.



TYPES OF BETA BLOCKERS



- Selective Alpha-1 Blockers: Target alpha-1 receptors (e.g., terazosin, doxazosin, prazosin).
- Non-selective Alpha Blockers: May target both alpha-1 and alpha-2 receptors (e.g., phenoxybenzamine, phentolamine).



MECHANISM OF ACTION



- Alpha blockers competitively inhibit norepinephrine and epinephrine from binding to alpha-adrenergic receptors, particularly alpha-1 receptors.
- Blocking these receptors leads to relaxation of smooth muscle in blood vessels, resulting in vasodilation and decreased vascular resistance.



PHARMACODYNAMICS



- **Vasodilation** : Alpha blockers cause relaxation of blood vessels, reducing vascular resistance and increasing blood flow.
- **Smooth Muscle Relaxation** : They also relax smooth muscle in the bladder neck and prostate, improving urine flow.



PHARMACOKINETICS



- Administration: Typically oral, though some may have intravenous formulations.
- Metabolism: Usually metabolized in the liver.
- Elimination: Excreted primarily through urine.



INDICATIONS



- Hypertension: Used to lower blood pressure by dilating blood vessels.
- Benign Prostatic Hyperplasia (BPH): Improve urinary symptoms by relaxing bladder neck and prostate muscles.
- Raynaud's Disease, Pheochromocytoma, Erectile Dysfunction: Other potential uses in specific cases.



CONTRAINDICATIONS



- Known hypersensitivity to alpha blockers.
- Hypotension or low blood pressure.
- Use caution in patients with liver or kidney disease.



SIDE EFFECTS



- Orthostatic Hypotension: Sudden blood pressure drop upon standing.
- Reflex Tachycardia: Increased heart rate in response to decreased blood pressure.
- Dizziness, Headache, Fatigue: Common due to vasodilation and reduced blood pressure.
- Nasal Congestion, Fluid Retention, Erectile Dysfunction: Occasional side effects.



TECHNICIAN ROLE



- **Blood Pressure:** Regular monitoring of blood pressure helps assess the medication's effectiveness in controlling hypertension or other cardiovascular conditions.
- **Heart Rate:** Tracking heart rate can be important, especially in individuals with heart conditions, as alpha blockers can influence heart rate.



- Orthostatic Blood Pressure: Checking blood pressure and heart rate when moving from lying/sitting to standing helps detect orthostatic hypotension.



ASSESSMENT



- What is the Classification of Alpha Blockers ?
- What all are the Contraindications of Alpha Blockers ?