



SNS COLLEGE OF ALLIED HEALTH SCIENCES

SNS Kalvi Nagar, Coimbatore - 35

Affiliated to Dr MGR Medical University, Chennai



DEPARTMENT : PHYSICIAN ASSISTANT

COURSE NAME : PHARMACOLOGY

UNIT : DRUGS ACTING ON NERVES

**TOPICS : ANTIPSYCHOTICS, ANTICONVULSANTS,
ANTIDEPRESSANTS, CHOLINERGIC AND ANTICHOLINERGIC
DRUGS**



ANTIPSYCHOTICS



- Antipsychotics, also known as neuroleptics, are a class of medications primarily used to treat psychiatric disorders characterized by symptoms such as psychosis, delusions, hallucinations, disorganized thinking, and impaired cognitive function.



Classification: Typical (first-generation) and Atypical (second-generation).

Mechanism of Action: Primarily dopamine receptor antagonists, especially D2 receptors. Atypical antipsychotics may also affect serotonin receptors.



Pharmacodynamics: Alters neurotransmitter balance, primarily dopamine and serotonin, in the brain.

Pharmacokinetics: Variable depending on the specific drug. They are often metabolized in the liver.



Side Effects: Extrapyrarnidal symptoms (EPS), weight gain, metabolic effects, sedation, anticholinergic effects.

Indications: Schizophrenia, bipolar disorder, severe agitation.

Contraindications: Hypersensitivity, severe cardiovascular diseases.



ANTICONVULSANTS



- Anticonvulsants, also known as antiepileptic drugs (AEDs), are a class of medications primarily used to prevent or control seizures.
- These drugs are crucial in the treatment of epilepsy, a neurological disorder characterized by recurrent seizures.



Classification: Broad-spectrum, narrow-spectrum, mood stabilizers.

Mechanism of Action: Stabilize neuronal membranes, modulate ion channels, enhance inhibitory neurotransmission.



Pharmacodynamics: Reduce excessive neuronal firing and excitability.

Pharmacokinetics: Variable; many are hepatically metabolized.



Side Effects: Sedation, dizziness, gastrointestinal disturbances, hepatic enzyme induction.

Indications: Epilepsy, bipolar disorder, neuropathic pain.

Contraindications: Hypersensitivity, hepatic impairment (for some).



ANTIDEPRESSANTS



- Antidepressants are a class of medications used to treat various mental health conditions, primarily mood disorders like depression and anxiety.
- They work by affecting the levels of neurotransmitters in the brain, which are chemicals that transmit signals between nerve cells.



Classification: SSRIs, SNRIs, TCAs, MAOIs, atypical antidepressants.

Mechanism of Action: Increase synaptic levels of neurotransmitters like serotonin, norepinephrine, and/or dopamine.



Pharmacodynamics: Enhance mood by modulating neurotransmitter levels in the brain.

Pharmacokinetics: Variable, often metabolized in the liver.



Side Effects: Sexual dysfunction, weight gain, sedation, serotonin syndrome (in combination therapies).

Indications: Major depressive disorder, anxiety disorders, some chronic pain conditions.

Contraindications: Hypersensitivity, concurrent use with MAOIs.



CHOLINERGIC DRUGS



- Cholinergic drugs are medications that mimic or enhance the effects of acetylcholine, a neurotransmitter in the nervous system.
- These drugs can stimulate cholinergic receptors and produce responses similar to those caused by the activation of the parasympathetic nervous system.



Classification: Direct-acting and indirect-acting cholinomimetics.

Mechanism of Action: Mimic or enhance the effects of acetylcholine.

Pharmacodynamics: Activate cholinergic receptors.

Pharmacokinetics: Variable.



Side Effects: Increased salivation, gastrointestinal cramps, bradycardia.

Indications: Glaucoma, myasthenia gravis, urinary retention.

Contraindications: Asthma, bradycardia, gastrointestinal obstruction.



ANTICHOLINERGIC DRUGS



- Anticholinergic drugs are medications that block the effects of acetylcholine, a neurotransmitter, by inhibiting its binding to cholinergic receptors.
- These drugs primarily target muscarinic receptors in the parasympathetic nervous system, leading to a decrease in the activity of the cholinergic system.



Classification: Antimuscarinic agents.

Mechanism of Action: Block acetylcholine receptors.

Pharmacodynamics: Inhibit cholinergic effects.

Pharmacokinetics: Variable.



Side Effects: Dry mouth, blurred vision, constipation, urinary retention.

Indications: Parkinson's disease, overactive bladder, motion sickness.

Contraindications: Glaucoma, urinary retention, severe constipation.



PHYSICIAN ASSISTANT ROLE



- Regular assessment for symptoms, metabolic parameters, and side effects.
- Therapeutic drug levels, liver function, side effect monitoring.
- Symptom improvement, side effects, suicidal ideation.
- Cholinergic toxicity symptoms.
- Monitoring for side effects and therapeutic effects.



ASSESSMENT



- What is the Classification of Antipsychotic drugs ?
- What all are the Indications of Anticonvulsants ?