

PHB



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Course Name : D. Pharm
Year : Second Year
Subject Name : Pharmacology
Topic Name : Antipsychotics Drugs

Antipsychotic drugs, also known as neuroleptics, are medications primarily used to manage psychotic disorders such as schizophrenia and bipolar disorder. They work by blocking dopamine receptors in the brain, which helps alleviate symptoms of psychosis such as hallucinations, delusions, and disorganized thinking.

Classification: Antipsychotic drugs can be classified into two main categories based on their chemical structure and pharmacological properties:

A. Pharmacological Classification:

- 1. First Generation Antipsychotic (low potency): e.g.** Chlorpromazine, Prochlorperazine, Thioridazine
- 2. First Generation Antipsychotic (high potency): e.g.** Fluphenazine, Haloperidol, Pimozide, Thiothixene
- 3. Second Generation Antipsychotic: e.g.** Aripiprazole, Asenapine, Clozapine, Lurasidone, Olanzapine, Quetiapine, Risperidone

B. Chemical Classification:

1. Phenothiazines:

i) **Aliphatic side chain: e.g.** Chlorpromazine, triflupromazine

ii) **Piperidine side chain: e.g.** Thioridazine

iii) **Piperazine side chain: e.g.** Trifluoperazine, fluphenazine

- 2. Butyrophenones: e.g.** Haloperidol, Trifluoperidol, Penfluridol
- 3. Thioxanthenes: e.g.** Flupenthixol
- 4. Rauwolfia Alkaloids: e.g.** Reserpine
- 5. Atypical antipsychotics: e.g.** Clozapine, risperidone, olanzapine, quetiapine, aripiprazole, ziprasidone
- 6. Other heterocyclics: e.g.** Pimozide, Loxapine

C. Classification based on generation:

- 1. Typical (first-generation) antipsychotics: e.g.** Haloperidol, Chlorpromazine, Fluphenazine, Thioridazine
- 2. Atypical (second-generation) antipsychotics: e.g.** Risperidone, Olanzapine, Quetiapine, Aripiprazole, Ziprasidone, Clozapine

Mechanism of Action:

- Typical antipsychotics primarily block dopamine D2 receptors in the mesolimbic pathway of the brain, which reduces the positive symptoms of psychosis (e.g., hallucinations, delusions).
- Atypical antipsychotics also block dopamine receptors but have a higher affinity for serotonin receptors (5-HT_{2A}). They may also modulate other neurotransmitter systems, including glutamate, acetylcholine, and norepinephrine.

Dose:

- The dosage of antipsychotic drugs varies depending on the specific medication, formulation, and the severity of the patient's symptoms.
- Dosages are typically titrated based on the patient's response to treatment, tolerability, and any adverse effects experienced.

Uses:

- **Management of schizophrenia:** Antipsychotic drugs are the mainstay of treatment for schizophrenia, helping to reduce symptoms and improve overall functioning.
- **Treatment of bipolar disorder:** Antipsychotics may be used in conjunction with mood stabilizers to manage manic or mixed episodes of bipolar disorder.
- **Adjunctive treatment for depression:** Some atypical antipsychotics, such as aripiprazole, are used as adjunctive therapy in treatment-resistant depression.
- **Control of agitation and aggression:** Antipsychotics may be used to manage symptoms of agitation and aggression in various psychiatric and behavioral disorders.

Contraindications:

- ❖ Hypersensitivity or allergy to the drug or its components.
- ❖ Severe central nervous system depression: Antipsychotics may exacerbate CNS depression when used in conjunction with alcohol or other CNS depressants.
- ❖ Certain medical conditions such as Parkinson's disease, dementia with Lewy bodies, and certain cardiac arrhythmias may contraindicate the use of certain antipsychotic medications due to the risk of exacerbating symptoms or causing adverse effects.