Psychiatric Disorders

Schizophrenia (Pharmacotherapeutics)

Definition and Overview



- **Schizophrenia** is a chronic, severe psychiatric disorder that affects thinking, perception, emotions, and behavior.
- It is characterized by episodes of psychosis (loss of contact with reality).
- It typically begins in late adolescence or early adulthood.
- The course may be continuous or episodic with periods of relapse and remission.

Etiopathogenesis (Cause and Mechanism)

- **Dopamine hypothesis**: Overactivity of dopamine (especially in mesolimbic pathway) leads to positive symptoms.
- **Glutamate hypothesis**: Reduced NMDA receptor activity contributes to symptoms.
- **Genetic factors**: Strong hereditary component.
- **Environmental factors**: Stress, infections, drug abuse (e.g., cannabis).

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Clinical Features

A. Positive symptoms (excess or distortion of normal functions):

- Hallucinations (commonly auditory)
- Delusions (false beliefs)
- Disorganized speech
- Agitation

B. Negative symptoms (loss of normal functions):

- Social withdrawal
- Lack of motivation (avolition)
- Reduced emotional expression (flat affect)

C. Cognitive symptoms:

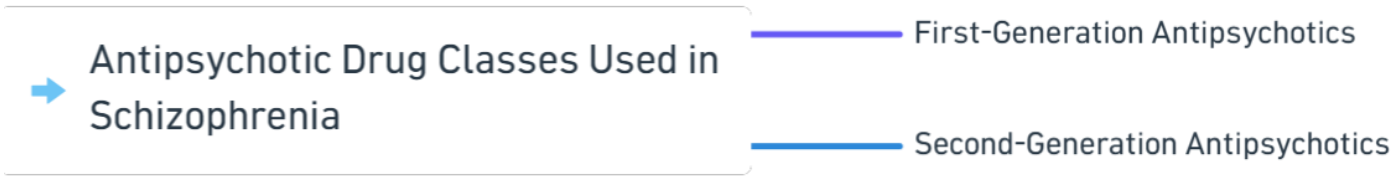
- Poor attention
- Impaired memory
- Difficulty in decision-making

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Goals of Pharmacotherapy

- Reduce psychotic symptoms
- Prevent relapses
- Improve functional capacity and quality of life
- Minimize adverse drug effects

Drug Classes Used



1. First-Generation Antipsychotics (Typical)

- Examples: Haloperidol, Chlorpromazine
- Mechanism: Block dopamine D2 receptors

Advantages:

- Effective for positive symptoms

Disadvantages:

- Extrapyramidal side effects (EPS): dystonia, Parkinsonism, tardive dyskinesia
- Hyperprolactinemia

2. Second-Generation Antipsychotics (Atypical)

- Examples: Risperidone, Olanzapine, Clozapine, Quetiapine
- Mechanism: Block both dopamine (D2) and serotonin (5-HT2A) receptors

Advantages:

- Better control of negative symptoms
- Lower risk of EPS (except risperidone at high doses)

Disadvantages:

- Weight gain
- Diabetes mellitus
- Dyslipidemia
- Clozapine: risk of agranulocytosis (requires blood monitoring)

Treatment Approach

- **Acute phase**:
  - Start antipsychotic medication

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- Use injectable formulations if patient is non-compliant

- **Maintenance phase**:
  - Continue medication for long-term relapse prevention
  - Long-acting depot injections may be used
- **Treatment-resistant schizophrenia**: Clozapine is drug of choice

Monitoring Parameters

- Symptom improvement (hallucinations, delusions)
- Side effects (EPS, metabolic syndrome)
- Weight, blood glucose, lipid profile
- Complete blood count (for clozapine)

Patient-Specific Considerations

- Age, Comorbidities
- Risk of non-adherence
- History of response to previous drugs

Depression (Major Depressive Disorder)

Definition and Overview

- **Depression** is a mood disorder characterized by persistent sadness and loss of interest or pleasure.
- It affects emotional, physical, and cognitive functions.
- It can range from mild to severe and may lead to suicide if untreated.

Etiopathogenesis

- **Monoamine hypothesis**: Deficiency of neurotransmitters: serotonin, norepinephrine
- **Neuroendocrine factors**: Increased cortisol levels
- Genetic predisposition
- Psychosocial stressors

Clinical Features

- Persistent low mood
- Loss of interest (anhedonia)
- Fatigue or low energy
- Sleep disturbances (insomnia or hypersomnia)

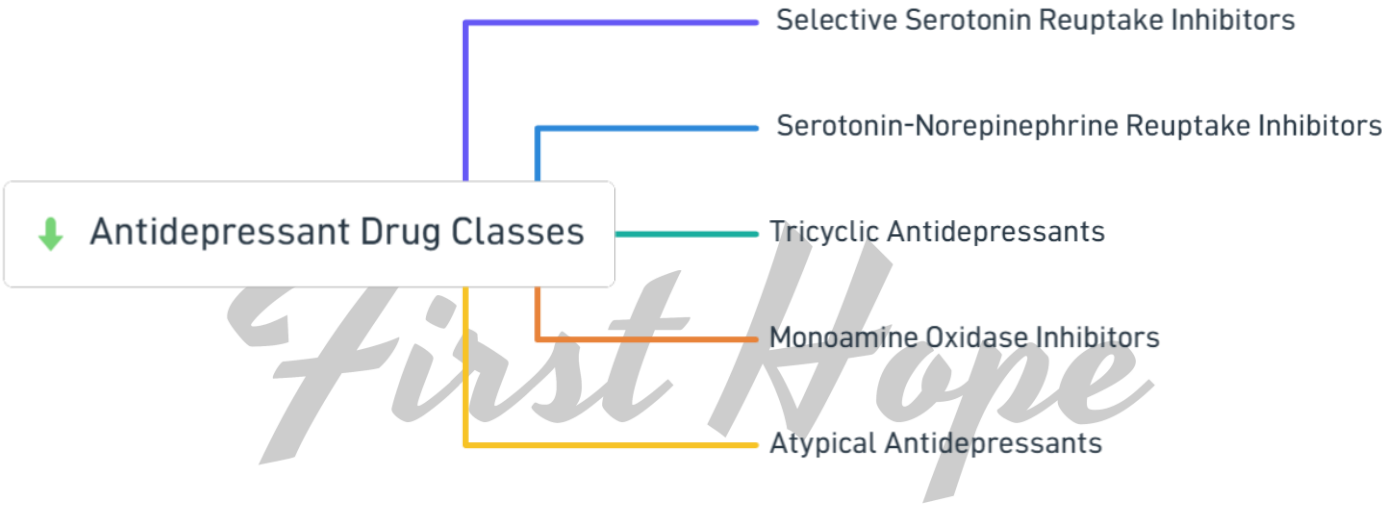
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- Appetite changes (weight loss or gain)
- Poor concentration
- Feelings of guilt or worthlessness
- Suicidal thoughts

Goals of Pharmacotherapy

- Achieve remission of symptoms
- Prevent recurrence
- Improve quality of life
- Minimize side effects

Drug Classes Used



1. Selective Serotonin Reuptake Inhibitors (SSRIs)

- **Examples:** Fluoxetine, Sertraline, Escitalopram
- **Mechanism:** Increase serotonin levels by inhibiting reuptake
- **Advantages:**
  - First-line treatment
  - Well, tolerated
- **Side effects:**
  - Nausea
  - Sexual dysfunction
  - Insomnia

2. Serotonin-Norepinephrine Reuptake Inhibitors (SNRIs)

- **Examples:** Venlafaxine, Duloxetine
- **Mechanism:** Increase serotonin and norepinephrine
- Useful in severe depression and pain syndromes

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3. Tricyclic Antidepressants (TCAs)

- **Examples:** Amitriptyline, Imipramine
- **Mechanism:** Block reuptake of norepinephrine and serotonin
- **Disadvantages:**
  - Anticholinergic effects (dry mouth, constipation)
  - Cardiotoxicity (overdose risk)

4. Monoamine Oxidase Inhibitors (MAOIs)

- **Examples:** Phenelzine, Tranylcypromine
- **Mechanism:** Inhibit breakdown of monoamines
- **Important caution:** Avoid tyramine-containing foods (risk of hypertensive crisis)

5. Atypical Antidepressants

- **Examples:**
  - Bupropion (dopamine/norepinephrine)
  - Mirtazapine (noradrenergic and serotonergic)
- Used when SSRIs are not effective or tolerated

Treatment Phases

A. Acute phase (6–12 weeks):

- **Aim:** Symptom remission

B. Continuation phase (4–9 months):

- Preventing relapses

C. Maintenance phase (long-term):

- Prevent recurrence, especially in recurrent depression

Adverse Effects

1. SSRIs:

- Sexual dysfunction
- GI upset

2. TCAs:

- Sedation
- Cardiac effects

3. Risk:

- Increased suicidal thoughts (early phase)

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