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# PHARMACOLOGY - III

## UNIT 3

TOPIC :

- b. Antileprotic agents



## Antileprotic Agents

- Antileprotic agents are the drugs used in the treatment and control of leprosy, a chronic infectious disease caused mainly by *Mycobacterium leprae*.
- These drugs kill or inhibit the growth of leprosy-causing bacteria and help prevent deformities, disability, and transmission of infection.

## Introduction to Leprosy

Leprosy is a chronic granulomatous infectious disease affecting:

- Skin
- Peripheral nerves
- Mucous membranes
- Eyes

### Causative Organism

- *Mycobacterium leprae*

### Mode of Transmission

- Mainly through prolonged close contact and respiratory droplets.

### Symptoms of Leprosy

- Hypopigmented skin patches
- Loss of sensation
- Numbness
- Muscle weakness
- Thickened nerves
- Deformities in severe cases

# Classification of Leprosy

## 1. Paucibacillary (PB) Leprosy

- Mild form
- Few skin lesions
- Low bacterial load

## 2. Multibacillary (MB) Leprosy

- Severe form
- Numerous lesions
- High bacterial load

# Classification of Antileprotic Drugs

## 1. First-Line Drugs

- Dapsone
- Rifampicin
- Clofazimine

## 2. Second-Line Drugs

- Used in resistant cases.

## Examples

- Ofloxacin
- Minocycline
- Clarithromycin

# 1. First-Line Antileprotic Drugs

## 1. Dapsone

→ Dapsone is a sulfone drug with bacteriostatic action against *Mycobacterium leprae*.

### Mechanism of Action

- Dapsone inhibits folic acid synthesis in bacteria by competing with para-aminobenzoic acid (PABA).
- This inhibits bacterial growth.

### Pharmacokinetics

- Well absorbed orally
- Widely distributed
- Metabolized in liver
- Excreted through kidneys

### Uses

- Leprosy
- Dermatitis herpetiformis
- Pneumocystis pneumonia prophylaxis

### Adverse Effects

- Hemolytic anemia
- Methemoglobinemia
- Skin rash
- Peripheral neuropathy

## 2. Rifampicin

→ Rifampicin is a powerful bactericidal antibiotic effective against *Mycobacterium leprae* and *Mycobacterium tuberculosis*.

### Mechanism of Action

- It inhibits bacterial DNA-dependent RNA polymerase, thereby preventing RNA synthesis.

### Pharmacokinetics

- Good oral absorption
- Wide tissue distribution
- Metabolized in liver
- Excreted through bile and urine

### Uses

- Leprosy
- Tuberculosis
- Meningococcal prophylaxis

### Adverse Effects

- Hepatotoxicity
- Orange-red discoloration of urine and tears
- Flu-like syndrome

### 3. Clofazimine

→ Clofazimine is a fat-soluble antileprotic drug with weak bactericidal and anti-inflammatory properties.

#### Mechanism of Action

- It binds to bacterial DNA and interferes with bacterial growth and replication.

#### Pharmacokinetics

- Variable oral absorption
- Stored in fatty tissues
- Long half-life
- Excreted slowly

#### Uses

- Multibacillary leprosy
- Lepre reactions

#### Adverse Effects

- Red-brown discoloration of skin
- Dry skin
- Gastrointestinal disturbances