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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
- Lepra reactions

Adverse Effects

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