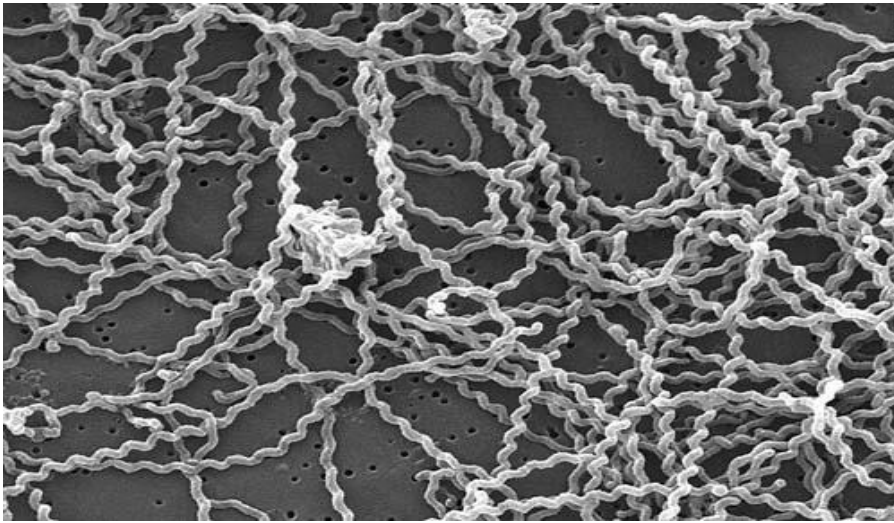


# LEPROSY



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# INTRODUCTION

- Leprosy caused by “*Mycobacterium leprae*”.
- Chaulmoogra oil is used in olden days for the treatment of leprosy.

## CLASSIFICATION

✓ **SULFONE**

- **Dapsone**

✓ **Phenazines**

- **Clofazimine**

✓ **Anti-tubercular drugs**

- **Rifampin**

**Ethionamide**

✓ **Other antibiotics**

- **Ofloxacin**

**Minocyclin**

**Clarithromycin**

# DAPSONE (DDS)

- It is Diamino Diphenyl Sulphate.
- It is the Oldest, cheapest, most active and most commonly used drug.
- **Mechanism of action:**
- It is chemically related to sulphonamides. So same mechanism of action.
- **INHIBITION OF PABA INCORPORATION INTO FOLIC ACID**
- It is LEPROSTATIC at low concentrations.
- **NOT USED** for **ACUTE** infections, because the dose used is **TOO TOXIC**.
- The **DAPSONE RESISTANCE** for *M.leprae* was observed.

- **PHARMACOKINETICS:**

- ABSORPTION -- Orally completely absorbed.
- DISTRIBUTION -- Widely distributed. Penetrates CSF.  
Concentrated in skin, muscle, liver and kidney
- METABOLISM -- In liver
- ELIMINATION -- Excreted in Bile. Reabsorbed from Intestine.  
So mostly excreted in Urine.  
Takes 1 – 2 weeks or longer.

- **ADVERSE EFFECTS:**

- Well tolerated at a dose of 100 mg/day.
- Mild haemolytic anaemia is common (patients with G-6-PD deficiency are more susceptible).
- Nausea and anorexia in starting stage. Later decreases.
- Headache, paresthesias, drug fever.
- Allergic rashes, hypermelanosis, phototoxicity.
- Hepatitis, agranulocytosis are rare.

- **CONTRAINDICATIONS:**

- In patients with severe anaemia.
- In G-6-PD deficiency patients.

- **OTHER USE:**

- Used in combination with pyrimethamine for chloroquine resistant malaria.
- **DOSE – 25, 50 AND 100 mg TAB**

### CLOFAZIMINE

- It is a dye with leprostatic and anti-inflammatory properties (useful).
- When used alone, resistance develops in 1 – 3 years.
- **MOA:** Acts by interfering with the template function of DNA.
- Used in dapsone resistant leprotic cases.
- It is orally active (40 – 70 % absorbed).
- Accumulates in tissues especially in fat, in crystalline form.
- Poor entry to CSF.
- Used in multidrug therapy.

- **ADVERSE EFFECTS:**

- It is well tolerated.
- Reddish-black discoloration of skin (on exposed parts mostly).
- Discoloration of hair, body secretions.
- Dryness of skin, itching, phototoxicity and conjunctival pigmentation.
- Enteritis with loose stools, abdominal pain, anorexia, weight loss (in high doses).
- This can be reduced by taking drug with meals.
- **AVOIDED** in early pregnancy and in liver or kidney damage patients.
- **DOSE – CLOFOZINE – 50, 100 mg CAP.**

### **ETHIONAMIDE**

- It has a significant anti-leprotic activity, but causes HEPATOTOXICITY.
- It has been used as an alternative to clofazimine, but other drugs are preferred.
- Should be used (250 mg/day) only when absolutely necessary.

- **RIFAMPIN:**

- It is a bactericidal agent. Rapidly removes leprosy. Upto 99.99% of bacteria were killed in 3 – 7 days.
- Not satisfactory if used ALONE.
- Some bacilli persist even after prolonged treatment (resistance).
- Used in multidrug therapy. Shortens the duration of therapy.
- 600 mg monthly dose is relatively non-toxic.
- NOT given to patients with hepatic or renal dysfunction.

### **OTHER ANTIBIOTICS**

- **OFLOXACIN:**

- Bacilli were killed in 22 days of daily doses. Not used in standard treatment protocols. But used in cases where rifampin cannot be used. DOSE – 400 mg/day.

- **CLARITHROMYCIN:**

- Only macrolide antibiotic used in leprosy. Less bactericidal than rifampin. 500 mg daily dose killed bacteria in 8 weeks.

- **MINOCYCLINE:**

- It is active due to high lipophilicity. A dose of 100 mg/day is highly effective. Activity is less than rifampin but greater than clarithromycin.
- It is used in alternative therapy.

## TREATMENT

- It is a major health problem in INDIA. Many patients exploit it for begging and don't want to be cured as they belong to lowest socio-economic strata.
- NLCP was launched in 1955 and later in 1982 changed to NLEP.
- **TYPES OF LEPROSY:**
- TWO polar types with 4 intermediate forms were observed.
- BORDERLINE (BB)
- BORDERLINE LEPROMATOUS (BL)
- BORDERLINE TUBERCULOID (BT)
- INDETERMINATE (I)



- For operational purposes, leprosy is divided into two types.
- **Paucibacillary leprosy (PBL):**
- It is NON-INFECTIOUS. It includes TT, BT, I and polyneuritic leprosy.
- **Multibacillary leprosy (MBL):**
- It is INFECTIOUS. It includes LL, BL and BB.
- MBL means an active patient with >5 lesions.
- All forms of leprosy can be treated with dapsone alone (monotherapy) at a dose of 100 – 200 mg/day; 5 days a week.
- This treatment duration depends upon type.
- TT – 4 – 5 Years.
- LL – 8 – 12 years or life long.
- With this, symptomatic relief occurred in few months, but bacteriological cure is delayed or may not occur. Moreover relapse conditions prevailed. So, Monotherapy is NO longer used.

TUBERCULOID	LEPROMATOUS
Anaesthetic patch	Diffuse skin and mucous membrane; Nodules
Cell mediated immunity is normal	CMI is absent
Lepromin test – Positive	Lepromin test – Negative
bacilli rarely found in biopsy	Skin and mucous membrane contains bacilli
Prolonged remissions with periodic exacerbations	Progress to anaesthesia of distal parts, ulceration.

WHO recommended a Multi Drug Therapy (MDT) for the treatment of leprosy.

The **Multidrug therapy regimen** has advantages like;

- Effective in dapson resistant cases.
- Prevents emergence of dapson resistance.
- Gives quick symptomatic relief.
- Reduces total duration of therapy.

# MULTI DRUG THERAPY (MDT) OF LEPROSY

- Multiplication time of *M.leprae* is 12 days.
- A single dose of rifampicin kills over 95% of lepra bacilli within 4 days.
- The hygienic precautions are strictly followed.

## WHO RECOMMENDED REGIMEN FOR LEPROSY (NLEP)

LEPROSY TYPE	DRUGS	DURATION
Tuberculoid (Paucibacillary)	Dapsone – 100 mg/d (unsupervised) + Rifampicin 600 mg/month (Supervised)	6 months continuously
Lepromatous (Multibacillary)	Dapsone – 100 mg/d + Clofazimine – 50 mg/d unsupervised <b>AND</b> Rifampicin 600 mg/month + Clofazimine – 300 mg/month (supervised)	12 months continuously

# LEPROSY TREATMENT IN CHILDREN

Suggested doses for leprosy in children include;

DRUG	AGE	
	10 – 14 YEARS	<10 YEARS
Dapsone	50 mg/day	25 mg/day
Rifampicin	450 mg/month (supervised)	300 mg/month (supervised)
Clofazimine	150 mg/month (supervised) <b>AND</b> 50 mg on alternate days (unsupervised)	100 mg/month (supervised) <b>AND</b> 50 mg twice a week (unsupervised)