



- **Drug therapy for leishmaniasis:**

• **Drug of choice: pentavalent antimony compounds**

- ✓ Sodium stibogluconate: this is found in English-speaking countries.
- ✓ Meglumine antimonite: this is found in French-Spanish-speaking countries.

**Notes for these 2 drugs:**

- ❖ They are poorly absorbed from the GIT. Therefore they cause GIT irritation/disturbance.
  - ❖ They are prodrugs: which means that they need to undergo biotransformation (metabolism) in the liver to be converted to their active forms.
  - ❖ They inhibit the process of glycolysis in parasites (which is necessary to keep them alive!).
  - ❖ They can be given intralesionally instead of being given orally.
- ✓ Liposomal amphotericin-B:
- ❖ It is one of drugs of choice but it is very expensive (50mg vial costs £96!). In contrast, conventional amphotericin-B which is one of the alternative drugs is cheap (50mg vial costs £4).
  - ❖ This drug is highly uptaken by macrophages. Therefore, they reach the phagosomes and attack amastigotes which are present and multiplying there.
  - ❖ *What are liposomes?*
    - They are very effective drug-delivery system transporting the drug to the desired target.
    - They are minute spherical oil droplets.
    - The membrane is composed of a phospholipid bilayer with 2 regions (hydrophilic and hydrophobic).
- **Alternative drugs (preserved for antimony failure):**
- ✓ Pentamidine isethionate.
  - ✓ Conventional amphotericin-B.
  - ✓ Miltefosine.
- **Systemic therapy with pentavalent antimony compounds is reserved for:**
- ✓ Multiple, inflamed, ulcerated and large sores.
  - ✓ Sores where scarring would be disfiguring.
  - ✓ Sores that will not heal easily (ex. Lower leg or over a joint).
  - ✓ Sore involving mucosa or cartilage.
  - ✓ Sores that might be due to parasites of the L.braziliensis group (to avoid the risk of development of mucocutaneous “espundia”).
  - ✓ Sores that are due to L.tropica (to reduce transmission since man and domestic dogs seem to be the main host).

- **Life cycle of leishmania:**

- A sand fly carries promastigotes in its midgut → it bites the skin of a human → leading to the release of promastigotes which will interact with reticuloendothelial cells (macrophages) → inside macrophages, promastigotes will be converted to amastigotes which will start to multiply intracellularly → amastigotes will be released and they will infect new cells.

- **Drug therapy for scabies:**

• **Drug of choice:**

- ✓ Permethrin 5%:
  - ❖ Treatment of choice for pregnant women and infants as young as 2 months old. This topical cream is applied for 8-14 hours followed by thorough bathing. Note that for neonatal scabies in infants less than 1 month → permethrin is applied for 6 hours only.

• **There are other 5 alternative drugs:**

1. Ivermectin: the only drug of scabies which is given orally in addition of being given topically.
2. Lindane 1%
3. Crotamiton 10%
4. Benzyl benzoate: it is recommended for:

These 3 drugs are available in health centers





- ❖ *Infants*: by mixing it with 3 parts of water (diluting it in a proportion of 1:3)
- ❖ *Children*: by mixing it with equal quantity of water (diluting it in a proportion of 1:1).
- ❖ *Pregnancy*.

5. Malathion 0.5%

- Disinfectants and antiseptics:

- **Disinfectant**: a chemical agent which destroys or inhibits the growth of pathogenic micro-organisms in the non-sporing or vegetative state (الحالة الخاملة). It is used to treat inanimate objects (الجامادات) and materials.
- **Antiseptic**: a disinfectant which is used on the skin and other living tissues thereby limiting or preventing infections.
- **Types of disinfectants and antiseptics:**
  - ✓ Alcohols: ethanol 70% and isopropanol 90% (skin disinfectants).
  - ✓ Aldehydes:
    - ❖ Alkaline glutaraldehyde (2% alkaline solution in 70% isopropanol) → instrument disinfectant
    - ❖ Methenamine → urinary tract antiseptic.
  - ✓ Acids:
    - ❖ Benzoic acid 0.1% → food preservative.
    - ❖ Benzoic acid 6% (fungistatic) + salicylic acid 3% (kerolytic) from white fields ointment for → dermatophytosis نمو الفطريات على الجلد (ex. Athlete's foot).
    - ❖ Undecylenic acid (fungistatic for tinea pedis which is causing athlete's foot).
    - ❖ Mandelic acid → urinary tract antiseptic.
  - ✓ Iodine:
    - ❖ Iodine solution (2% iodine + 2.4% sodium iodide in water).
    - ❖ Iodine tincture (2% iodine + 2.4% sodium iodide in 50% alcohol) → skin disinfectant.
    - ❖ Povidine iodide → pre-operative skin disinfectant.
  - ✓ Chlorine:
    - ❖ Chlorine 0.25-0.5 ppm → water purification.
    - ❖ Halazone (chloramine) → water sterilization (4-8 mg/L water).
    - ❖ Diluted sodium hypochlorite (modified Dakin's solution for cleansing and disinfecting wounds).
  - ✓ Heavy metals:
    - ❖ Mercury:
      - ⚗ 0.1% thimerosal solution or tincture → bacteriostatic antiseptic.
      - ⚗ 2% merbromin → bacteriostatic antiseptic.
    - ❖ Silver:
      - ⚗ 1% silver nitrate ophthalmic solution → for gonococcal ophthalmia.
      - ⚗ 1% silver sulfadiazine cream → suppress normal flora in burns.
  - ✓ Phenol and related compounds:
    - ❖ 3% hexachlorophene liquid soap → bacteriostatic, pre-operative scrubs antiseptic.
    - ❖ 4% chlorhexidine gluconate solution (cleansing of wounds) → added to soap as skin antiseptic, pre-surgery antiseptic.
    - ❖ 0.2% chlorhexidine gluconate solution → oral rinse against teeth plaque and gingivitis.
  - ✓ Cation surface active agents:
    - ❖ Benzalconium chloride.