**DRUGS OF LEISHMANIASIS**

 **Leishmaniasis** is a *parasitic disease* caused by microsopcopic protozoans of *genus leishmania*

 It was identified by a British medical officer Sir William Leishman.

 It occurs in Mediterrarean region, Africa , central and south America.

 Leishmania is a *parasitic protozoa*

 it is transmitted by *flesh eating flies like sand fly.*

 It can be transmitted from *animal to human* and from *human to human*

 it can cause **visceral disease** mainly *enlargement of liver and spleen with fever*, as well as **cutaneous** and **mucocutaneous lesion**

 *Sodium stibogluconate* is a primary drug for all forms of the disease.

 *Cutaneous lesions* can also be treated by fluconazole and metronidazole .

 *mucocutaneous disease* can be treated by amphotericin B

**1- SODIUM STIBOGLUCONATE**

**Pentavalent antimonial drugs** include:

 Sodium stibogluconate

 Meglumine antimonate

**Mechanism of action:**

 Specifically It is **unknown**

* Evidence *for inhibition of glycolysis in the parasite at the phosphofructokinase reaction* is reported
* Or effects *on nucleic acid metabolism*

**Pharmacokinetics**

* It does ***not* get absorbed orally**
* It is administered **parenterally** in a dose of 20mg/kg /day **IV /IM** for 20 days for *cutaneous leishmaniasis* and 28 days for *visceral and mucocutaneous disease.* ****
* It is distributed in *extravascular compartment* .
* metabolism is ***minimal*** and the drug is excreted in ***urine****.*
* It is potentially **cardiotoxic drug **

**ADVERSE EFFECTS:**

* Pain at the site of injection
* Gastrointestinal upset
* Cardiac arrhythmias (QT prolongation)
* Myalgia , Fever , Headache , Arthralgia
* Resistance to
* Renal and hepatic function should be monitored regularly
* Hemolytic anemia (rarely)

**2- PENTAMIDINE ISETHIONATE**

 It is used as an *alternative to Na stibogluconate for the treatment of visceral leishmaniasis* and sometimes used for cutaneous lesion , but not routinely. (rarely) 

 mechanism of action is **unknown** but it may be similar to sodium sstibogluconate

 It is given in a dose of 2-4 mg/kg **Im** *daily* or *every other day up to 15 days*

* it can **also** be used for the treatment of **pneumocystosis** (given in inhaled form as nebulized powder ) and **African trypanosomiasis** (sleeping sickness)

**Pharmacokinetics**

* It is **not absorbed orally.**
* It is **administered** **parentrally (intramuscularly)**
* It is accumulated and eliminated *very slowly in urine*
* It has a half life of **12 days **

**Adverse effects**

* *Pain at the site of injections*
* *Hypotension due to peripheral vasodilatation*
* *Respiratory stimulation followed by depression*
* *Tachycardia*
* *anemia , neutropenia*
* *Hypoglycemia ( Pancreatic toxicity → hypoglycemia )*
* *Dizziness*
* *Dyspnea*
* *Hepatitis*
* *Reversible renal insufficiency*
* *GIT disturbances*
* *Cardiac arrhythmia*
* *Abnormal liver function tests*

**3- MILTEFOSINE**

* It is **alkylphosphocholine analog**
* It is used in **the treatment of visceral leishmaniasis **
* It is taken **orally** 100 mg/daily for adults 

**Adverse effects**

* Gastrointestinal disturbances ( vomiting and diarrhea )
* **Elevation in liver transaminase **
* Teratogenic , so it should be avoided in pregnancy .

**4- Amphotericin B**

* it is an antifungal drug which can be used as an alternative therapy for **visceral leishmaniasis. **

**Aminosidine + Pentamidine**

* Can be used in *combination* for treatment of *leishmaniasis*