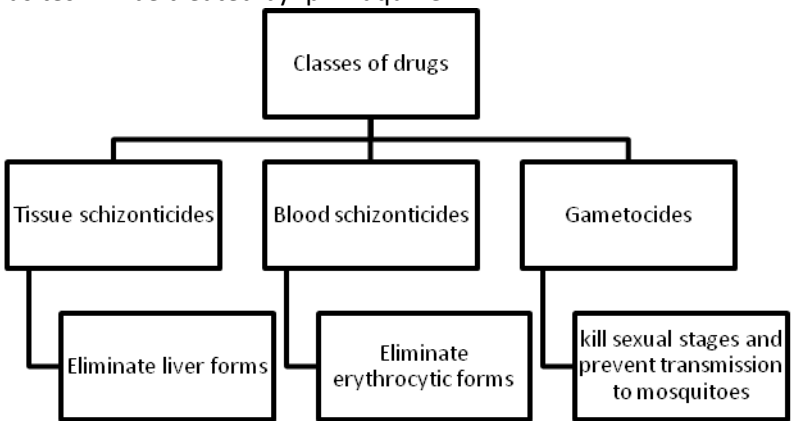
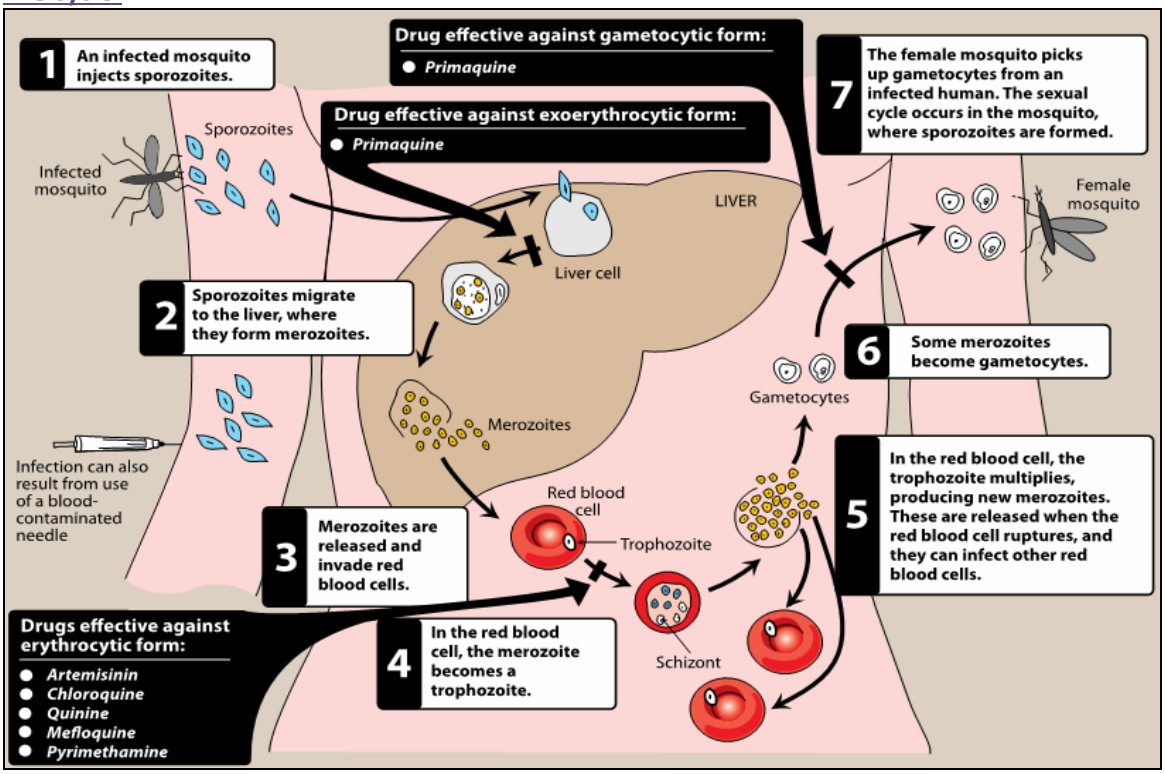
- **P.falciparum & P.malariae:**
  - Only one liver cycle.
  - Treatment that eliminates erythrocytic parasites will cure.
- **P.vivax & P.ovale:**
  - They have a dormant hepatic stage (hypnozoites) which can cause relapse of the disease.
  - Cure requires eradication of both erythrocytic and hepatic parasites.
  - Hepatic parasites will be treated by: primaquine.

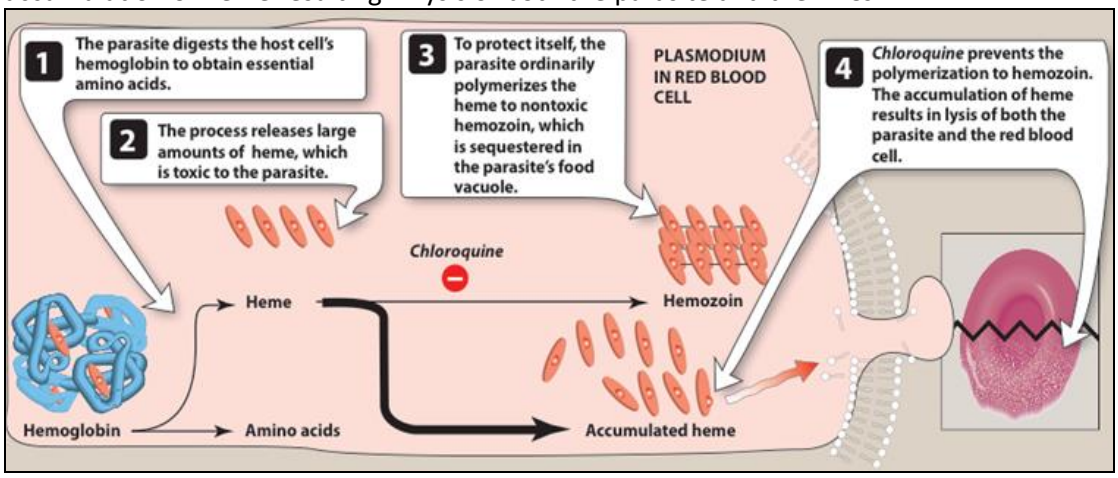


- **Life cycle:**



- **Primaquine**:
  - Used in the treatment of the dormant cycle (hypnozoites) which are produced by P.vivax & P.ovale.
  - Also, it destroys gametocytes in all four plasmodia.
  - Mechanism of action: generation of oxidative agents.
  - Adverse effects: triggering hemolysis especially in patients with G6PD deficiency (oxidizing GSH to GSSG). This explains why it is contraindicated in these patients. In addition it is contraindicated in pregnancy.
  - Primaquine should be used in combination with a blood schizonticide.
- **Chloroquine:**
  - It is the drug of choice for acute malaria caused by sensitive strains.
  - Highly specific for asexual forms.

- Used as treatment and prophylaxis.
- It might be used for extraintestinal amebiasis and autoimmune diseases.
- Mechanism of action: it prevents polymerization of heme to hemozoin. This will lead to the accumulation of heme resulting in lysis of both the parasite and the RBCs.



- Adverse effect:
  - ✓ Associated with low-dose: GI upset, headache & skin rash.
  - ✓ Associated with high-dose: myocardial depression, Q-T interval prolongation, blurred vision & peripheral neuropathy.
- Contraindications:
  - ✓ Psoriasis (الصدفية).
  - ✓ Porphyria.
  - ✓ Retinal or visual field abnormalities.
  - ✓ Myopathy.
  - ✓ Neurologic disorders.

  Note: calcium & magnesium containing antacids interfere with the absorption of chloroquine.

- **Resistant malaria:**
  - In areas where chloroquine-resistant strains of P.falciparum exist, the drug of choice is malarone (atovaquone: inhibiting the mitochondira of parasite + proguanil: inhibiting DHT reductase).
  - In severe cases, especially of falciparum malaria, IV administration of quinidine (quinine is the oral form) plus another antimalarial drug such as doxycyclin or clindamycin. Quinidine (quinine) act by inhibiting DNA separation.
  - Mefloquine: first-line drug for prophylaxis in strains with resistance to chloroquine.
  - Pyrimethamine: it acts by inhibiting DHT reductase. Usually it is combined with sulfadoxine (synergistic effect).
- **Malaria chemoprophylaxis:**
  - Chloroquine in chloroquine-sensitive areas.
  - In chloroquine-resistant areas:
    - ✓ Malarone.
    - ✓ Mefloquine.
    - ✓ Doxycycline.
  - Pregnancy:
    - ✓ Chloroquine or mefloquine.
- **Other preventive measures include:**
  - Use of mosquitoes netting, window screens, protective clothing and insect repellents.