

Luminal Amebicides

I. Medications

- A. Iodoquinol
- B. Paromomycin

II. Applications

- A. E. histolytica

III. Mechanism

- A. Effective in gut only against luminal forms of E. histolytica

IV. Adverse Effects

- A. Optic neuritis
- B. Peripheral neuropathy

Dehydroemetine

I. Applications

- A. E. histolytica (systemic)

II. Mechanism

- A. Blocks chain elongation in protein synthesis
 1. Stops translocation of tRNA in ribosome

III. Adverse Effects

- A. Cardiotoxicity
- B. Neuromuscular Weakness

Antimalarials

I. Primaquine

- A. Mechanism
 1. Oxidizer
- B. Adverse Effects
 1. Hemolytic anemia in G6PD deficiency
 2. Methemoglobinemia
 3. Do not use in pregnancy
 4. Resistance develops in all malaria strains

II. Chloroquine

- A. Mechanism
 1. Prevents heme polymerization
 2. Alters pH → Lysis of plasmodium & RBC
- B. Adverse Effects
 1. Resistance
 2. Skin discoloration
 3. Prolonged QT interval

III. Atovaquone-proguanil

- A. Mechanism (Atovaquone)
 1. Disrupts mitochondrial actions
- B. Mechanism (Proguanil)

1. Inhibits plasmodium dihydrofolate reductase

IV. Mefloquine

A. Applications

1. Multidrug resistant P. falciparum
2. Treatment & prophylaxis

B. Adverse Effects

1. Some resistance
2. Neuropsychiatric reactions
3. Sudden cardiac death in combination with other treatments (quinine/quinidine)

V. Quinine

A. Applications

1. Chloroquine resistant malaria

B. Mechanism

1. Prevents heme polymerization
2. Alters pH → Lysis of plasmodium & RBC

C. Adverse Effects

1. Cinchonism (tinnitus/vertigo/N/V)
2. Hemolytic anemia

VI. Artemisinin

A. Applications

1. Multidrug resistant malaria
- B. Mechanism
 1. Derived from wormwood plant
 2. Forms free radicals after heme interaction, damages proteins

C. Adverse Effects

1. Prolonged QT interval
2. Hypersensitivity reactions

VII. Pyrimethamine

A. Applications

1. Toxoplasma gondii
2. Paired with sulfadoxine or sulfadiazine

B. Mechanism

1. Inhibits dihydrofolate reductase

C. Adverse Effects

1. Leucovorin "rescue" treatment
2. Hypersensitivity reactions

Trypanosomiasis Drugs

I. Pentamidine

A. Applications

1. 1st stage African trypanosomiasis (hemolymphatic)
2. Leishmaniasis
3. Pneumocystis jirovecii pneumonia

B. Adverse Effects

1. Renal toxicity
2. Pancreatitis
3. Diabetes/hyperglycemia

II. Suramin

A. Applications

1. 1st stage African trypanosomiasis

B. Adverse Effects

1. Syncope
2. Parasthesias/Photophobia/↑Sensitivity

III. Melarsoprol

A. Applications

1. 2nd stage African trypanosomiasis (CNS)

B. Mechanism

1. Irrev. binds parasite pyruvate kinase

C. Adverse Effects

1. Reactive encephalopathy
2. Hemolytic anemia

IV. Eflornithine

A. Applications

1. 2nd stage African trypanosomiasis

B. Mechanism

1. Irrev. inhibits ornithine decarboxylase

C. Adverse Effects

1. Seizures
2. Hearing Loss

V. Nifurtimox

A. Applications

1. Chagas disease
2. 2nd stage T. gambiense (CNS)

B. Mechanism

1. Toxic free radicals

C. Adverse Effects

1. Peripheral neuropathy

VI. Benznidazole

A. Applications

1. Chagas disease

B. Mechanism

1. Toxic free radicals

Leishmaniasis Drugs

I. Sodium stibogluconate

A. Adverse Effects

1. Hepatic dysfunction
2. Pancreatitis
3. Cardiac Arrhythmias

II. Miltefosine

A. Adverse Effects

1. Teratogenic

III. Amphotericin B (Antifungal)

IV. Pentamidine (Trypanosomiasis section)

Benzimidazoles

I. Medications

A. Mebendazole

1. Adverse Effects

- a) ↑ Liver enzymes

B. Thiabendazole

1. Adverse Effects (Limiting)

- a) Hepatitis
- b) Hair loss
- c) Photosensitivity
- d) Dizziness

C. Albendazole

1. Adverse Effects

- a) Agranulocytosis
- b) Pancytopenia

II. Applications

A. Nematode (roundworm) infections

III. Mechanism

- A. Inhibits microtubule formation
- B. Inhibits glucose uptake

1. Neuromuscular blockade, worm releases from intestinal tract

II. Ivermectin

A. Mechanism

1. Paralyzes worm via chloride channel receptors

B. Adverse Effects

1. Mazzotti Reaction

- a) Fever, somnolence, hypotension
- b) Result of killing large amounts of microfilaria in onchocerciasis

III. Diethylcarbamazine

A. Applications

1. Filariasis (elephantiasis)

Praziquantel

I. Applications

A. Trematode infections

B. Cestode (tapeworm) infections

Other Nematode Treatments

I. Pyrantel pamoate

A. Mechanism