✓ **These drugs are against Amoebic(parasitic) Dysentery**

ANTIAMEBIC DRUGS

Drug	Sub-Type	MOA	Uses	Side effect	Contraindications
A)Luminal Amebicides Acts on the parasites in the lumen of the bowel. Used for treatment of asymptomatic amebiasis.	**a.Diloxanide furoate** Mechanism of action is **unknown.**	Ester of diloxanide + furoic acid. **orally.** It splits in the intestine, most of diloxanide is absorbed, conjugated to form a glucoronide which is excreted in urine (90%). The **unabsorbed diloxanide** is the **amoebicidal agent** (10%). Direct amoebicidal against **luminal forms only.**	**Drug of choice** for **asymptomatic intestinal infection.** For eradication of infection given along with all forms of amebiasis.	Flatulence Nausea, vomiting, abdominal cramps.	**Pregnancy**. **Children** (less than 2 years).
	b.Iodoquinol Mechanism of action is **unknown.**	Absorption is poor, (90%) excreted in feces. 10% enter circulation, excreted as glucouronide in urine. Amoebicidal against luminal forms only.	**Lumen amoebicide**. For eradication of infection given along with tissue amoebicide (metronidazole).	**Peripheral neuropathy** including **optic neuritis** **GIT:** Nausea, vomiting, diarrhoea. Enlargement of the thyroid gland. Agranulocytosis. **Iodine sensitivity**. **Interference with thyroid function** tests (↑protein-bound serum iodine, ↓in measured (^{131}I uptake).	**Optic** neuropathy. **Thyroid** disease. Sensitivity to **iodine**. Severe **liver** disease. Severe **kidney** disease. Discontinued if it produces persistent diarrhea or signs of iodine toxicity (dermatitis, urticaria, pruritus, fever).
	c.Paromomycin Sulphate **(**Antibiotic**)**	Aminoglycoside, **not absorbed.** Effective against **luminal forms.** Has direct amebicidal action (causes leakage by its action on **cell membrane** of parasite). Indirect killing of bacterial flora essential for proliferation of pathogenic amoebae. **orally.** Not absorbed from the GIT. Small amount absorbed is excreted unchanged in urine (may accumulate with renal insufficiency).		**Side effect** Gastrointestinal distress & diarrhea.	**Precautions:** Severe renal disease. Patients with GIT ulceration.
	d.Tetracyclines **(**Antibiotic**)**	**Very weak** direct amoebicidal action. Mainly act indirectly on bacterial flora.	**Used** in **severe cases** of amoebic dysentery **not responding** to metronidazole combined with dehydroemetine.	**e.Erythromycin** **(**Antibiotic**)**	

B)Tissue or systemic amebicides Acts on ameba in the intestinal **wall & liver** (or any other **extra-intestinal** tissue). Used for treatment of **systemic form of the disease.**	**a.Emetine**	Emetine is an alkaloid derived from ipecac while	Have erratic oral absorption. Given **S.C** but could be given by IM, **NEVER I.V.** T1/2= 5 days. Metabolized & Excreted slowly via kidney (may accumulate). Trace amounts could be detected in urine 1-2 month after last dose. Should not be used for **more than 10 days** (usually 3-5 days).	**Uses** Amoebic liver **abscess**. Intestinal wall infections. Severe forms of amebiasis acute amoebic dysentery. Both are effective against tissue **trophozoites of E. histolytica** causing **irreversible block of protein synthesis**. dehydroemetine less toxic.	**Side effect** Pain at site of injection, abscesses. GIT: N & V, diarrhea. Muscle weakness. Serious toxicities: **cardiotoxicity** Hypotension, cardiac arrhythmias, heart failure. **Contraindication** Cardiac or renal disease, young **children**, or **pregnancy**.
	b.Dehydroemetine (less toxic) **Because of major toxicity they cause (a & b) → replaced by metronidazole**	Dehydroemetine is a synthetic analog,			
	c.Chloroquine (**liver only**)	Antimalarial drug.	Used in **with metronidazole** & luminal amebicide for amebic liver diseases.	**Side effect** **pruritus** is common. N & V, abdominal pain, anorexia. Headache, blurring of vision. **Hemolysis in G6PD** deficient patients, impaired **hearing**, **agranulocytosis**, **alopecia**, **hypotension**.	
C)Mixed Amebicides Effective against **both luminal & systemic** forms of the disease. Although luminal concentration is too low for single drug-treatment.	**a.Mitronidazole**. Acts on trophozoites. Has **no effect on cysts.** **Nitro group** of **metronidazole** is **reduced** by **protozoan** → cytotoxic reduced product that binds to DNA & proteins resulting into **parasite death**.	Given **orally** or **IV.** Absorption is **rapid** & **complete** →not reliably effective against luminal parasites. Wide distribution to **all tissues** & body fluids (**CSF**, saliva, **milk**). T1/2= 8 h. Metabolized in **liver** by mixed function oxidase followed by glucouroidation. Excreted in **urine**. Clearance is ↓in liver impairment.	**Uses** **Drug of choice** for intestinal & extra-intestinal amoebiasis. Should be **combined** with if luminal amebicide. Giardiasis. Trichomoniasis. Broad spectrum of **anaerobic** bacteria: **H.pylori**, Pseudomembranous colitis (**Clostridium defficile**).	**Side effect** **GIT:** Dry, metallic taste in the mouth. N & V, diarrhea (NVD). **Oral Thrush** (Moniliasis, yeast infection). **CNS:** Neurotoxicological effect. Insomnia, dizziness, peripheral neuropathy, paresthesia, encphalopathy, **convulsion** (IV infusion, rare). Dysuria, **dark urine**, **Neutropenia**. **Disulfiram**-like effect if taken with alcohol → abdominal distress, N & V, flushing, or headache, **tachycardia**, **hyperventilation**	**Drug interactions** Enzyme **inhibitors** (**cimetidine**, **ketoconazole**) ↑ action of **metronidazole**. **Inducers** (**phenytoin**, **phenobarbitone**),↓ action of **metronidazole**. Metronidazole **inhibits** CYP → ↑ effect of **warfarin**. ↑**lithium** toxicity. **Contraindication** **Pregnancy** & nursing women. **Alcohol** intake → **Disulfiram.** **CNS** diseases. Severe **hepatic** disease. Severe **renal** disease.
	b.Tinidazole	Similar activity to **metronidazole BUT** has **longer duration** of action (12-14h), a simpler dosing regimen & a **better toxicity** profile.			