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Antiprotozoas

introduction

- protozoas belong to the protista
- protozoas are unicellular eukaryotes that are microscopic
- larger than bacteria
- nucleus present, some with more than 1
- vary in shape, structure and habitat
- phylum protozoa divided into sub phylum:
 - sporozoa – forms spores in their life cycle – include malaria causing organisms, plasmodium, toxoplasmas (cause toxoplasmosis and spread by cats, rats and birds), babesia (causes babesiosis and presents like malaria)...and other minor sporozoa
 - mastigophora – forms special organisms, the mastigotes (flagellates); at least 3:-
 - Trichomonas – causes several dxs (trichomoniasis)
 - trichomonas vaginalis – sexually transmitted in both males and females (itchy yellowish discharge)
 - Trichomonas hominis – In GIT, a commensal.
 - Trichomonas tenax - GIT
 - Giardia lamblia – loose stools with malabsorption syndromes. Coats Smallintestine villi preventing absorption
 - Trypanosoma – causes 2 dx
 - sleeping sickness – caused by 2 organisms – trypanosoma brucei gambiensi and trypanosoma brucei rhodesiensi
 - Gambiensi spread by an insect (glossina palpalus); tse tse fly.
 - rhodesiensi in kenya (lambwe valley and coast province) is spread by glossina morsitans- biting insects that bite and undergoes 3 stages;
 - skin, blood and lymph and CNS
 - chaggas dx.- caused by trypanosoma cruzi – mucocutaneous dx where parts of the body fall off.
 - Leshmania causing leshmaniosis. Atleast 3 forms of leshmaniosis
 - Leshmania donovani – visceral lesions with severe anaemia, splenomegaly and enlargement of viscera.
 - leshmania tropica (cutaneous leshmaniosis) – present with different names; in far east known as oriental sore, india known as delhi boil, in central asia known as bhargdad button. Forms 1 lesion on the face.
 - Leshmania brazilliensis – causes mucocutaneous leshmaninasis; eats up nasopharynx
 - sarcodina- includes various types of amoeba;

- *intamoeba hystolica* – most common cause of amoebiasis. Xtrized by bloody diarrhea alternating with constipation.
 - *Entamoeba coli* – a commensal GIT but dx in immunocompromised.
 - *Acanthamoeba* – commonly in swimming pools. Causes severe encephalitis and keratitis.
 - *Acanthamoeba balanuthia* – causes encephalitis
 - *Naegleria fouleri* – causes an acute amoebic meningoencephalitis- commonly seen in children and young adults.
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- Ciliophora/Ciliates
 - *Balantidium coli* – commonly in pigs and causes severe dysentery in humans
 - paramecium
 - others – more common in the immunosuppressed.
 - Include *cryptosporidium parvum*, cyclosporiasis and isosporiasis – commonly seen in HIV pts. Present with chronic watery diarrhea. Include *cyptosporium pavum*, cyclosporiiasis and isosporiasis.

CLASSIFICATION OF ANTIPROTOZOAS.

Group 1: ANTIAMOEBCS

- divided into 3 groups
- 1. nitroimidazoles – include
 1. metronidazole
 2. imidazole
 3. secnidazole
 4. omidazole
 - effective against both gut and tissue amoeba
- 2. Luminal amoebicides- liver
 - iodoquinole
 - dilorazanide folate
 - paromamizine sulphate.
- 3. Drugs effective in tissue amoebiasis only
 - emetine hydrochloride and dehydroemetin

Group 2: Rx of babesiosis

- Include the antibiotic clindamycin, quinine and quinidine
- also a macrolide antibiotic azithromycin

Group 3; Rx of toxoplamosis

- pyrimethamin, sulphonamides (suphadiaxine), folinic acid (additive)

- also clindamycin, steramycin (in pregnancy)
- drugs used in combinations – pyrimethamine + clindamycin with folinic acid; pyrimethamine + sulphadiazine with folinic acid

Group 4; Rx of leishmaniasis

- in both visceral and mucocutaneous;
 - sodium stibogluconate
 - Nifedipine antimonate
 - other alternatives – antifungal, amphotericin B, paromycin,
- cutaneous form; use the same drugs but add ketoconazole or dapsone

Group 5: rx trypanosomiasis

- suramine,
- alternatives include pentamidine and
- in chagasic dx – benznidazole

Group 6; Giardiasis

- any of the nitroimidazoles
- paromomycin
- Albendazole, flubenzonidil, nitoximide.

Group 7; Isospora belli – isosporiasis rx

- Sulphamethoxazole combination,
- pyrimethamine
- ciprofloxacin

Group 8; microsporidiasis

- albendazole, fumagiline, trimethoprim/sulphamethoxazole combination.

Group 9; cryptosporidium

- paromomycin, azithromycin

Group 10; Rx of cyclosporiasis

- seprin and ciprofloxacin
- lower doses than in bacterial infections

Group 11. Rx of b. colli

- iodoquinoles
- metronidazole (higher doses than in bacterial infections)
- tetracyclin

Group 12; Dientamoeba tyrili

- tetracyclin, paromomycin,

Group 13;

- clindamycin,
- pentamillin
- pyrimethadine
- sulphonamides.
- Dapsone