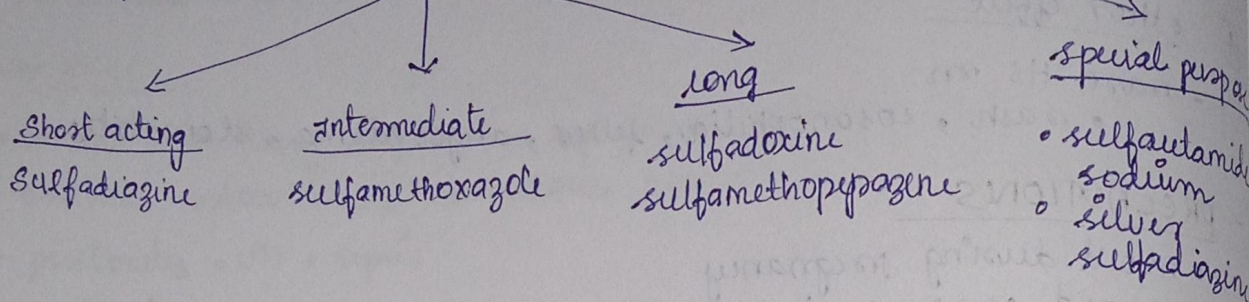


# SULFONAMIDE & COTRIMOXAZOLE

- First antimicrobial agent effective against pyogenic bacterial infection

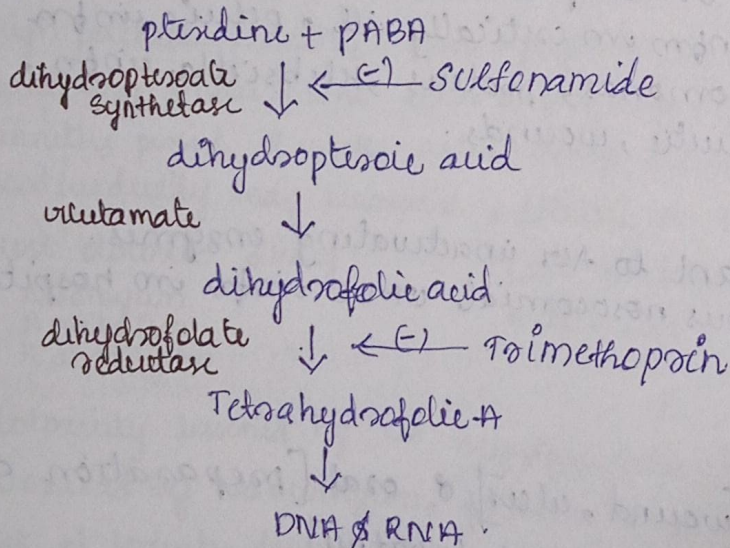


- primarily bacteriostatic
- Bactericidal concentration attained in urine

## → Spectrum

- streptococcus pyogenes, H influenzae, H ducreyi, vibrio cholerae.
- clamydia, Actinomyces, neocardia, Toxoplasma

## → MOA



interfere with bacterial folate synthesis machinery

- ① sulfonamides are structural analogues of PABA
  - interfere with dihydropteroate synthase
- ② sulfonamide may itself get incorporated to form an altered folate → metabolically injurious

### → Resistance

- produce increased amount of PABA
- folate synthesis enzyme has low affinity for sulfonamide.
- Alternative pathway in folate metabolism.

most prominent among

- staph aureus, gonococci, pneumococci, meningococci, e. coli

### → PK

- completely absorbed from GIT
- widely distributed in the body.
- metabolism liver (acetylation)
- excreted in urine

### → Uses

- suppressive therapy for chronic UTI
- streptococcal pharyngitis
- meningitis (sulfadiazine)
- malaria, Toxoplasmosis, pneumocystis } sulfadoxine + pyrimethamine
- Burns - silver sulfadiazine.

### → A/E

- GI upset = N, V, D
- crystalluria = dose related → minimized by fluids & alkalinisation
- H.S.M = Steven Johnson syndrome \*
- Hepatitis, Hemolysis in G6PD def, kernicterus in newborn.

### → D/D

- > phenytoin
- > sulfonyl urea
- > warfarin
- > methotrexate

## \* COTRIMOXAZOLE

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- fixed dose combination of sulfamethoxazole + Trimethoprim
- sequential blockade of folate metabolism
- combination is bactericidal (individually static)

- MOA (previous one)

- Resistance

• mutational or plasmid mediated.

• DHFRase with low affinity to cotrimoxazole.

- spectrum

- similar spectrum +

- salmonella typhi, shigella

- sulfonamide resistant organism.

uses

- RTI, UTI, typhoid

- Bacterial dysentery and dysentery

- pneumocystis jirovecii pneumonia in AIDS patient

- chancroid.

A/E

same as sulfonamide + folate deficiency

caution

• pregnancy - NT defect, kernicterus, methemoglobinemia

• renal disease.

• diuretics with cotrimoxazole  $\rightarrow$  ↑ incidence of Thrombocytopenia