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16/MHS06/004

MEDICAL LABORATORY SCIENCE

PHARM 302

BACTERIAL PROTEIN SYNTHESIS INHIBITORS

Assignment:Write on a named bacterial protein synthesis inhibitor, stating its mechanism of action, indication for use, toxicity and adverse effects

Answer:

TETRACYCLINE:

How tetracycline inhibits protein synthes

They inhibit protein synthesis by binding reversibly to the bacterial 30S ribosomal subunit and preventing the aminoacyl tRNA from binding to the A site of the ribosome. ... Tetracyclines inhibit protein synthesis in both bacterial and human cells.

How does tetracycline kill bacteria without harming human cells?

Another kind of antibiotic--tetracycline--also inhibits bacterial growth by stopping protein synthesis. Both bacteria and humans carry out protein synthesis on structures called ribosomes. ... But this antibiotic does not affect the DNA gyrases of humans and thus, again, bacteria die while the host remains unharmed.

CLASSIFICATION:

1:Short acting

2: Intermediate Acting

3: Long acting

MECHANISM OF ACTION:

Inhibit protein synthesis by blocking the binding of Amino Acid to the 30s ribosome

MECHANISM OF RESISTANCE:

1: Impaired efflux by active protein pump

2: Plasmid protect ribosomal binding sites from TETRACYCLINE

3: Enzymatic inactivation

PHARMACOKINETICS:

1: Better in absorbtion oral adminstration

2: Absorbtion in upper small intestine

3: Widely distributed in tissue except CSF

4: Ability to cross placenta

5: Excreted in milk

6: Highly concentrated in tears

INDICATION OF USE:

It is used as a first Drug of choice

1: Used in treatment of gastric ulcer

2: Malaria treatment

3: E.hystolitical treatment

Used as a second drug of choice with

1: Penicillin combination:

A: Tetanus treatment

B: Gonorrhea treatment

C: Urinary tract infection

TOXICITY:

It is nephrotoxic

It is herpatic toxic

Avoided in pregnancy

Avoid in diuretics

ADVERSE EFFECTS: in GIT

1:Nausea

2: Diarrhea

3: Candida

IN BONE:

1: Bound to calcium formation of teeth causing discoloration

2: Enamel dysplasia

3: Growth inhibition