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ASSIGNMENT:- PHARMACOLOGY.

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ANTIBIOTIC GROUPING BY MECHANISM :--

*) Cell wall synthesis.

*) penicillians cephalosporins.

*) vacnomycin Beta-lactamase inhibitors.

*) carbapenem aztreonam

*) polymysin.

1) INHIBITORS OF CELL WALL SYNTHESIS:--

* BETA LACTAMS.

* Pencillin.

* cephalosporins.

* Monobactams.

* carbapenems.

*GLYCOPEPTIDES.

* FOSFOMYCINS.

CLASSIFICATION OF ANTI BIOTICS:--

Anti biotics are usually classified on the basis of structure, function and spectrum of their activity.

1) SRTUCTURE - MOLECULAR STRUCTURE:--

* B- LACTAMS BETA LACTAMS RINGS.

* AMINOGLYCOSIDES vary only by side chain to attached basic structure.

2) FUNCTION - HOW DRUGS WORK- ITS MODE OF ACTION.

functional groups

These all are function or component necessary for the bacterial growth. TARGETS FOR ANTIBIOTIC.

* Inhibitors of cell wall synthesis

* Inhibitors of protein synthesis.

* Inhibitors of membrane function.

* Anti metabolites.

* Inhibitors of nucleic Acid synthesis.

3) SPECTRUM ACTIVITY:--

* NARROW SPECTRUM.

* BROAD SPECTRUM.

MECHANISM OF ACTION OF BETA LACTAMS:--

* All pincillin derivatives produce bacteriocidal effects by inhibition of cell wall synthesis.

* Specifically by cross of peptides linking on the mocussaccharides chain is prevented. if cellwall are improperly made up cell wall allow the water move into cell causing it burst.

1) BACTERIAL CELL WALL SYNTHESIS :-

* The cell wall of bacteria are essential for their normal growth and development.

* In Gram- positive microorganism the cell wall is 50 to 100 molecules thick but it is only 1 to2 molecules thick in Gram negative bacteria.

GLYCOPEPTIDE :---

* it include two similar structure

CANCOMYCIN AND TEICOPLANIN.

* TEICOPLANIN not FDA improved IN the USA.

* Both are high molecular weight (1500 to 2000 daltons).

* GLYCOPEPRIDES have a specific chemical structure.

* all are Bacteriocidal.

* All are used for Gram positive activity.

* inhibits cell wall synthesis at a site different than bacteria Lactams.

FOSFOMYCINS :-- spectrum of action,

* inhibits cell wall synthesis at a stage of earlier than pincillin or cephalosporins FDAimproved in 1996.

* it is a Broad spectrum agents.

MODE OF ACTION:--

* inhibits the first step of peptidoglycan synthesis process.

2) INHIBITORS OF PROTEIN SYNTHESIS:--

* Aminoglycosides bactericidal gentamicin, Tobramysin, amikacin. MALSK
(Macroslides Lincosamides.
streptogramins.ketolides).

bacteriostatic erythromycin, clarithromysin, Azithromycin. tetra
cyclines bacteriostatic tigecyline. phenols bacteriostatic
chloramphenicol, Ansamysin. Rifampin.

3) INHIBITORS OF MEMBRANES FUNCTION:---

* LIpopeptides, polymyxins(A,B,C AND E).
*POLYMYXIN B and E can be used therapeuticaly.

* polymyxin B derived from bacillus polymyxa var.

* polymyxin E derived from bacillus polymyxa var.

* Colistin sulfate intestinal infection Topical powders media.

* All bacteriocidal.

POLYMYXIN MODE OF ACTION:--

* TARGETS - Membranes phospholipids (Lipopolysaccharides and lipo protein.

Outer and cytoplasmic membranes effect polymyxins are positively charged molecules which are attracted to the negatively charge bacteria.

The anti biotic acts much like a cationic detergent and effects all membranes similarly
Toxin side effect are common little or No effect on Grame positive since the cell wall is to thick to permit acess to the membrane. grame positive bacteria are naturally resistant.

4) ANTIMETABOLITES :--

* Folate pathway inhibitors.

* sulfonamides, trimethoprime.

* The drug resembles a microbial substrate and completes with that substrat for the limitedmicrobial enzymes.

* TRANSLATION :--

1) INITIATION.

2) ELONGATION.

3) TERMINATION.

5) INHIBITORS OF NUCLEIC ACID SYNTHESIS:---

* QUINOLONES:--

*) Human do synthesis DNA shared process with bacteria.

* Do tend to see some process with bacteria. Do tent to see some side effect with Quinolones some drugs withdraw from markets quickly all are bacteriocidal.

ANTI-METABOLITE:--

The combination of SXT (Thrimethoprim sulfamethoxazole) is synergistic and association provides a bactericidal effect.

NATURAL RESISTANCE :--

Enterococcus - low level and poorly expressed.

S pneumonia.
ps aeruginosa.(impermeability)

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