**c9oMLT 2nd**

**Course Title: General pharmacology I (LAB)**

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**Discuss mechanism of antibiotics according to different targets and classify them one by one**

**Ans: antibiotics:**

Antibiotics a chemical substance produced by microorganism that inhibits the growth or kills other microorganism .

**Antibiotics classification:**

There are all components or function necessary for beactrial growth

Targets for antibiotics :

* Inhibitors of cell wall synthesis
* Inhibitors of protein synthesis
* inhibitors of membrane synthesis
* Anti metabiotics
* Ihhibitors of nuclieic acid synthesis.

**Inhibitors of cell wll synthesis:**

**Beta-lactams**

* Penicillins
* cephalospporin
* Monobactams
* carbapenems
* **Glycopeptides**
* **fosfomycins**

**Bacteria cell wall synthesis:**

* The cell wall of bacteria are essential for their normal growth and development.
* The peptidogiycan (which provide rigid mechanical stability)is composed of glycan chain which are liner strands of two alternating amino sugar (N-acetylglucosamine and N-acetylmuramic acid) tht are cross link by peotide chain.
* In gram - piostive microoganism the cell is 50 to 100 molecule thick but it is only 1 to 2 molecules thicks in gram - negative bacteria.

**Penicillins:**

**Mechanism of action of beta lactams:**

* All penicillin derivativesw produce thier bacteriocidal effects by inhibition of bacterial cell wall synthesis.
* Spcifically , the cross linking of peptides on the mucosacchraride chains is prevent ed. if cell walls are imporatant made cell eall allow water flow into the cell causing it to burst.

**inhibitors of protein synthesis:**

**Aminoglycoside: Gentamicin, Tobramycin,Amikacin**

**MLSK**(Macrolides ,Lincosamide, Streptomycin)

**Tetracyclines-**(bactericiddal) tetracycline , Doxyccline

**Chloramphenical:**

* **choraphenical bind reversible**
* **y to the 50s subunite of the bacteria ribosome and inhibit pepptid bond formation**
* **Bacteriostatic broad spectrum antibiotics that is active against both areobic and anareobic gram-negative gram- postive organism**
* **It is active also aganist rickettsiae but no Chlamydiae.**

3: **Inhibitors of Membrane**

**Function;**

* Lipospeptides
* Polymyxins
* Colistime
* ethate sodium
* Cyclic lipopeptides

**Polymyxin of action:**

* Target: Membrane phospholipids saccharides (lps) and Lipopot
* rtiens)
* Outer and cytoplasmic membrane effect
* Antibiotics acts much like a condition act likr
* e cattionic detergent and effect all membranes similarly toxic side effect are common
* Gram-positive are naturaly resistant.

**Inhibitors of Nucleic acids synthesis:**

quinolones:

Humans do synthesize DNA- shared process with bacteria

Do tend to see some side effect with Quinnolones some drugs withdrawn from market quikly

All bacteria

**quinolons:**

**Mode of action:**

* Small and hydrophilic quinolones have no prpblem crossing the outer membrane.
* They easily diffuse through the peptidoglycan and the cytoplasmic membrane and rapidly their target.
* Target +Topoisomerrases(DNA-gyrase)
* Rapid bactericidal activity.

The End.............