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Section **B**

Assignment. **PHARMACOLOGY**

Mechanisms of antibiotic according to different target

(Mechanism of action):The mechanism of action is the biochemical way in which a drug is pharmacologically effective. This can be a specific target where the drug binds like an enzyme, as is the case with many antibiotics, or a receptor. Mechanism of action describes the biochemical process specifically at a molecular level.

Antibiotic mode of Action

Antibacterial action generally falls within one of four mechanisms, three of which involve the inhibition or regulation of enzymes involved in cell wall biosynthesis, nucleic acid metabolism and repair, or protein synthesis, respectively. The fourth mechanism involves the disruption of membrane structure. Many of these cellular functions targeted by antibiotics are most active in multiplying cells. Since there is often overlap in these functions between prokaryotic bacterial cells and eukaryotic mammalian cells, it is not surprising that some antibiotics have also been found to be useful as anticancer agents.

Classification

According to their primary actions on sensible cells the antimicrobial antibiotics are divided into four groups

1. Inhibitors of the biosynthesis of the bacterial cell wall

2. inhibitors of the bacterial protein synthesis

3. Inhibitors of the nucleic acid metabolism

4.Inhibtors of membrane function

1)Inhibitor of biosynthsis of bacterial cell wall

β-Lactam antibiotics are bactericidal and act by inhibiting the synthesis of the peptidoglycan layer of bacterial cell walls. Glycopeptide antibiotics include vancomycin, teicoplanin, telavancin, bleomycin, ramoplanin, and decaplanin.

2.Inhibitor of bacterial protein synthesis

Antibiotics work by preventing new amino acids from being attached to the growing chain, misreading the mRNA to make the wrong protein, or preventing it from bringing in new amino acids.

3.Inhibitor of nucleic Acid metabolism

Antibiotics work by preventing new amino acids from being attached to the growing chain, misreading the mRNA to make the wrong protein, or preventing it from bringing in new amino acids.

4.Inhibitor of membrane function

There are antimicrobial agents that directly target a component of bacterial cytoplasmic membranes that can act on both Gram-negative as well as Gram-positive bacteria. Many of these are cyclic peptides with a rigid binding site capable of binding a lipid component. This binding targets antimicrobial agents to bacteria, rather than being toxic to host cells.
