ANTIBIOTICS

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Introduction:

- ***Paul Ehrlich*** *was the first to give the concept of using chemicals to kill infectious microorganisms without harming the patient. He developed 'Salvarsan' an arsenic-based compound, which is not an antibiotic but it is an antibacterial chemotherapeutic agent which is selectively toxic for syphilis spirochetes, Treponema pallidum .*

- *In 1874,* ***William Robert*** *firstly described the effect of mould, penicillium on the growth of bacteria, but he is not credited for discovering antibiotics.*

- *In 1928,* ***A.Fleming*** *described the effect of a substance produced by Penicillium notatum on staphylococci and it is possible to use it as a treatment for bacterial infections.*

Antibiotics

The term antibiotics mean against life. ***The substance that is derived from a microorganism or produced synthetically, that destroys or limits the growth of a living organism.***

Sources:

1. *Natural*

   a. Bacteria- Streptomycete group e.g. streptomycin, tetracyclin, chlrampheniol, erythromycin, rifamycin.

   b. Fungi- penicillin , griseofulvin.

2. *Synthetic e.g. chloramphenicol*

Antimicrobial Agent:

Those chemicals or drugs that are used to treat an infectious disease, either by inhibiting or killing the microorganisms.

Importance:

1. Kill or inhibits the growth of microorganisms.

2. It cause no damage to the host.

3. It cause no allergic reaction to the host.

4. Kill the microorganisms before they mutate and become resistant to it.

5. They remain in specific tissues in the body long enough to be effective.

- ***On the basis of mechanism of action*** *antibiotics are classified as following that means they have specific target sites in the bacterial cell,*

- ✔ *Protein synthesis inhibitor*
- ✔ *Cell wall synthesis inhibitor*
- ✔ *DNA synthesis inhibitor*
- ✔ *RNA synthesis inhibitor*
- ✔ *Folic acid inhibitor*
- ***On the basis of mode of action*** *antibiotics are classified as following,*

1. *Bactericidal Antibiotics*
2. *Bacteriostatic Antibiotics*

- ***Bactericidal Antibiotics:***

Antibiotics that kills the bacteria called bactericidal antibiotics.

E.g. Cephalosporin, Penicillin, Erythromycin, Aminoglycosides, Cotrimoxazole.

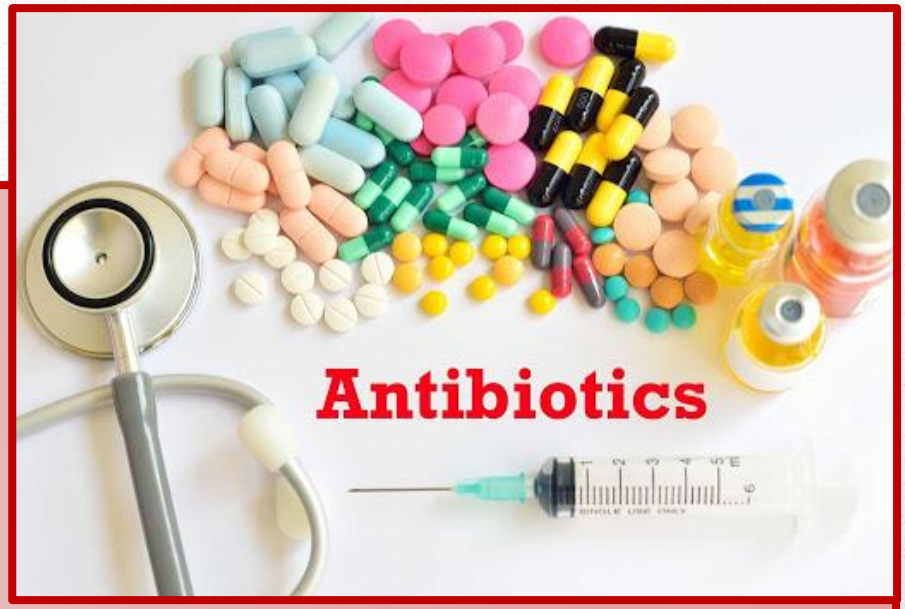
- ***Bacteriostatic Antibiotics:***

Antibiotics that stops the bacteria from reproducing, while not necessarily killing them.

E.g. Tetracyclin, Chlorampenial, Erythromycin, Lincomycin.

Misuses:

- *Antibiotics misuse, sometimes called antibiotic abuse or antibiotic overuse.*
- *The misuse or overuse of antibiotic, may produce serious effect on health.*
- *It is contributing factor to the creation of multidrug-resistance bacteria, informally called 'super bugs' relatively harmless bacteria can develop resistance to multiple antibiotics and cause life threatening infections.*



Qualities of Antibiotics:

They should have following characteristics.

- *They are non-toxic.*
- *They are non-allergic.*
- *They have a broad spectrum of activity.*
- *It does not lead to the development of antimicrobial resistance.*
- *They are stable and have a long shelf life.*
- *They have a nice taste and cheap.*

Antibiotic Resistance:

If the concentration of drug requires to inhibits or kill the microorganism is great or less then the normal use then the microorganism is considered to be resistant to that drug.

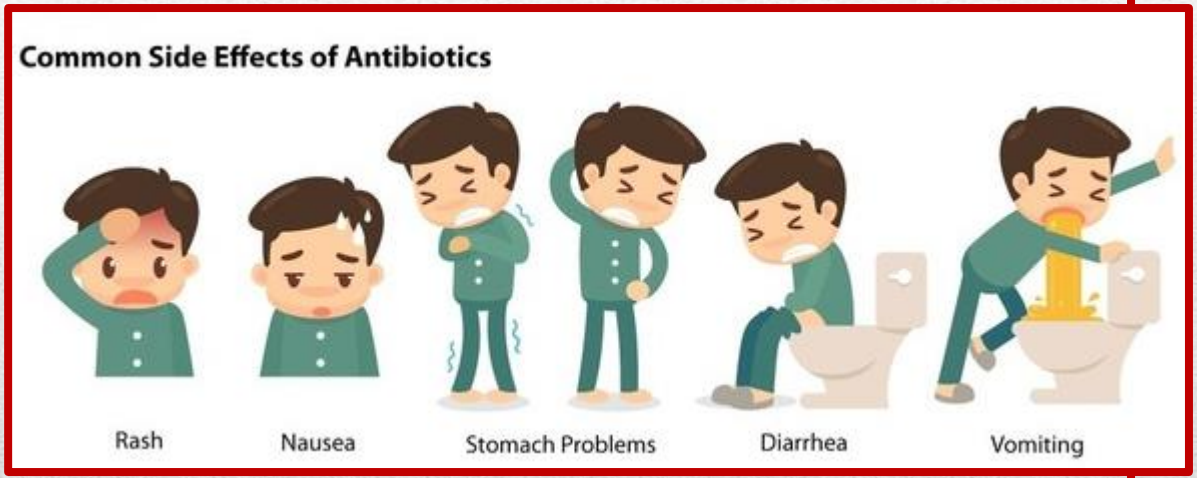
Cross-resistance:

Cross-resistance to a particular antibiotic that often result in resistance to other antibiotic, usually from a similar chemical class, to which the bacteria may not have been exposed. ***E.g****. Clindamycin and Lincomycin*

Side Effects:

There is a long list of side effects but some of them are listed below.

- *Diarrhea*
- *Indigestion*
- *Abdominal pain*
- *Loss of Appetite*
- *Being sick*
- *Itchy skin rash*
- *Coughing*
- *Life threatening allergic reaction*



HOW TO DEAL WITH ANTIBIOTIC SIDE EFFECTS

EAT PROBIOTIC YOGURT

SIP GINGER TEA

EAT FERMENTED FOODS OR TAKE A PROBIOTIC SUPPLEMENT

EAT BLAND FOODS

DRINK APPLE CIDER VINEGAR TONIC

EAT GARLIC

TAKE MILK THISTLE SUPPLEMENTS

DRINK ENOUGH FLUIDS

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THANK YOU