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**Overview of antibiotics:**

**Introduction :**

Antibiotics are drugs used to treat bacterial infections. They are in effective against viral infections and most other infections . Antibiotics either kill microorganisms or stop them from reproducing , allowing the body’s natural defenses to eliminate them .

**Definition :**

Antibiotics are a group of medicines that are used to treat infections . Antibiotics are some times called antibacterial or antimicrobial .Antibiotics can be taken by mouth as liquids, tablets or capsule or they can b given by injection . Antibiotics are also available as creams , aintments or lotion to apply to the skin to treat certain skin infections.

**Classes of antibiotics:**

Antibiotics are grouped into classes based on their chemical structure . However , antibiotics within each class often effect the body differently and may be effective against different bacteria .

Classes of antibiotics include the following

* Aminoglycosides
* Carbapenems
* Cephalosporin’s
* Fouroroquinolones
* Glycopeptides and lipoglycopeptides
* Ketolides
* Macrolides
* Monobactams
* Oxazo lindinones
* Penicilllins
* Polypeptides
* Rifamycins
* Sulfonamides
* Streptogramins
* Tetracycline’s
* Carbapenems,cephalosporins,monobadams , and penicillin’s are subclasses of beta lactam antibiotics, a class of antibiotic characterized by a chemical structure called beta- lactam ring .
* Chloramphenicol ,clindamyuin, daptomycin, fosfomycin , metronidazole , nitrofurantrin and tigecycline are other antibiotics that do not fit into the classes listed above.

**Mechanism :**

Five basic mechanism of antibiotic action against bacterial cells :

* Inhibition of cell wall synthesis ( most common mechanism ).
* Inhibition of protein synthesis ( translation 2nd largest class ).
* Alterations of cell membrane
* Inhibition of nucleic acid synthesis
* Antimetabolite activity

**Medical uses :**

1. Antibiotics are used to treat or prevent bacterial infection and sometimes protozoan infections.
2. Metronidazole is effective against a number of parasitic diseases.
3. To avoid surgery ,antibiotics may be given for non complicated acute appendicitis.
4. They have an important role in dental antibiotic prophylaxis where their use may prevent bacteremia and consequent infective endocarditis.
5. Antibiotics are also used to prevent infection in case of neutropenia particularly cancer -related.
6. Penicillin such as( penicillin and amoxicillin ) widely used to treat a variety of infection ,including skin infection chest infection and urinary tract infections.
7. Macrolides such as ( erythromycin and clarithromycin) can be particularly useful for treating lungs and chest infections.
8. Fluor quinolones ( such as ciprofloxacin and levofloxacin) broad spectrum antibiotics that can be used to treat a wide range of infections.

**Side effects of antibiotics:**

The most common side effects of antibiotics affect the digestive system include :

* Vomiting
* Nausea
* Diarrhea
* Bloating and in digestion
* Abdominal pain
* Loos of appetite

These side effects are usually mild and should pass once you finish your course of treatment

**Antibiotics allergic reactions :**

Around 1 in 15 people have an allergic reaction to antibiotics , a specially penicillin and cephalosporin’s .

 In most cases the allergic reaction is mild to moderate and can take the form of :

* A raised itchy skin rash( urticaria , or hives )
* Coughing
* Wheezing
* Tightness Of the throat which can cause breathing difficulties.

In rare cases antibiotic can cause a severe and potentially life – threatening allergic reaction known as **anaphylaxis**

 Initial symptoms of anaphylaxis are often the same as above and can lead to :

* A rapid heart beat
* Increasing difficulty breathing cause by swelling any tightening of the neck
* A sudden intense feeling of apprehension and fear
* A sharp and sudden drop in your blood pressure , which can make oh fell light headed and confused
* Falling unconscious.