

* Therapeutic Action of Drugs:

1. Antacids:- Over production of acid in stomach causes irritation and pain.

The treatment for acidity was administration of antacids, such as NaHCO_3 or a mixture of $\text{Al}(\text{OH})_3 + \text{Mg}(\text{OH})_2$.

Note:- Excessive NaHCO_3 make the stomach alkaline and trigger the production of even more acid.

Metal Hydroxides are better alternatives because of being insoluble, they do not increase the pH level above neutrality. (These control only symptoms and not the cause.)

Ulcers life threatening only treatment is removal of affected part of stomach.

* Histamine :- stimulates the secretion of pepsin and HCl acid in the stomach.

* Cimetidine :- This drug was designed to prevent the interaction of histamine with the receptors present in the stomach wall.

The importance of the drug was so much that it remained the largest selling drug in the world until another drug, rantidine (Zantac) was discovered.

2. Antihistamines

* Histamine is a potent vasodilator.

Its Function are:-

i) It contracts smooth muscles in the bronchi and gut and relaxes other muscles.

ii) It is also responsible for nasal congestion associated with common cold and allergic response to pollen.

* Antihistamines:-

They interfere with the natural action of histamine by competing with histamine for binding sites of receptor where histamine exerts its effect.

Synthetic drugs, brompheniramine (Dimetapp) and terfenadine (Seldane), act as antihistamines.

Q Why do antihistamine not affect the secretion of acid?

Ans Because anti-allergic and antacid drugs work on different receptors.

b) Neurologically Active Drugs:-

a) Tranquilizers:-

These are the compounds used for the treatment of stress and mild or even severe mental diseases.

- It is an essential component of sleeping pills.

Ex, Noradrenaline is one of the neurotransmitters that plays a role in mood changes.

If level of noradrenaline is low, the person suffers depression.

* Antidepressant drugs:- These drugs inhibit the enzymes which catalyse the degradation of noradrenaline.

Ex, Iproniazid and phenelzine → used for depression.

• Equanil → is used in controlling depression and hypertension.

* Barbiturates:- Derivatives of barbituric acid and second constitute of an important class of tranquilizers.

• Barbiturates are hypnotic, i.e., sleep producing agents.

• Valium and serotonin are other tranquilizers.

b) Analgesics

Analgesics reduce or abolish pain without causing impairment of consciousness, mental confusion, incoordination or paralysis.

i) Non-narcotic (non-addictive) analgesics :-

Aspirin and Paracetamol belong to the class of non-narcotic analgesics.

~~Aspirin~~

Antipyretic → means reducing fever.

Aspirin → used in prevention of heart attacks due to its anti-blood clotting action.

ii) Narcotic analgesics :-

Medicinal doses (over) and addictive drugs.

Ex, Morphine, Heroin.

- Morphine → referred to as opiates, since they are obtained from the opium poppy. Used for relief of ~~pain~~ postoperative pain, cardiac pain and pains of ~~pain~~ terminal cancer.

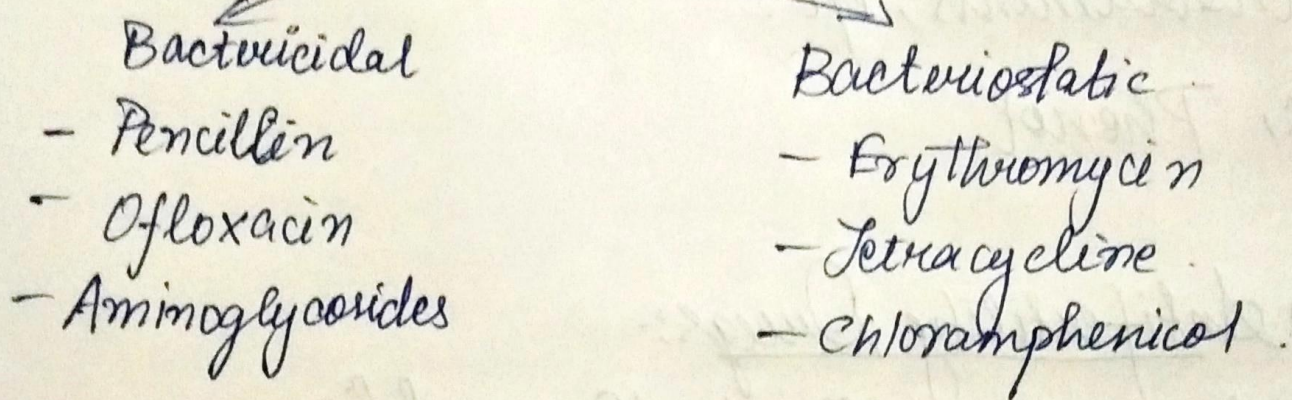
7) Antimicrobials

(a) Antibiotics :- Used as drugs to treat infections because of their low toxicity.

Definition :- Antibiotics are classified as chemical substances produced by microorganisms that inhibit the growth of microorganisms.

• Arsphenamine, known as salvarsan :-
used for syphilis treatment.

Types of antibiotics :-



* Broad-spectrum antibiotics :- antibiotics which kill or inhibit a wide range of Gram-positive and Gram-negative bacteria. Ex, chloramphenicol.

* Narrow-spectrum antibiotics :- These effective mainly against gram-positive or gram-negative bacteria.

* Limited spectrum :- These antibiotics are effective against a single organism or disease.
Ex, Penicillin G.

b) Antiseptics and Disinfectants

* Antiseptics:- are applied to the living tissues such as wounds, cuts, ulcers and diseased skin surfaces.

Ex, Iodine, Soframicine, etc,

Dettol \rightarrow (mix. of Chloroxylenol + Terpineol)

* Disinfectants:- are applied to inanimate objects such as floors, drainage system, instruments, etc.

Ex, Phenol.

4) Antifertility Drugs:-

To control the birth population.

- Birth control pills contain a mixture of synthetic estrogen and progesterone derivatives.

Ex, Norethindrone and

Ethinylestradiol (Novestrol).