

MECHANISMS OF DRUG ACTION

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1) Change the Physical and Chemical Properties of the cellular Environment:

Antacids neutralize gastric acid

IV mannitol induces diuretic effect (osmotic diuretic)

chelating agents (dimercaprol)

given to treat heavy metal poisoning, e.g lead, mercury, arsenic

2) DRUGS EXERT THEIR EFFECTS BY RECEPTOR ACTIVATION OR INHIBITION

Agonists

Antagonists



3) Drugs exert their effects by modifying extracellular or intracellular enzymes which are responsible for physiologic processes.

Angiotensin Converting Enzyme inhibitors

Acetylcholinesterase inhibitors

MAO inhibitors

COX inhibitors

Xanthine oxidase inhibitors

HMG-CoA reductase inhibitors

4) Drugs exerts their effects as an antimetabolite

Warfarin- antimetabolite of Vitamin K- impaire the synthesis of coagulation factors

Metotreksat- antimetabolite of folic acid- impaire DNA synthesis

Co-enzymes and substrates of enzyme = metabolite

5) Drugs exert their effects by modulating active transmembranal transport systems

- Proton-pump inhibitors (Omeprazol) inhibit the gastric H^+ - K^+ ATPase to treat stomach ulcer
- Digital glycosides inhibit the Na^+ - K^+ ATPase of myocytes to increase their contractility

6) Drugs exert their effects by opening or closing transmembranal ion channels of excitable cells

- Local anaesthetics,
- Calcium channel blockers
- Some antiarrhythmics

7) Replacement therapy

-Vitamin or hormone replacement



8) Drugs exert their effects by influencing physiological transmitters and hormones

Ephedrine enhances the release of NA from the adrenergic nerve endings.

Tolbutamide enhances the release of insulin and decreases the blood sugar concentration.