Drug absorption

Absorption is the transfer of the drug into the bloodstream. In IV this process is complete thus the whole dose reaches the systemic circulation. However in other routes of administration the rate and efficiency is dependent on many factors and usually on ly results in partial absorption.

Transport in GIT

Due to their chemical properties, drugs are absorbed either by passive diffusion or active transport.

1. **Passive diffusion:** Passive diffusion is facilitated by the concentration gradient accross the membrane. The drug moves from high concentration to low concentration, it does not require an extra carrier or extra energy. Water-soluble agents use aquaous pors in the membrane while lipid soluble diffuse directly through the membrane.
2. **Active transport:** Active transport requires specific carries and ATP. The specific carrier protein carry the drugs that closerly resemble the structure of the naturally occurring metabolites specific for the carrier. It is capable of transporting from low to high concentration compartments.
3. **Endocytosis:** Endocytosis means that the membrane engulfes th drug moledule and transports it into the cell by pinching off the drug-filled vesicle. E.g. Vitamin B_{12} is transported this way.

Factors affecting absorption

- **pH**, most drugs are either weak acids or weak bases. Drugs pass through membranes easier if uncharged. The effective concentration of each drug at the absorption site is determine by the relative concentrations of the charged and uncharged forms.
- **Blood Flow** to the intestine is much more extensive than to the stomach as well as larger surface area favours the intestine for absorption.
- **Movement** movement of the drug through the GIT has a large effect on its absorption. The faster it moves through thus decreasing its contact time at the absorption surface and therefore less is absorbed. This is the case in severe diarrhea. Also the presents of food dilutes the drug and slows gastric emptying and thus the drug is generally absorbed slower.

Links

Related articles

- Route of drug administration
- Bioavailability

Bibliography

- FINKEL, CLARK, CUBEDDU, HARVEY, CHAMPE,, et al. *Lippincott's Illustrated Reviews: Pharmacology.* 4. edition. 2009. ISBN 978-1605472003.