

First-pass effect

First-pass effect or also known as *first-pass metabolism* or *presystemic metabolism* is when an administered drug enters the liver and undergoes extensive biotransformation and thus decreasing the concentration rapidly before it reaches its target.

Mechanism

It happens most commonly when the drug is administered orally. The drug then is absorbed in the GIT and enters the portal circulation before entering the systemic circulation. Via the portal circulation it enters the liver where some drugs undergo extensive biotransformation and the drug concentration is decreased.

Thus it is the fraction of lost drug during the process of absorption generally related to the liver. This happens most commonly through oral intake. Notable drugs undergoing significant first-pass metabolism include: Propranolol, Lidocaine, Diazepam

Beneficial effect

Some drugs take benefit of the liver biotransformation. These drugs are administered as *prodrugs* and are converted from inactive to active form. E.g. Codeine is administered and demethylated (biotransformation in liver) into its active form Morphine proper

Links

Related articles

- Routes of drug administration
- Drug absorption

Bibliography

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