Introduction

Pharmacodynamic Effect - Drugs (designed to have an effect on physiology), are given to manage symptoms and to treat disease. This change is usually in the form of stopping something from happening, or making something happen in the body.

Pharmacokinetics - The way in which the body handles or processes drugs.

Pharmacodynamics - The effect that drugs have on the body, (Robertson, 2015.)

Pharmacokinetics - ADME

Absorption, Distribution, Metabolism, Excretion

Drug molecules are absorbed into the bloodstream. They are circulated (or distributed) to their target site within the body to create their pharmacodynamic effect, then the body must break them down (or metabolise them) and excrete them from the body.

Example of ADME

Absorption, Distribution, Metabolism, Excretion

Insulin is given by subcutaneous injection and is absorbed into the bloodstream.
It is distributed around the body by the bloodstream and is given at a dose which will achieve the target plasma concentration and stimulate the drug's pharmacodynamic effect (stop blood glucose from rising).
After it has done its job, the drug is then metabolised as it passes, in the bloodstream, through the liver and the inactivated drug (or metabolites) will be carried to the kidneys and excreted in the urine.

ADME - Absorption

Absorption describes how a chemical enters the body. Absorption relates to the movement of a chemical from the administration site to the bloodstream.
There are four main routes of administration: Ingestion through the digestive tract, Inhalation via the respiratory system, Dermal application to the skin or eye, or Injection through direct administration into the bloodstream.

ADME - Distribution

Once a drug has been absorbed, it moves from the absorption site to tissues around the body. This distribution from one part of the body to another is typically accomplished via the bloodstream, but it can also occur from cell-to-cell.

Factors such as blood flow, lipophilicity, tissue binding, and molecular size influence distribution.

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