Part one of this four-part series discusses the advantages and disadvantages of the oral route

Administration of drugs 1: oral route

The way in which medicines are administered will to some extent influence their clinical benefit and whether patients experience any adverse effects. For example, if IV furosemide is administered too quickly, it can cause deafness, while oral penicillin V will not be well absorbed if given with food. Two main factors determine whether a drug will reach its intended site of action in the body:

» Its bioavailability;
» How it is given (route of administration).

Bioavailability

Route of administration and formulation – tablet, capsule, liquid – can influence the bioavailability of a drug. Bioavailability is the proportion of a drug that reaches the systemic circulation and is therefore available for distribution to the intended site of action.

Drugs given by IV injection are said to have 100% bioavailability. Some drugs that are particularly well absorbed by the gastrointestinal mucosa may have bioavailability comparable with that of an IV dose, for example the antibiotic ciprofloxacin. However, most drugs do not have this level of availability by the oral route so the dose given orally is usually higher than that given parenterally. For example, the beta-blocker propranolol, when given orally, is administered in doses of 40mg and above. The equivalent IV dose is 1mg.

Other articles in this series

Part 2 – Alternatives to the oral route, 30 August
Part 3 – The parenteral route, 13 September
Part 4 – Patient self-administration, 20 September

References