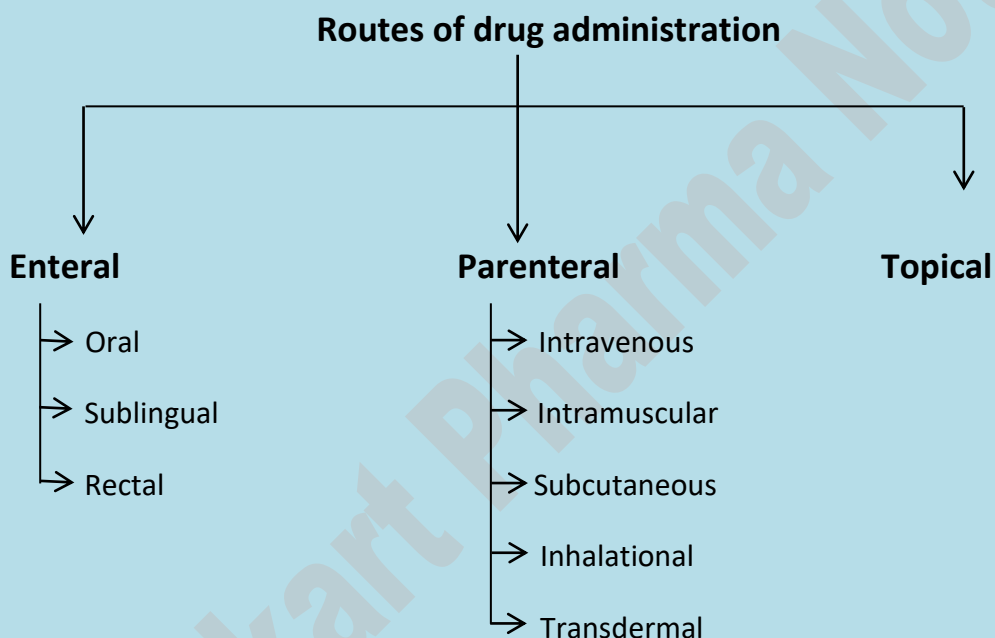


Routes of administration

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Introduction:- Routes of drug administration is the path by which the drug is introduced into the body for treatment of disease.

Drugs are available in various form like tablet, Capsule suspension, ointment, Cream, injection etc.



1. External administration:- This route is best for drug administration unless any specific advantage is desired associated with other delivery route.

a) Oral :- In this route of administration the drug either liquid or solid preparation is placed in mouth cavity is swallowed along with drinks such as water, milk etc.

Advantage:-

- Most of medicinal preparations are consumed orally.

- Economical chance of acute drug reaction.
- Very convenient for children and aged people.

Disadvantage:-

- Sometime inefficient for the patients.
- Irritation to gastric mucosa.
- Can cause Nausea& vomiting.

b) Rectal: - Suppositories/ Enema are drug that are placed in rectal route.

Ex-Aspirin, Theophylline, Chlorpromazine.

Advantage:-

- Useful in the children/ adult.
- Use in the case of vomiting.
- Higher concentration of drug property achieved.

Disadvantage:-

- Irritation or inflammation of Rectal mucosa can occur.
- Absorption is slow of this route and Erratic.

Sublingual/ Buccal route

Sublingual:- This dosage form is placed under the tongue and allow to dissolve in the mouth cavity. The drug is absorbed by sublingual mucosa.

Buccal route:- In buccal route drug kept within the mouth around the cheeks or buccal cavity, where it disintegrates and get absorbed.

Advantage:-

- Rapid absorption of the drug.
- Drugs do not undergo first- pass metabolism.
- Portal circulation is by passed.
- Maintained drug stability.
- No involvement of harsh GI environment.
- Less chance of infection.

Disadvantages:-

- Only small dose can take.
- Sometime complete drug is not absorbed.

- Not effective in emergencies.
- Drug couldn't be administered during emesis.
- Unpleasant taste of drugs.

2. Parenteral Administration:- The route of administration other than the enteral route comes under parenteral route. Parenteral Administration is injection or infusion by means of needle or catheter inserted in the body.

Intravenous (IV) Route

IV is the route of drug administration in which the drugs are administered into the veins. Injection is preferred for orally unabsorbed drugs like Atracurium (neuromuscular blocker). IV route shows rapid effect and maintains level of drug in circulation.

Advantage:-

- 100% bioavailability.
- It shows rapid effect.
- This route is the best in the case of diarrhea and vomiting.
- Take medicine in large quantities.

Disadvantage:-

- This route is less safe than oral route.
- Technical and trained person required.
- Costly.
- Inconvenient and painful causing irritation, cellulitis and thrombophlebitis.

Intramuscular:- In this route the drug is administered into the muscles.

Advantage:-

- Rapid onset of action.
- No G.I.T. related factors.
- Mild irritants can be metabolized.
- The absorption is reasonably uniform.

Disadvantage:-

- Only 10ml of drug is given.
- Local pain cause, Abscess and infection.
- Can cause nervous damage.

Subcutaneous Route (SC)

This route of administration the drug gives under the skin.

Example:- Hormonal drug (Insulin injection)

Advantage:-

- Can be easily self-administering by the patient.
- Complete but slow adsorption.
- Low risk of systematic infection.

Disadvantage:-

- Maximum 2ml of drug may be injected.
- Less painful then the IV /IM route.
- Irritant drugs cause tissue damage.

Intara-arterial:-

This route of drug administration the drugs are given into the arteries. Vasodilator, anticancer drugs are given by skin route.

Advantage:-

- Bioavailability 100%.
- It is of great clinical value in administering anticancer drugs.

Disadvantage:-

- Only can used in cancer and vasodilator.
- Painful
- Risky

Inhalation :-

In case of inhalation route drugs are administered either as Aerosol system in the form of vapors