

Introduction to Pharmacology

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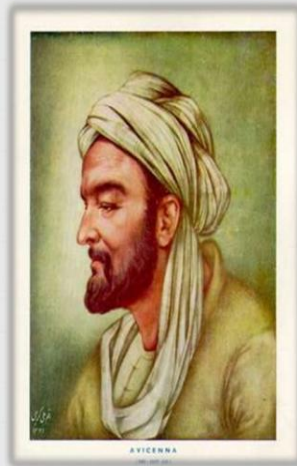
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Learning Objectives

- Define the terms related to Pharmacology.
- Refreshment and Preparing for Pharmacology course.
- List the various routes of administration of drugs.
- Discussion of some factors effect on pharmacokinetics.
- Differentiate between generic and trade names of drugs.
- Hints to study Pharmacology.

Historical Trends

Arabian Medicine



☞ **Avicenna** (980-1027) -
"Canon of Medicine"
(14 vol.)

☞ Galenic medicine
(standard text till 18th
century).

Historical Trends

- In twenty first century, the emphasis on providing **quality health care**.

Terminology & Definitions

- ▶ **Pharmacology:** is a science that studies the effect of the drug on the body.
- ▶ **Pharmacopeias:** are the total of all authorized drugs available within the country. (BNF)
- ▶ **Medication:** is a substance administered for diagnosis, cure, treatment, mitigation or prevention of disease.
- ▶ **Prescription:** the written direction for the preparation and the administration of the drug.

Terminology Cont

- **The therapeutic effect:** is the primary effect intended that is the reason the drug is prescribed such as morphine sulfate is analgesia.
- **Side effect:** secondary effect of the drug is one that unintended, side effects are usually predictable

Terminology Cont

- **Drug toxicity:** harmful effect of the drug on an organism or tissue, result from overdose or external use.
- **Drug allergy:** is immunological reaction to a drug.

Terminology Cont

- **Drug interaction:** occur when administration of one drug before or after alter effect of one or both drug.
- **Drug misuse:** Is the improper use of common medications in way that lead to acute and chronic toxicity for example laxative, antacid and vitamins.

Terminology Cont

- **Drug abuse:** is an inappropriate intake of substance either continually or periodically.
- **Drug dependence:** is a persons reliance on or need to take drug or substance there are two type of dependence:

Terminology Cont

- **Physiological dependence:** is due to biochemical changes in the body tissue these tissue come to require substance for normal function.
- **Psychological dependence:** is emotional reliance on a drug to maintain a sense of wellbeing accompanied feeling of need.

Terminology Cont

- ▶ **Drug habituation:** denotes a mild form of psychological dependence.
- ▶ **Illicit drug:** are those sold illegally.

Terminology Cont

- ▶ **Dose** :The aim to give patient a dose of the drug that achieves the desired effect with out causing with harmful side effect.
- ▶ **Therapeutic index**: is a measure of the danger of poisoning and the higher it is safer of drug is.
Aspirin (3.5), digoxin (2)

Terminology Cont

- **Bioavailability:** Means that the drug has reached the circulation and is therefore available for all the tissues.
- **Tolerance:** A decreasing response to repetitive drug doses

basic concepts of Pharmacology

- **Pharmacokinetics**: is about how the body deal with drug.
- **Pharmacodynamics**: is effect of drug on the body.
- **Pharmacotherapeutics**: is a clinical using of drug.
- **Pharmacognosy**: The study of natural (plant and animal) drug sources.

Branches of Pharmacology

- Pharmacognosy - Origin
- Pharmacokinetics - Movement through Body
- Pharmacodynamics - Effect
- Pharmacotherapeutics - Use/Purpose
- Toxicology - Side Effects

Names of Drugs

- **The generic name:** is given for the drug to being official name.
- **The chemical name:** is the name by which the chemist knows it.
- **The trade mark or brand name** (proprietary name) : is name given by the drug manufacture
- Example: hydrochlorothiazide (official name).
- Esidrex (brand name)

Examples

Chemical Name	Generic Name	Trade Name
7-chloro-1,3-dihydro-1-methyl-5 phenyl 2H-1, 4-benzodiazepin 2-one	diazepam	Valium®
Ethyl 1-methyl 4-pheyli-sonipecotate hydrochloride	meperidine	Demerol®
acetylsalicyclic	aspirin	Ecotrin®

Source of drugs

1. **Plants:** such as digitalis, vincristine.
2. **Human and animals:** such as epinephrine, insulin and adrenocorticotropic hormone.
3. **Minerals:** as iron, iodine and zinc
4. **Synthetic and chemical substance:** as sodium bicarbonate

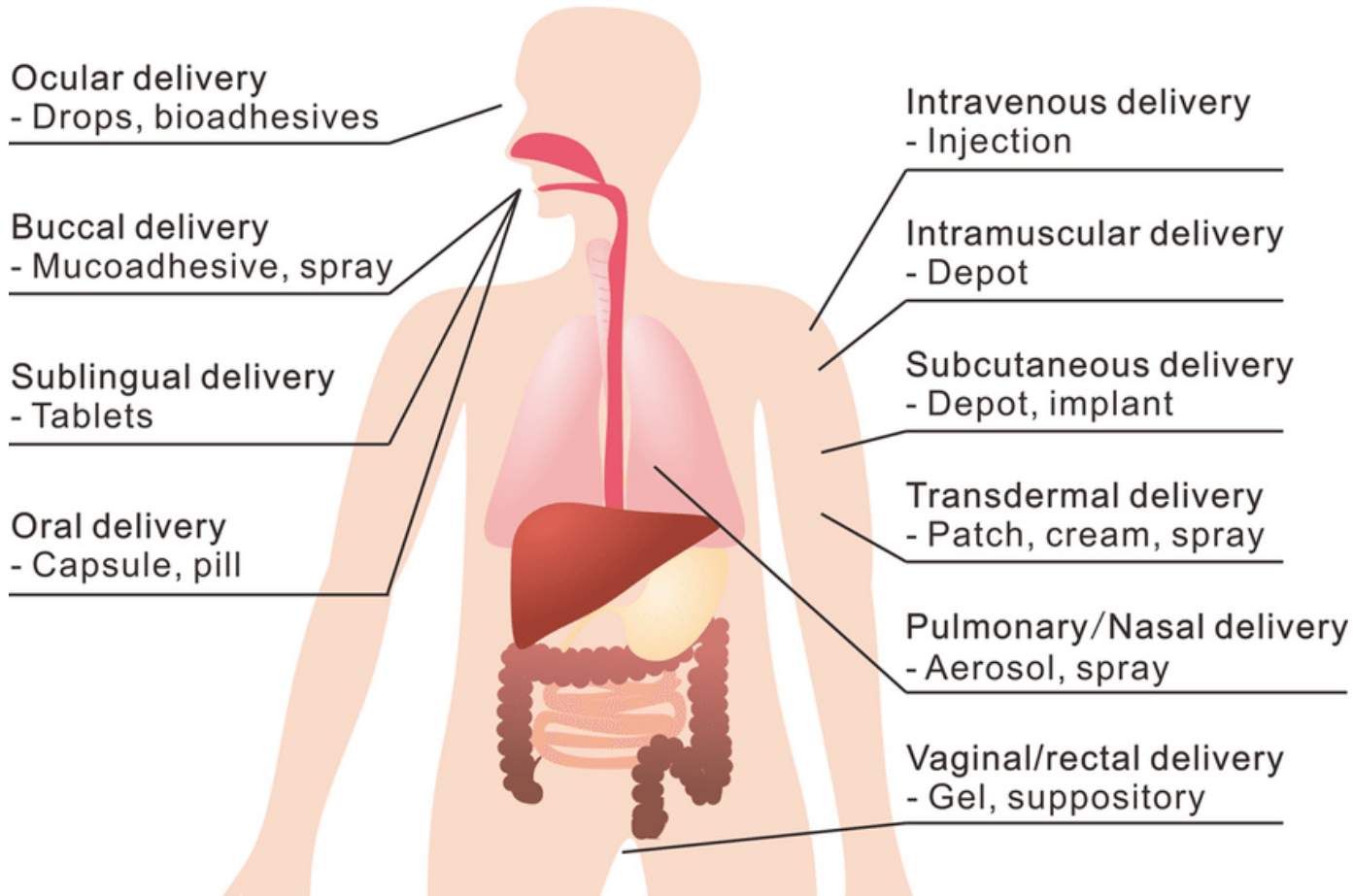
Drug Classifications

- **Pharmacologic Classification**
 - Similar Characteristics
 - Similar Chemical Make up
 - examples: Penicillins, Beta Blockers
- **Therapeutic Classification**
 - Used for similar effect
 - May not have similar chemical make up
 - Examples: Antihypertensives, Antibiotics

Drug action across lifespan

- ▶ Drug administration during pregnancy
- ▶ Drug administration during childhood
- ▶ Drug administration during adulthood
- ▶ Drug administration in geriatric patients

Route of administration:



Hints to Study Pharmacology

- 1. Concentrate on therapeutic classifications and their prototypes.*
- 2. Compare a newly encountered drug with a prototype when possible.*
- 3. Try to understand how the drug acts in the body.*

Hints to Study Pharmacology

4. *Concentrate your study efforts on major characteristics.*
5. *Keep an authoritative, up-to-date drug reference readily available, preferably at work and home.*
6. *Use your own words when taking notes or writing drug information cards.*

Hints to Study Pharmacology

7. Mentally rehearse applying drug knowledge in clinical care by asking yourself, “What if I have a client who is receiving this drug? What must I do to safely administer the drug? For what must I assess the client before giving the drug and for what must I observe the client after drug administration? What if my client is an elderly person or a child?”

Thank You