Al- Anbar university - College of Medicine - Pharmacology department

Introduction in pharmacology

Dr. Omar Salim Ibrahim

Pharmacology: - The science that deals with the interaction of living systems with chemicals (endogenous or exogenous).

Or is the science that studies the effects of drugs on living tissue and how they exert their effects.

Or "A branch of medical sciences that study drugs and their action on living organisms"

PARMACOLOGY = *Drug Science*

Toxicology: which deals with adverse effects, drug interaction, drug abuse, poisons, antidotes, industrial and environmental pollution, and therapeutic drug monitoring.

Pharmacognosy: - (plant medicine).

Prescription writing: - emphasising on drug names ,dosage regimen).

Drug: - Any substance that brings about a **change in biologic function** through its chemical actions

Receptor : - A specific protein in either the plasma membrane or interior of a target cell with which a chemical messenger/drug combines.

Dose: - The amount of a drug to be administered at one time.

Mechanism of Action: - The ways by which drugs can produce therapeutic effects.

- **Effects (therapeutic effect)**: - “The desired results of administration of a medication”
- **Side Effects (adverse effects)**: -“Effects that are harmful and undesired, and that occur in addition to the desired therapeutic effects”
- **Indications**: - “The reasons for administering a medication or performing a treatment”
- **Contra-indications**: - “Factor that prevents the use of a medication or treatment (e.g., Allergies)”
- **Onset**: -The time it takes for the drug to produce a therapeutic response
- **Duration**: - “The time a drug concentration is sufficient to elicit a therapeutic response”

PHARMACOTHERAPY: Employment of drugs for the prevention and treatment of diseases.

- Its scope:-

-Indications
-Contraindications
-Drug interactions
-Rational therapy design.
-Good prescribing.

Latent period:-The time between drug administration and onset of its action Affected by:

- Rout of drug administration.
- Rate of drug absorption.
- Rate of penetration to site of action.

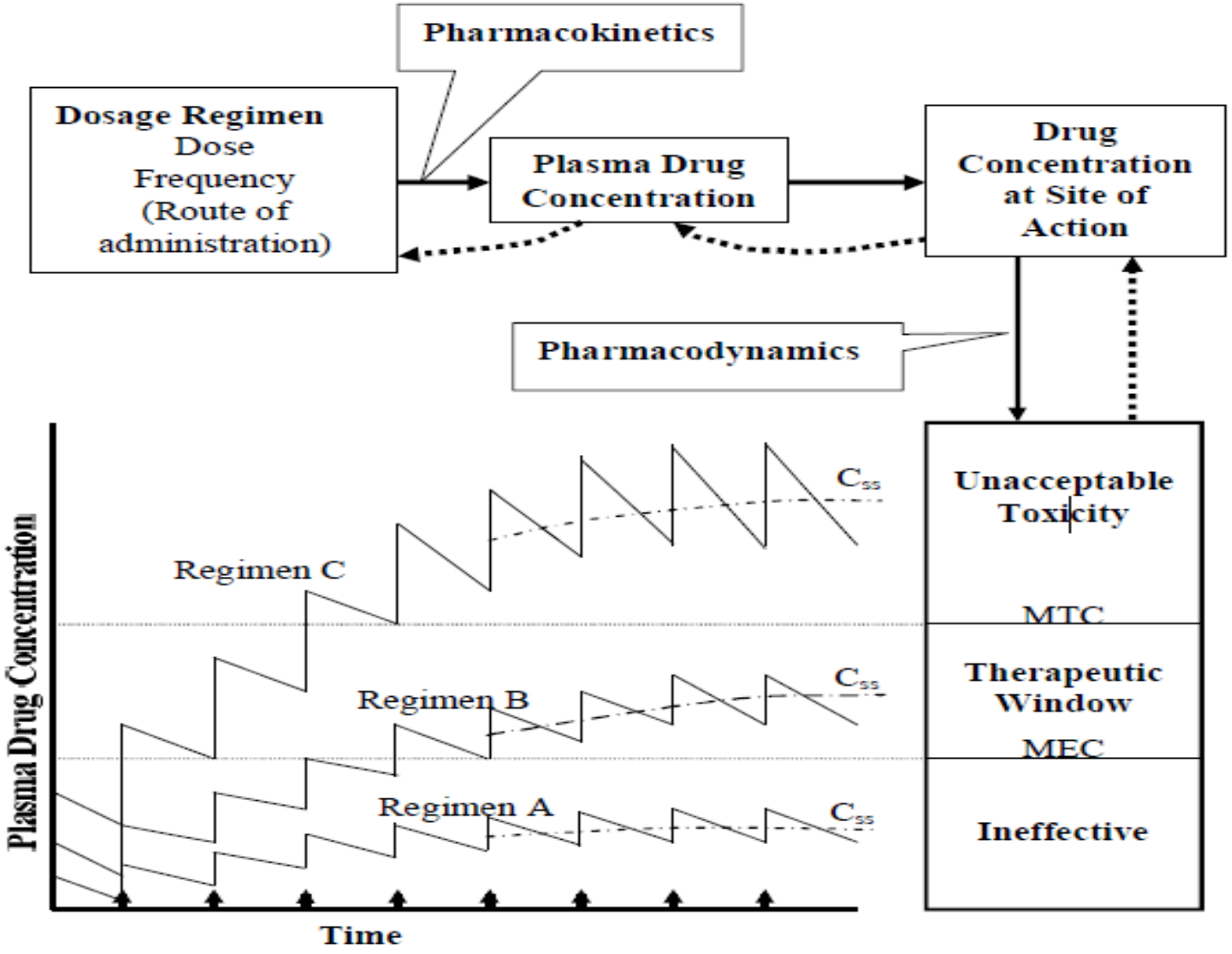
Half life: - The time that requirement to remove 50% from the drug outside of the body.

Drug residue: amount of drug still present in tissue (liver, kidney, brain or heart) and product (milk).

Withdrawal time: time taken for a drug to be eliminated from tissue or product after stop of drug administration.

Dosage Regimen: - Dosage regimen is the manner in which a drug is taken concerning dose, frequency, and route of administration that relate to drug level-time relationships in the body.

Drug	Indication	Route	Dosage Regimen
Warfarin **t 37 hr** **Vd 5 L**	Deep venous thrombosis	Oral	Individualize dosage according to PT or INR, initially 2-10 mg daily for 3 days, then; average maintenance dose: 2-5 mg at the same time each day
Theophylline **t 8 hr** **Vd 35 L**	Asthma	Oral	Individualize dosage according to clinical responses and monitor serum theophylline levels. Short-acting formulation 500 mg initially, then 100-300 mg 3-4 times daily. Long-acting formulation 150-300 mg twice daily.
		Slowintravenous injection (over 20-30 min)	5-6 mg/kg (in patients not previously treated with xanthine)
Oxytocin **t minutes**	Induction and maintenance of labour	Intravenous infusion	0.2-4 milliunits/min infusion, gradually increased to 20 milliunits/min, if necessary, to produce 3 or 4 contractions within 10-min periods.
		Oral (control is too erratic)	Not used because of being rapidly destroyed by the proteolytic enzymes in GIT.
Morphine **t 2 hr** **Vd 230 L**	Severe pain	Intramuscular	10 mg when needed
		Oral	Not used because of being rapidly metabolised in the liver.
Ampicillin **t 1.2 hr** **Vd 20 L**	Certain bacterial infections	Oral	0.25-1 g every 6 hr.
		Intramuscular, intravenous, or infusion	0.5 g every 4-6 hr.
Digoxin	Congestive heart failure	Oral	1.5-2 mg initially over 24 hr., then 0.25-0.5 mg once a day
Phenobarbital **t 4 days** **Vd 38 L**	Epilepsy	Oral	60-180 mg at night



schematic representation of the approach to the design of dosage regimen.

A Graphical Example: