**Factors affecting on posology : (study materials )**

* However, several **factors influence drug dosage**, and today, we will explore these factors in detail:
* The optimum dose of drug which produces desired therapeutic effect varies from person to person, because every individuals varies both in the degree and character of the response produced by the drug .
* Due to this reason the doses of official preparation of drugs are expressed in the form of range which give the therapeutic effect .
* The dose range is usually based on the average requirement of an adult patient .

So the following are some of the factors which influencing the dose:

* **1.Age:**

The pharmacokinetic of many drugs changes with age. So while determining the dose of drug the age of an individual is of great significance. Children and old people: need lesser amount of drug than normal adult dose bcz they are unable to excrete drugs to that extent as adults

* **2. Sex**: 2. Women do not always respond to the action of dropsis the same manner as it is done in men. Morphine and barbiturates may produce more excitement before sedation in women. Special should be taken when drugs are administered during menstruation, pre nancy and lactation. The strong purgatives such as aloes should be avoided during menstruation. Similarly the drugs which may stimulan the uterine smooth muscle e.g. drastic purgatives, antimalarial drugs ergot alkaloids are contra indicated during pregnancy. There are certais drugs which on administration to the mother are capable of crossing the placenta and affecting the foetus e.g. alcohol, barbiturates, narcotic non narcotic analgesics etc. During lactation, the drugs like antihista mines morphine and tetracycline which are excreted in milk should be avoided or given very cautiously to the mothers who are breast feeding the babies.
* **3.Environmental factors:** 6. Daylight is stimulant, enhancing the effect of stimulating drugs and diminishing the effect of hypnotics Darkness is sedative. Hypnotics are more effective at night. The amount of barbitura higher than the dos tolerated in cold e
* **4.Emotional factor:** The personality and behaviour of a physician may influence the effect of drug especially the drugs which are intended for use in a psychosomatic disorder. The females are more emotional than males and requires less dose of certain drugs. Inert dosage forms called placebos which resemble the actual medicament in the physical properties are known to produce therapeutic benefit in diseases like angina pectoris and bronchial asthma**.**
* **5 Body weight:** The average dose is mentioned either in terms of mg per kg body weight or as a total single dose for an adult weighing between 50-100 Kg. However, the dose expressed in this fashion may not apply in cases of obese patients, children and malnourished patients It should be calculated according to body weight.
* **6. Route of administration**: Intravenous doses of drugs are usually smaller than the oral doses, because the drugs administered intravenously enter the blood stream directly. Due to this reason the onset of drug action is quick with intravenous route and this might enhance the chances of drug toxicity. The effectiveness of drug formulation is generally controlled by the route of administration.
* **7. Time of administration**: The presence of food in the stomach delays the absorption of drugs. The drugs are more rapidly absorbed from the empty stomach. So the amount of drug which is very effective when taken before a meal may not be that much effective when taken during or after meals. The irritating drugs are better tolerated if adminis tered after meals e.g. iron, arsenic and cod-liver oil should always be given after meals.
* **8.Presence of disease:** druhs like barbiturates and chlorpromazine may produce unusually prolonged effect in patient having liver cirrhosis.
* **9.Accumulation**: the cumulative effect are usually produced by slow excretion ,degradation and rapid absorption of drug.
* **10.Additive effect:** When the total pharmacological action of two or more drugs administered together is equivalent to sum of their indi-vidual pharmacological action, the phenomena is called as an additive effect. For example, combination of ephedrine and aminophylline in the treatment of bronchial asthma.
* **11.Synergism:** When two or more drugs are used in the combina-tion form, their action is increased. The phenomena is called synergism. Synergism is very useful when desired therapeutic result needed is difficult to achieve with a single drug e.g. procaine and adrenaline combination, increases the duration of action of procaine
* **12.Antagonism:** When the action of one drug is opposed by the other drug on the same physiological system is known as drug antago-nism. The use of antagonistic responses to drugs is valuable in the treatment of poisoning e.g. milk of magnesia is given in acid poisoning where alkaline effect of milk of magnesia neutralise the effect of acid poisoning. When adrenaline and acetylcholine are given together, they**13.Idiosyncrasy:/drug allergy** :An extraordinary response to a drug which is different from its characteristic pharmacological action is called idiosyncrasy. E.g small quantity of aspirin may cause gastric hemorrhage, and a small dose of quinine may produce ringing in the ears.
* **14.Tolerance**: 14. When an unusually large dose of a drug is required to elicit an affect ordinarily produced by the normal therapeutic dose of the drug, the phenomenon is termed as drug tolerance. e.g., smokers can tolerate nicotine, alcoholic can tolerate large quantity of alcohol. The drug tolerance is of two types:-

(i) True tolerance, which is produced by oral and parenteral administration of the drug.

(ii) Pseudo tolerance, which is produced only to the oral route of administration.

* **15.Tachyphylaxis**: t has been observed that when certain drugs are administered repeatedly at short intervals, the cell receptors get blocked up and pharmacological response to that particular drug is decreased. The decreased response cannot be reversed by increasing the dose. This phenomenon is known as tachyphylaxis or acute tolerance. For example, eph Irine when given in repeated doses at short intervals in the treatment of bronchial asthma may produce very less response due to tachyphylaxis. Similarly, drugs like amphetamine, cocaine and nitrates behave in this way
* **16.Metabolic disturbances:** Changes in water electrolyte balance and acid base balance, body temperature and other physiological factor may modify the effects of drug. Salicylates reduce body temperature only in case an individual has rise in body temperature. They have antipyretic effect if the body temperature is normal.