Psychopharmacology:

Psychopharmacology:

- The use of drugs to treat psychiatric disorders is often the foundation for a successful treatment approach that can also include other types of intervention such as psychotherapy and behavior therapy.
- As knowledge about the biology of normal and abnormal brain function continues to grow , the practice of clinical psychopharmacology continues to evolve in scope and effectiveness..

Psychopharmacology:

- The practice of using drug is not a simple issue ,many variables are involved ,including:
  - Drug selection
  - Administration
  - The psychodynamic meaning to the patient and family and environmental influences.
  - The patient, family ,nursing staff must be instructed on the reasons for the drug treatment as well as the expected benefit and potential risks
  - it may be useful to explain the theoretical basis of the pharmacotherapy.

Psychopharmacology:

- Drugs must be used in effective dosages ,
- for sufficient periods as determined by previous clinical investigations and clinical experience .
- in using too low dose or too short duration and only exposing the patient to some risk without therapeutical benefit.

Psychopharmacology:

Psychotropic drugs ,psychoactive drugs, psychotheraputic drugs:

- Antipsychotic drugs (neuroleptics).
- Antidepressant drugs.
- Mood stabilizers.
- Anti-anxiety drugs or anxiolytics.

This is not that valid division because :

- Drugs of one class can be used for disorders of another class as antidepessants used in anxiety and anxiolyics in depression or psychosis.

Psychopharmacology:➢

- Drugs from all categories used for treatment of disorders not previously treated by drugs e.g. eating disorders.
- Drugs not included in these categories can be used to treat psychiatric disorders as propranolol , gabapentin ..etc.
- Some terms are overlaping as anxiolytics (decrease anxiety), sedative (calming or relaxing effect),hypnotic (produce sleep).

Pharmacological actions:

- Pharmacodynamics: concern the effect of drugs on the biological action , the major phamacodynamic consedrations include :
- Receptor mechanisms.
- The dose response curve .
- The theraputic index.
- The development of tolerance ,dependance and withdrawal phenomenon.

Pharmacological actions:

- The receptor for a drug can be defined as the cellular component to which the drug binds and through which the drug initiates its pharmacodynamic effects on the body.
- The drug can be an agonist(stimulant of the biological activity of the receptor) or an antagonist(inhibits the biological activity) e.g. most anti-psychotics are D2 antagonists.

Pharmacological actions:

- The dose response curve plots the drug concentration ratios against the effects of the drug.
- The potency of a drug refers to the relative dose required to achieve certain effects,e.g. halodol is more potent than chlorpromazine regarding therapeutic effect , however they are equal in their clinical efficacy that is the maximum clinical response achievable by administration of the drug..

Pharmacological actions:

- Therapeutic index: is a relative measure of the toxicity or safety of a drug and is defined as the ratio of the median toxic dose to the median effective dose.
- The median toxic dose: is the dose at which 50% of patients experience a specific toxic effect.
- The median effective dose: is the dose at which 50% of patients have a specified therapeutic effect. The therapeutic index for haldol is high while that for lithium is low so it requires monitoring.

Pharmacological actions:

- Both interindividual and intraindividual variations can affect the response to a specific drug, the patient may be hyporeactive ,normal reactive, or hyperreactive to a drug.
- Idiosyncratic drug response occur when a patient experiences a particular unusual or rare effect from a drug e.g. developing agitation when given diazepam.

Pharmacological actions:

- Tolerance:
  - decrease responsiveness to a drug as it is administrated over time , may be associated with physical dependence and withdrawal phenomenon.

Pharmacokinetics:

Concern how the body handles a drug,

- Absorption:
  - psychotherapeutic drugs reach the brain through the blood stream. Orally administrated drug dissolve in the fluid of the GIT depending on their lipid solubility , the GIT local PH, motility and surface area and are then absorbed into the blood ,drugs which affect acidity or motility will affect the absorption.

Pharmacokinetics:

- Parenteral administration can achieve therapeutic plasma concentrations more rapidly than oral administration.
- Emulsified drug in an insoluble matrix when given I.M. can sustain the drug's gradual release for several weeks (depot preparations), I.V. is the quickest to reach therapeutic concentrations , but it also carries high risk of sudden and life threatening adverse effects.

Pharmacokinetics:

- Distribution and bioavailability:
  - Drugs that circulate bound to plasma proteins are called protein bound, that circulate unbound are called free.
  - Only free drugs can pass through the blood-brain barrier .
  - The distribution of a drug to the brain is governed by ;
    - The brain regional blood flow .
    - The blood -brain barrier .
    - And the drug's affinity for its receptors in the brain.

Pharmacokinetics:

- High cerebral flow , high lipid solubility and high receptor affinity promote the therapeutic actions of the drug .
- A drug volume of distribution :
  - is a measure of the apparent space in the body available to contain the drug, which can vary with age ,sex, adipose tissue , and disease state.
- bioavailability:
  - refers to the fraction of the total amount of administrated drug that can subsequently recovered from the blood stream.

Pharmacokinetics:

- Metabolism and excretion:
  - The four major metabolic routes for a drug are oxidation, reduction, hydrolysis and conjugation.
  - Metabolism usually yields inactive metabolites that are more readily excreted ,
  - however metabolism also transform many inactive prodrugs into therapeutically active metabolites,
  - the liver is the principal site of metabolism,
  - bile , feces and urine are the major route of excretion.
  - Psycho tropics are also excreted in sweat , saliva, tears, and breast milk.

Pharmacokinetics:

- Quantitation of metabolism and excretion :four major quantities,
  - Time of peak plasma concentration :
    - The time between the administration of a drug and the appearance of peak plasma concentration , it vary depending on the route of administration and the rate of absorption.
  - The half life :
    - the time taken for metabolism and excretion of a drug to reduce the plasma concentration by half.

Pharmacokinetics:

- The first pass effect:
  - Refer to the initial metabolism of orally administrated drugs within the portal circulation of the liver and is quantitated as the fraction of absorbed drug reaching the systemic circulation unmetabolized.
- Clearance:
  - is the measure of the amount of the drug excreted from the body in a specific period of time.

Pharmacokinetics:

- Cytochrome P-450 enzyme:
  - Most psychotropics are oxidized by this enzyme system.
  - These enzymes act in the hepatocyte and the cells of the intestine , so hepatitis or cirrhosis may affect its action ,
  - some drugs cause induction so lead to decrease concentration of drug or cause inhibition leads to increase concentration..

Thank You