WINTER– 14 EXAMINATION

Important Instructions to examiners:

1) The answers should be examined by key words and not as word-to-word as given in the model answer scheme.

2) The model answer and the answer written by candidate may vary but the examiner may try to assess the understanding level of the candidate.

3) The language errors such as grammatical, spelling errors should not be given more Importance (Not applicable for subject English and Communication Skills.

4) While assessing figures, examiner may give credit for principal components indicated in the figure. The figures drawn by candidate and model answer may vary. The examiner may give credit for any

equivalent figure drawn.

5) Credits may be given step wise for numerical problems. In some cases, the assumed constant

values may vary and there may be some difference in the candidate's answers and model answer.

6) In case of some questions credit may be given by judgement on part of examiner of relevant answer based on candidate's understanding.

7) For programming language papers, credit may be given to any other program based on equivalent concept.

I. Define the terms with two examples of each (any five) (1 mark definition and 1 mark for 2 examples)

i) Carminatives: These are the pharmacological agents which when administered expel gas from the stomach or intestine during the treatment of flatulence and colic.
Examples: Peppermint oil, Dil oil, Cardamom tincture, Ginger tincture, Simethicone etc

ii) Diuretics: These are the pharmacological agents which when administered, increases rate of formation of urine as well as excretion of urine.
Examples: Mannitol, Theophylline, Acetazolamide, Frusemide, Spiranlactone, Chlorothiazide.

iii) Analeptics: These drugs stimulate central nervous system and also stimulate the respiratory center improving respiration.
Examples:Caffeine,Amphetamine, Nikethamide, Precathamide, Strychnine,Doxapram,Bemigride

iv) Disinfectants: These are the pharmacological agents having bactericidal properties can be directly applied to inanimate objects like surgical instruments, O. T. area, wards etc., for making them free from microorganisms.
Examples: Phenols, Formaldehyde.

v) Emetics: These are the pharmacological agents which are used for induction of vomiting.
Examples: Apomorphine, Mustard, Ipecacunha, Sodium chloride.

vi) Antacids: These are the pharmacological agents which when administered neutralize acid by raising gastric pH
Examples: Sodium bicarbonate, Aluminium hydroxide gel.

vii) Contraceptives: These pharmacological agents when administered internally prevent conception (pregnancy).

Examples: Oestrogrn, Progesterone or combination of both, centchroman

II) Attempt any Four of the following

1) Enumerate the factors influencing the absorption of drug and explain any one of them. (2.5 m for list of factors and 1 m for Explanation)

1) Physical properties
   a) Physical state:
      Liquids are better absorbed than solids

   b) Lipid and water solubility
      Higher the lipids solubility, greater is the rate of absorption from git
      Eg. Fat soluble vitamins A, D, E and K are better absorbed
2) Dosage form
   a) Particle size : Smaller the particle size greater is a rate of absorption
      Eg. Chloramphenicol, Steroids etc.

   b) Formulation: substances like lactose, sucrose, starch, calcium phosphate, calcium lactate are used as an inert diluents in formulating tablets and powders.
      These are the agent that may interfere with the active drug and affect the absorption.
      Eg. A calcium and magnesium ion reduces absorption of tetracycline.

3) Physiological factors

a) pH: pH of GIT and Blood may interfere with absorption of drug.
Eg. Acidic drugs are better absorbed in stomach – Salicylates, Barbiturates
Basic drugs are well absorbed in alkaline environment of intestine – Pethidine and Ephedrine

b) Ionization: unionized drugs are lipid soluble while ionized drugs are water soluble agents. Hence unionized drugs are better absorbed than ionized drugs.

c) Presence of other agents: Liquid paraffin reduces absorption of fat soluble vitamins like A, D, E and K

d) Presence of disease: in presence of disease absorption is reduced.
Eg. Liver cirrhosis, Achlorhydria, Diarrhea and Dysentery.

e) Area of absorption: Drugs are better absorbed in the intestine than in the stomach because of large surface area of intestine.

f) Gastro intestinal transit time: Absorption of drug is influenced by food, volume, viscosity, tone of gastric content.
Rapid absorption occurs if drugs are administered before meals.

2) What is preanaesthetic medication? What is its purpose and which categories of drugs are employed for it?

Definition: The pharamacological agent when administered with an important objective to make anesthesia more smooth and agreeable for the patient.(1 mark)

Purpose: (1 mark)

- For sedation- to reduce anxiety
- To obtain an additive effect or synergistic effect
- To minimize pre and post-operative complications
- To facilitate smooth and rapid induction
- to overcome secretary effect of general anesthetics

Categories: (1.5 mark)

1. Opioid analgesic : Morphine, Pethidine
2. Barbiturates: Pentobarbitone, Secobarbitone.
3. Anxiolytic: Diazepam
4. Anti-emetic: Promethzine
5. Antisecretory: Atropine
6. Skeletal muscle relaxants: D- tubocurarine.

3) Explain therapeutic index and give its importance.(Explanation 2 M and imp 1.5 M)

Definition: It is expressed as ratio of median lethal dose to median effective dose. Larger the therapeutic index, greater is the safety.

A dose of the drug which produces the stated effect in 50% of individuals within the population is called median dose. The therapeutic index indicates how close effective dose is to lethal dose for 50% of test population. So it gives an idea of margin of safety.

As the ED50 approaches the LD50, the danger of the drug toxicity increases significantly. Therefore, a drug with larger therapeutic index is safer than one with smaller therapeutic index. Hence drug with lesser therapeutic index should be administered cautiously.

Therapeutic index (T.I.)= LD_{50} / ED_{50}

Importance

- It helps to decide a margin of safety of drug
- It helps in preventing toxicity
- It helps in deciding dose of the drug
- It helps to minimize the side effect
- It helps in selecting safer drug

4) Discuss the pharmacological action of Quinidine or Phenytoin (3.5 M)

Quinidine acts as anti-arrhythmic

Pharmacological actions of quinidine

- Automaticity: It depresses automaticity in all cardiac tissues.
- Excitability: It depresses excitability of cardiac tissue and thus makes weak ectopic impulse ineffective.
- Conduction velocity: It reduces conduction velocity in all cardiac tissues. It increases refractory period and reduces excitability.
- A. V. node conduction: Quinidine depresses conduction within atria and purkinji system.
- Contractility: it depresses entry of calcium ions into cardiac muscle cells. Thus it reduces contractility.
- It can cause cinchonism (headache,tinnitus,blurred vision,confusion etc)

Phenytoin is used as anti-epileptic drug

Pharmacological actions of phenytoin

- CNS depression
- It abolishes tonic phase of epilepsy
- It causes enlargements of gums (hyperplasia of gums)
- It increases hair growth , especially facial hairs in female (hirsutism)
- It causes osteomalacia

- Foetal abnormality (teratogenicity)
- It also has anti-arrhythmic action

5. What are autocoids? Give pharmacological actions of histamine on smooth muscles and gastric glands

Definition and examples (1.5 M)

Definition: Autocoids are diverse substances which are biosynthesized and released by wide variety of cells and act locally at the site of release to mediate number of pathological and physiological processes. They are also called local hormones.

Examples: Histamine, Serotonin, Bradykinin, PG

Pharmacological Actions: (1 M EACH)

- Smooth muscles: It causes bronchoconstriction and causes contraction of intestine and uterus.
- Gastric glands – It increases acid secretion.

6) State the advantages and disadvantages of parenteral routes of administration.

Advantages (2 M)

- Onset of action is very quick.
- In unconscious or unco-operative patients, drugs can be administered by this route.
- In nausea and vomiting, drugs can be administered by the route
- 100% absorption is possible as there is no degradation by gastric enzymes.
- Accuracy of dosage schedule is possible
- Low doses are effective
- Irritant, unpalatable drugs can be given.
- Useful in case of emergency, life saving route

Disadvantages (1.5 M)

- It is costly route

- It is inconvenient
- Self-medication is not possible
- Once administered, action cannot be halted and hence risky route.
- Skilled person required

Q.III Attempt any four of following (0.5 M each answer)

1. Name the choice of drug used in treatment of following condition: (Any 1 drug)

a. Typhoid - Chloramphenicol, Ampicillin, Fluoroquinolones like Ciprofloxacin or similar drugs

b. Leprosy - Dapsone

c. Candidiasis - Nystatin,(Miconazole or other drugs from same class: eg Clotrimazole etc)

d. Myasthenia gravis - Neostigmine, Pyridostigmine

e. Parkinsonism - Levodopa, Levodopa carbidopa combination

f. Status epilepticus - Diazepam, Phenytoin

g. Angina pectoris - Glyceryl trinitrate, Isosorbide dinitrate

2. State the important side effect of following drugs: (o.5 marks each)

(if any other suitable side effect written, other than mentioned below, should be given marks)

a. Quinine - Cinchonism

b. Penicillin - Anaphylactic shock

c. Novobiocin - Stevens-Johnson syndrome and hemorrhagic rashes

d. Ibuprofen - Gastric irritation, heartburn

e. Codeine - Dependence/ tolerance, euphoria

f. Atropine - Dryness of mouth ,photophobia

g. Propranolol - Postural hypotension, bradycardia

3. Give the dose of each drug (any one correct dose:0.5 marks each)

a. Ranitidine - 150-300mg 1-2 times daily for 4-8 weeks

b. Furosemide - 20-80mg orally/20-4-mg IV

c. Paracetamol - 0.5g to 1g every 4hr max 4g/day

d. Diazepam - 2-30mg daily in divided doses, 2-20mg IM/IV every 3-4hr.

e. Diclofenac - 50mg t.i.d orally

f. Streptomycin - 0.75-1g daily IM.,0.5-2g daily in divided doses

g. Dapsone -first week 100mg daily, next 4 weeks 25mg twice a weekly. 5^{th} and 6^{th} week 50mg twice a week, thereafter 100mg thrice a week. 7^{th} and 8^{th} week-100mg twice a week thereafter 100mg thrice a week

OR

0.2ml of 20%w/v suspension of dapsone in arachis oil.

4. Name the drug contra indicated in following condition (One correctly written, either from below examples or any other suitable,:0.5 marks)

a. Peptic ulcer - Salicylates (aspirin),ibuprofen ,diclofenac etc

b. G6PD deficient patient - Chloroquine, sulpha drugs, dapsone. quinolones

c. Hypertension - Adrenaline, other sympathomimetics

d. Hypokalemia - Digitalis, Thiazide Diuretics

e. Liver cirrhosis - Phenobarbitone sodium, Alcohol, Valproate

f. Insomnia - Caffeine, Theophylline, amphetamine

g. Pregnancy - Tetracycline, Chloramphenicol, Barbiturates ,other teratogenic drugs

5. Name the antidote for the following poisoning (0.5 M each)

a. Oragano-phosphorous - Pralidoxime (PAM) ,Diacetyl Monooxime (DAM), Atropine

b. Arsenic - BAL/Dimercaprol
c. Morphine - Naloxone, Nalorphine
d. Mercury - BAL/Dimercaprol
e. Salicylate - Sodium bicarbonate,
f. Atropine - Physostigmine
g. Barbiturate - Sodium bicarbonate (not specific increase urinary excretion of drug), Respiratory stimulant like Nikethamide,bemigride

6. Name of drug which produce following effects (0.5 mark each for one correctly written drug, either from below examples or other suitable drug)

a. Photophobia - Atropine , Homatropine
b. Cinchonism - Quinine, quinidine
c. Anaphylactic shock - Penicillin, Cephalosporins
d. Graybaby syndrome - Chloramphenicol
e. Cycloplegia - Atropine
f. Constipation - Morphine, Atropine
g. Bone and teeth deformity - Tetracycline

Q. 4) Attempt any four of the following

1. Define anti hypertensive drug and classify with example

Antihypertensive drugs- These are the pharmacological agents used in treatment of hypertension to reduce the level of elevated blood pressure. (1 M)

They are classified according to site of action; (2.5 marks)

1) Drugs acting centrally: Clodinine, Methyl DOPA.

2) Drugs acting on adrenergic nervous system:

a) Drugs which are beta blockers: Propranalol , Metoprolol.

b) Drugs acting on alpha blocker: Phenoxybenzamine, Prazocin

c) Adrenergic blocking neuron blockers: Guanethedine

d) Catecholamine depletors : Reserpine

3) Drugs acting on vascular smooth muscles : vasodilators such as Hydralazine , Diazoxide,, Minoxidil.

4) Drugs acting reflexly by stimulating baroreceptors : Veratrum

5) Drugs which block rennin angiotensin aldosterone axis : Enalapril, Captopril.

6) Oral diuretics : Frusemide, Hydrochlor thiazide.

7) Miscellaneous : MAO inhibitors, Pargylin.

2) Why anti T.B. drugs are given in combination explain

Anti TB drugs are given in combination because : (3.5 MARKS)

i) Resistance to antiTB drug is developed quickly if used as single drug.

ii) Combination therapy reduces bacterial load effectively and quickly.

iii) Combination therapy gives synergistic effect.

iv) Side effects are lesser with combination than with single drug used in high dose.

3) Give mechanism of action of MAO inhibitors (3.5 M)

Enzyme MAO oxidises (metabolises) active biogenic amines like 5 HT, Nor adrenaline and dopamine to inactive compounds. MAO inhibitors prevents the oxidative deamination of catecholamines and serotonin thereby increasing the functional availability of these monoamines in the brain. This accumulation is associated with excitement and enhanced motor activity.

Thereby act as antidepressants or psycho analeptics (MAO A and MAO B inhibitors act differently) (2.5 marks)

MAO-A preferentially deaminates serotonin, melatonin, epinephrine, and norepinephrine. MAO-B preferentially deaminates phenylethylamine and trace amines. Dopamine is equally deaminated by both types. (1 mark)

4) Define diuretics with examples. Describe mechanism of action of any one diuretic.

Diuretics- These are the pharmacological agents which when administered, increases rate of formation of urine as well as excretion of urine. Definition (1 M, example. 1M , MOA- 1& ½. Any one.)

Examples: Mannitol, Theophylline, Acetazolamide, Frusemide, Spiranlactone, Chlorothiazide.

MOA : Thiazide diuretics- these act by inhibiting the NA+ /CL- cotransporter in the distal convoluted tubule and block the active reabsorption of sodium and chloride with water in the distal tubule. These thus excrete sodium, chloride, water.

LOOP DIURETICS: Act on thick ascending limb of loop of Henle and cause a profound increase in the urinary excretion of sodium and chloride ion by blocking sodium potassium chloride reabsorption.

Carbonic Anhydrase inhibitors inhibit the carbonic anhydrase and prevent the reabsorption of sodium causing its excretion along with bicarbonate ions and water;

Note: Mechanism of action of any other agents can be considered.

5) Define and classify Sympathetic drugs with examples

Sympathetic drugs (Adrenergic drugs) - these are the drugs which mimic the effect of sympathetic nervous stimulation of organs and structure that contain adrenergic receptors. (definition 1& ½, classification 2M)

Classification(based on mechanism of action)

i) Directly acting amines: Adrenaline , Nor adrenaline, dopamine, dobutamine

ii) Indirectly acting amines: Amphetamine, Ephedrine.

Or

Chemical Classification:

Catecholamines: Adrenaline, dopamine, nor-adrenaline, isoprenaline etc

Non-catecholamines: Phenylephrine, ephedrine

6) Enlist the pharmacological action of digitalis and justify its use in CCF.

List of Pharmacological actions of digitalis: (Enlist 1.5 M, explanation 2)

- Positive inotropic action, cardiotonic action (action on heart)
- Diuretic action (secondary to cardiac action) (action on kidney)
- Vomiting ,Nausea (action on GIT)

Explanation (2 M)

CCF: Its Congestive Cardiac failure characterized by decreased cardiac function , weak ventricular muscles, cardiac congestion, increase heart size, edema, weakness.

Digitalis improves cardiac functions in CCF by following ways

- It increases the force of cardiac contraction, positive inotropic action
- It decreases heart rate,
- Increases cardiac output, which decreases residual blood in heart, end diastolic pressure and diastolic size of the heart.
- decreases venous congestion
- Increase renal blood flow and perfusion.
- Relieves edema by producing diuresis.

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Q.5 Attempt any four of the following

1. **Describe pharmacological profile of Oral contraceptives**. (0.5+1.5+1+0.5 marks)

These are the pharmacological agents which are used orally to prevent conception. They contain estrogen/ progesterone either alone or in combination.

Mode of action:

They decrease the secretion of gonadotropin releasing factor by hypothalamus and the release by the pituitary of both LH and FSH and thus ovulation stops resulting. Endometrium finally becomes thin, and unsuitable for implantation

Progesterone affects the cervical mucus to become thick, tough and impermeable by spermatozoa.

Adverse effects:

Nausea, vomiting, headache, breast discomfort. Weight gain, acne, increased blood clotting tendency,high B P

Contraindications:

Coronary and cerebro-vascular disease, active liver disease, porphyria etc.

2) **State the symptoms and treatment for belladonna poisoning Or barbiturate poisoning**.(symptoms- 2 mark, treatment- 1.5 marks)

Belladona Poisoning: Symptoms are due to muscarinic blockade & central actions.

Effects of muscarinic blockade: Mydriasis , blurred vision, dry mouth , tachycardia, urinary retention, dry skin, fever.

Central effects: Weakness, confusion, restlessnesss muscle incoordination, hallucinations, convulsions, coma & finally respiratory depression & failure.

Treatment:

Person treated in dark room so as to relieve photophobia

- Gastric lavage to empty out gastric contents.
- Physostigmine by IM /SC route

- Catheterization in case of retention of urine
- Central stimulants to relieve depression
- Artificial respiration
- Intravenous fluids

OR

2) Barbiturate Poisoning: Symptoms – marked excitement, renal failure, pulmonary oedema, cardiac irregularities, cold skin, paralytic dilation of pupil, weak but rapid pulse, respiratory failure.

Treatment –

1) If patient is conscious and within 4 hrs. of ingestion, patient can be induced vomiting with concentrated salt solution or syrup of ipecac. If patient is unconscious, simple stomach wash i.e. gastric lavage is performed.
2) If respiration is slightly affected, oxygen can be given by nasal catheter. If respiration is depressed considerably, endotracheal intubation is done.
3) Forced diuresis- diuretics like mannitol or furosemide is given to increase urinary excretion of barbiturates.
4) Alkalinization of urine – Sodium bicarbonate is used for alkalinization of urine which helps in excretion of barbiturates.
5) Prophylactic antibiotics – To prevent infection, antibiotics are used in case of catheterization or tracheostomy
6) Administration of IV fluids –Forced diuresis may result in dehydration. So, administration of fluids is advised.

3.What are laxatives? Classify them with suitable examples.

Laxatives are the drugs which facilitate or accelerate evacuation of bowel so that feces may be expelled with ease and are used in treatment of constipation.(1 Mark)

Classification: (2.5 marks)

I) Stimulant or Irritant Laxatives

(a) Anthracene group-e.g. Rhubarb, Senna. Aloe. Cascara

(b) Castor oil

(c) Bisacodyl can be given by mouth or as suppository

II) BulkLaxatives:

(a) Saline Laxatives-e.g .Magnesium sulphate, Sodium potassium tartarate, Potassium phosphate,

(b) Methyl cellulose, Sodium carboxy methyl cellulose, Plantago , Agar Agar

III) Lubricant / Emollient Laxatives: e.g Liquid paraffin , Dioctyl sodium sulphosuccinate

4) Discuss the treatment for Peptic ulcer & hyperthyroidism:

Peptic ulcer : (2 marks)

A. Drugs that neutralize acid :

Antacids- sodium bicarbonate ,Aluminium hydroxide

B. **Drugs that reduce acid secretion**:

- H_2 receptor antagonist - Eg. Cimetidine, Ranitidine
- Proton pump Inhibitor : Eg.Omeprazole,pantoprazole
- Anticholinergics: Eg. Pirenzepine
- Prostaglandins: Eg.Misoprostol

C. Drugs acting on ulcer: Sucralfate, Colloidal bismuth

D. Antibacterials:.Eg. Amoxycilin, Clarithromycin, Metronidazole.

Hyperthyroidism: (1.5 marks.)

Radioiodine: eg ^{131}I . given orally.

Thioureylenes:

Eg. Carbimazole, Methimazole, Propylthiouracil can be given orally.

Iodine/Iodide:

Iodine given orally in high doses,

Beta adrenoceptor antagonists like propranolol

5) **Explain "Dales Vasomotor Reversal". (Explanation 2, diagram** 1.5 marks**)**

In low doses, Adrenaline causes peripheral vasoconstriction, increase in resistance, output, and thereby rise in peripheral and systolic BP by acting on alpha receptors.

In high doses, Adrenaline activates both alpha and beta receptors. It causes peripheral vasoconstriction and leads to rise in systolic BP. This is followed by skeletal muscle dilation of blood vessels, decrease in resistance and output, fall in diastolic BP. This response of Adrenaline is known as biphasic response.

Its vasoconstriction action is blocked by alpha blocker like ergotoxin, Adrenaline causes only fall in BP. This reversal action of conversion of biphasic to monophasic response on Blood pressure is called as Dale's vasomotor reversal.

(ii) Adrenaline – high dose response on blood pressure. **Bi-phasic Response**

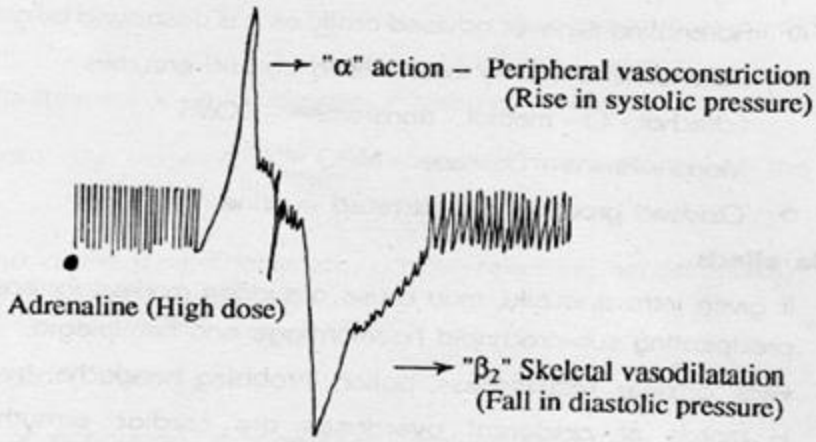
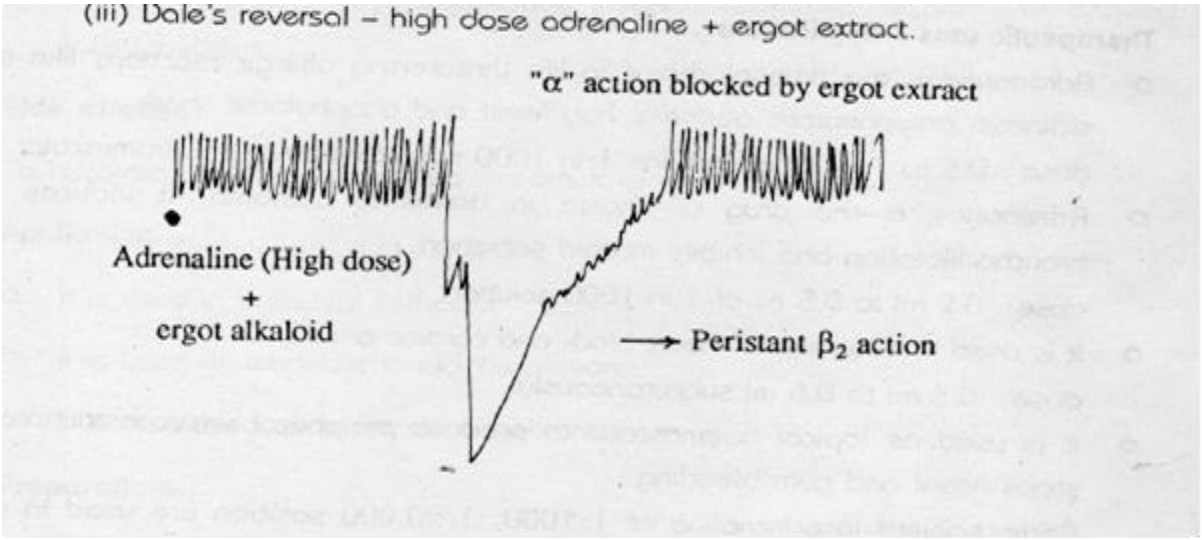


Fig. 3

(iii) Dale's reversal – high dose adrenaline + ergot extract.



6. **What is drug tolerance?(1 M) Describe different types of drug tolerance.(2.5 M)**

Drug Tolerance- On repeated administration of some drugs, they may prove ineffective in usual therapeutic dose.or It is insenstitvity to the use of drug.

Types of tolerance:-

i) Natural or Congential:-It is by birth.

1) Species tolerance:- eg. Belladona alkaloids like atropine is toxic to human beings when given in high dose but rabbits can tolerate high amount of atropine

2) Racial Tolerance:- eg. After administration of drug Ephedrine, Mydriasis is not produced in negros

ii) Acquired tolerance:- Repeated administration of some drugs leads to acquired tolerance.

1) Tissue Tolerance: In case of tissue tolerance, tolerance is developed to certain effects of the drugs. e.g Morphine is unable to produce its euphoria effect after repeated administration and thus requires higher dose, but the pupil & gastrointestinal tract effects never develop tolerance.

2) Cross tolerance: This tolerance is developed to a drug belonging to particular group, then there could be tolerance to all other drugs in the same group. Eg. when tolerance is developed to alcohol, patient may develop tolerance for use of general anesthetic and other CNS depressants.

3) Pseudo tolerance: Observed only in oral route. When small dose of poison is taken repeatedly, tolerance to it is developed by the gastrointestinal tract. But if other route is chosen, poisoning will occur.

4) Tachyphylaxis: It is also known as acute tolerance, observed with certain drugs such as Ephedrine when administered repeatedly at very short intervals & the pharmacological response to that drug decreases.

Q.6 Any seven (2 M each)

1.Atropine is used as preanaesthetic medication:

When ether is used as general anaesthetic, it irritates respiratory passage & causes excessive secretion of mucus in the bronchi, lachrymal glands & nasopharynx. These secretions are likely to interfere with normal respiration & thereby anesthetic procedure. Atropine being parasympatholytic (anticholinergic) blocks all secretions and acts as antisecretory agent. Preanaesthetic medication helps in preparing patient for safer & better use of anaesthetic agent. Atropine thus helps in anaesthesia.

2. Adrenaline is always present in the emergency kit of physician.

Adrenaline is a life saving drug. It is the drug of choice in following clinical conditions:

i) Anaphylactic shock- It causes bronchodilation in situations of severe bronchoconstriction such as anaphylactic shock.

ii) Cardiac shock- As it is positive inotropic and positive chronotropic agent, it increases B.P.

iii) Asthama- The bronchodilator action of Adrenaline relieves the asthama due to bronchospasm.

iv) Haemostatic- The peripheral vasoconstrictor property of adrenaline is used to stop nasal and dental bleeding by using nasal or dental packs soaked in adrenaline solution.

v) With local anaesthetic- Adrenaline is frequently administered alongwith local anaesthetic to prolong the duration of anaesthesia.

vi) So, adrenaline is always present in the emergency kit of physician.

3. **Anthelmintics are administered with purgatives**.

Anthelmintics are either wormicidal or wormifugal in action.

Thus after killing or paralyzing these worms by anthelmintic agent, these should be expelled out from the intestine.

Hence purgatives are advised as supportive treatment with anthelmintics.

Thus combination acts synergistically.

4) Chloramphenicol should not be given to premature babies.

In premature babies, the metabolic & excretory systems are not fully developed & hence the body cannot metabolize & excrete the chloramphenicol.

It causes respiratory depression and circulatory collapse in infants due to cumulative effect.The body becomes gray in colour due to lack of oxygen,called as gray baby syndrome.So chloramphenicol should not be given to premature babies.

5) Insulin is not given orally.

I. Insulin is a polypeptide hormone secreted by beta cells of islets Langerhans of pancreas.

II. Commercially it is extracted from pancreas of cattle or pigs

III. When given orally proteolytic enzymes and gastric juice, HCL causes its degradation and therapeutic effect is lost.

6. Digitalis is called as cardiotonic.

Digitalis is positive inotropic agent, shows direct action on myocardium of heart & increases force of systolic contraction.Complete ventricular emptying results into increased cardiac output. Diastolic size of heart is reduced. Heart working capacity is increased. Digitalis improves energy utilization although it does not increase energy production by cardiac muscle. Digitalized heart can do same work with less energy or more work with same energy consumption.

7) **Antiepileptics should not be withdrawn abruptly.**

Epilepsy is a neurological disorder characterized by paroxysmal short recurrent periodic attacks of motor, sensory or psychological mal function.

The drugs used for the treatment of epilepsy require long term administration in order to prevent epileptic attacks.

Since the antiepileptics mainly act by depressing the CNS, they may lead to recurrence of epileptic attack if withdrawn suddenly.

So, during the treatment of epilepsy, drugs should be withdrawn gradually

8) Sulfa drugs are inactive in pus?

PABA (p- amino benzoic acid) is required for synthesis of folic acid.

Due to structural similarity of sulfa drugs, it is a competitive inhibitor of PABA.

Since pus contains large amount of PABA, sulfonamides are ineffective in therapeutic doses.

If larger doses of sulfa drugs are used to compete with PABA, it results in renal complications such as crystaluria, haematuria and renal damage.

To avoid these renal complications, sulfa drugs are not used in large doses. Hence they are inactive in pus.

9) **Eating of cheese is forbidden while on MAO inhibitor therapy**.

Cheese contains tyramine which is metabolized in the liver by the enzyme monoamino oxidase.

If an individual is on MAO inhibitor therapy, then MAO inhibitors inhibit the detoxification or metabolism of tyramine.

Thus, tyramine gets accumulated in the body.

This tyramine causes release of noradrenaline from its binding sites.

Increased level of noradrenaline causes hypertensive crisis.

Therefore, eating of cheese is forbidden while on MAO inhibitor therapy.

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