1. All of the following are actions of muscarinic antogonists, except :

a) Decrease gastric secretions

b) Decrease respiratory secretions

c) Contract radial muscles of iris

d) Fascilitates AV conduction

e) None

Correct Answer - C

Ans is 'c' i.e. Contract radial muscles of iris

- Radial muscles are innervated by sympathetic systems not by parasympathetic (muscarinic) system

Iris muscles that control the size of pupil

There are two types of muscles in iris that control the size of pupil:

1. The iris sphincter or constrictor pupillae (circular muscles): These muscles are innervated by the parasympathetic system and cause constriction of pupil (miosis).
2. The iris dilator or dilator pupillae (radial muscles): These muscles are innervated by sympathetic (a, adrenergic) system and cause dilatation of pupil (mydriasis)

- So, pupil size may be altered by following mechanisms by different ANS drugs:

A. Mydriasis (dilatation of pupil)

- Sympathomimetic drugs (a, agonists): By contraction of radial muscles (dilator).
- Antimuscarinic drugs: By blocking the action of circular muscles

(pupillary sphincter).

B. Miosis (constriction of pupil)

.. Parasympathomimetic (muscarinic) drgus: By stimulating the contraction of circular muscles (pupillary sphincter).

2. Sympatholytic drugs (a, antagonists): By blocking the action of radial muscles (iris dilator) About other options

- Muscarinic antagonists (antimuscarinic drugs) decrease both gastric and respiratory (bronchial) secretions o Antimuscarinic drugs facilitate AV conduction (see previous explanations).

2. Which one of the following anaesthetic agents does not trigger malignant hyperthermia ?

a) Halothane

b) Isotlurane

c) Suxamethonium

d) Thiopentone

e) None

Correct Answer - D

Ans. is 'd' i.e., Thiopentone

Drugs causing Malignant hyperthermia

- Succinylcholine
- Enflurane
- Methoxyflurane
- Phenothiazines
- Halothane
- Sevoflurane
- MAO inhibitors
- Lignocaine
- Isoflurane
- Destlurane
- TCA

Succinylcholine is the most common cause of MH.

Amongst anaesthetics, halothane is most common cause.

Combination of Sch and Halothane has a much higher incidence.

3. Which of the following statements is false about Acyclovir-

a) It inhibits DNA synthesis and viral replication

b) It is effective against influenza

c) It has low toxicity for host cells

d) Renal impairment necessitates dose reduction

e) None

Correct Answer - B

Ans. is 'b' i.e., It is effective against influenza

Acyclovir

It is a deoxygunosine analogue - inhibits DNA synthesis by ?

1. Inhibits herpes virus DNA polymerase competitively.
2. Gets incorporated in viral DNA and stops lengthening of DNA strand. The terminated DNA inhibits DNA polymerase irreversibly.

- **It** is preferentially taken up by the virus infected cells. Because of selective generation of the active inhibitor in the virus infected cells and its greater inhibitory effect on viral DNA synthesis, acyclovir has low toxicity for host cells.
- It is active against herpes group of virus (HSV-I> HSV-2 > VZV = EBV. CMV is not inhibited).
- Acyclovir is primarily excreted unchanged in urine, both by glomerular filtration and tubular secretion. Renal impairment necessitates dose reduction.

4. Which of the following is a common side-effect of Cisplatin -

a) Diarrhea

b) Vomiting

c) Pulmonary fibrosis

d) Alopecia

e) None

Correct Answer - B

Ans. is 'b' i.e., Vomiting

- Most common side-effect of Cisplatin is : Vomiting (highly emetic drug).
- The most important dose dependent toxicity is renal impairment.
- **Amifostine** is labelled for reduction of cisplatin induced nephrotoxicity.
- Tinnitus, deafness, sensory neuropathy & hlperuricaemia are other problems.
- Shock like state sometimes occur during i.v infusion.

5. True about benzodiazepine is:

a) GABA mimetic

b) GABA facilitator

c) Not a safe drug

d) High absue potential

e) Powerful enzyme inducer

Correct Answer - B

Ans. is'b'i.e., GABA facilitator

- [Ref.: KDT Vh/e p. 401, 402 & 6th/e p. 393; Katzung ILth/e p. 375; Goodman & Gilman 1Lth/e p.405]

Mechanism of action of benzodiazepines (BZDs):

- Acts on GABA-A receptors.
- BZDs receptor increase the conductance of Cl- channel.
- BZDs do not themselves increase Cl- conductance, i.e. they have only GABAfacilitatory but no GABA mimetic action. (Barbiturates have both GABA facilitatory and GABA mimetic actions).

6. First dose syncope is seen in ?

a) Alpha blocker

b) Beta blocker

c) CCB

d) ACE inhibitors

e) All of the above

Correct Answer - A:D

Ans. is'a'i.e., Alpha blocker &'d'i.e., ACE inhibitors

- [Ref: KDT Vh/e p. 565 & 6h/e p. 546]

First dose hypotension (First dose phenomenon):

- The first-dose phenomenon is a sudden and severe fall in blood pressure that can occur when changing from a lying to a standing position the first time that an alpha blocker drug is used or when resuming the drug after many months off.
- This usually happens shortly after the first dose is absorbed into the blood and can result in syncope (fainting).
- The alpha blocker prazosin is the most notorious for producing a first dose phenomenon.
- Other drugs of the same family, doxazosin and terazosin can also cause this phenomenon, though less frequently.
- Other drugs associated with it are ACE inhibitors, Sargramostim & Muromonab, CD3.

7. Which of the following drug is not used in the treatment of mucormycosis?

a) Fluconazole

b) Voriconazole

c) Posaconazole

d) 5-flucytosine

e) Amphotericin B

Correct Answer - A:B:D

Ans. is'a' i.e., Fluconazole,'b' i.e., Voriconazole &'d' i.e., 5-flucytosine

[Ref: Goodman 6 Gilman 1l,h/e p. 1254; KDT Vh/e p. 795; www.ncbi.nlm.nih.gov)

- Amongst azole, only posaconazole is active against mucormycosis

Antifungal treatment of mucormycosis:

First-Line Monotherapy:

- Mucormycosis is a serious infection and needs to be treated with.prescription antifungal medication, usually amphotericin B (given through an IV), posaconazole (given through an IV or orally) or isavuconazole (given through an IV or orally).
- Fluconazole, voriconazole, and itraconazole do not have reliable activity against mucormycosis.

5-flucytosine:

- Flucytosine is not employed as the sole therapy except occasionally in chromoblastomycosis.
- It is used in limited to the treatment of cryptococcal meningitis, in conjunction with AMP-B.

8. Antibiotics acting by inhibition of protein synthesis include?

a) Penicillin

b) Vancomycin

c) Aminoglycoside

d) Fluroquinolones

e) Chloramphenicol

Correct Answer - C:E

Ans. is'c'i.e., Aminoglycoside, &'e'i.e. Chloramphenicol

[Ref: KDT 7/e p. 734; Katzung 13'h/e p. 789]

Inhibition of protein synthesis (translation):

- Drugs acting by inhibiting protein synthesis are tetracyclines, chloramphenicol. aminoglycosides. Erythromycin, clindamycin, linezolid.
- All protein synthesis inhibitors are bacteriostatic except aminoglycosides and streptogramins which are bactericidal.

These drugs can be divided into :

a) Based on the steps of translation (protein synthesis) on which drug act :

- Freeze initiation: Aminoglycosides.
- Inhibit elongation : Tetracyclines, puromycin, chloramphenicol.
- Inhibit translocation : Clindamycin, erythromycin.
- Causing premature termination : Puromycin.

b) Based on ribosome on which they act :

- 30 S ribosome z Tetracycline, streptomycin.
- 50 S ribosome: Chloramphenicol, erythromycin, clindamycin,

Linezolid, pleuromutilins (retapamulin).

- Both 305 and 505 ribosomes: Aminoglycoside (except streptomycin).

9. Drugs contraindicated in myasthenia gravis include?

a) Neostigmine

b) Neomycin

c) Edrophonium

d) Atropine

e) Paracetamol

Correct Answer - B:D
Ans. is 'b' i.e., Neomycin &'d' i.e. Atropine
Ref: KDT Vh/e p. 110 &/e p. 104; Katzung 1Ltu/e p. 107; internet

- Aspirin, non-steroidal anti-inflammatory drugs (NSAIDs) such as ibuprofen and naproxen, and acetaminophen (paracetamol) are considered safe for MG, that is, they have not been shown to worsen MG or cause muscle weakness.
- Neostigmine is used in myasthenia gravis.
- Edrophonium can be used for diagnosis of myasthenia gravis as tensilon test (for diagnosis of cholinergic crisis).

10. Drugs which have both a & receptor activity include?

a) Epinephrine

b) Nor-epinephrine

c) Phenylephrine

d) Dopamine

e) Isprenaline

Correct Answer - A:B:E

Ans. is 'a' i.e., Epinephrine, 'b' i.e. Nor-epinephrine & 'd' i.e. Dopamine

Ref: Goodman and Gilman's 12th/e p. 812

- Nor-adrenaline has mainly alpha action with slight effect on cardiac beta 1 receptors (alpha & beta 1 action).
- Adrenaline has nonselective action on both alpha (alpha 1 + alpha 2) & beta (beta 1 + beta 2) receptors.
- Phenylephrine is a selective alpha 1 agonist and has negligible beta action
- Dopamine is a dopamine (D1 & D2) as well as adrenergic alpha and beta 1 agonist (Not beta 2).
- Isoprenaline has beta (beta 1 + beta 2 action), but no alpha action.

11. Side effects of tricyclic antidepressants include?

a) Diarrhea

b) Weight loss

c) Hypertension

d) Tremers

e) Urinary retention

Correct Answer - D:E
Ans. is'd'i.e., Tremors &'e'i.e., Urinary retention
[Rel KDT Vh/e p. 459; Goodman & Gilman llth/e p. 448]
Adverse effects of TCAs:

- Anticholinergic- Dry mouth, bad taste, urinary retention, blurred vision, palpitations, constipation.
- Sedation, mental confusion, weakness.
- Increased appetite and weight gain.
- Sweating and fine tremor.

12. Antiandrogenic drugs include?

a) Danazole

b) Finesteride

c) Ketoconazole

d) Latrezole

e) Spironolactone

Correct Answer - B:C:E

Ans. is'b'i.e., Finasteride,'c'i.e. Ketoconazole &'e'i.e. Spironolactone

- [Ref: KDT Vh/e p. 858, 302; Harrison 18th/e p.802,803]

Antiandrogens drugs:

5-alpha-reductase inhibitors:

- These drugs inhibit the enzyme 5-alpha-reductase which converts testosterone into more active dihydrotestosterone.
- These drugs are finasteride and dutasteride.
- These are used in benign prostatic hypertrophy, hirsutism and rnale pattern baldness.
- Side effects are decreased libido, impotence, skin rash and swelling of lips.

Note:-

- Finasteride selectively inhibits type-2 5 alpha-reductase, whereas dutasteride inhibits both type- 1 and type-2 5-alpha reductases.

Other drugs with antiandrogenic action are:

- Superactive GnRH agonists, spironolactone, cimetidine, progesterone and ketoconazole.

13. Dopamine at the dose of 8µg/kg/min produces?

a) Increased systemic vascular resistance

b) Decreased systemic vascular resistance

c) Renal vasodilatation

d) Increased stroke volume

e) Increased heart rate

Correct Answer - A:C:D:E

Ans. is 'a' i.e., Increased systemic vascular resistance, 'c' i.e. Renal vasodilation, 'd' i.e. Increased stroke volume & 'e'i'e..Increased heart rate

[Ref: Modern pharmacology with clinical application 2d/e p. 208; KDT Vh/e p. 426; Katzung Lth/e p. 139)

Dopamine:

- It is a dopamine (D1 & D2) as well as adrenergic alpha & beta 1 agonist (not beta-2) .
- The D1 receptors in renal and mesenteric blood vessels are the most sensitive.
- I.v. infusion of low dose (1-5 microgram/kg/min) of dopamine dilates these vessels by raising intracellular cAMp.
- Moderately high doses produce a positive ionotropic effect (direct beta 1 & D 1 action + due to NA release), but little chronotropic effect on heart).
- The advantage of this greater inotropic effect (increased force of contraction) than chronotropic effect (increased heart rate) of dopamine is that it produces smaller increase in oxygen demand by

the heart.

- Large doses (>10 micro gram/kg/min produce vasoconstriction (alpha 1 action).
- At high doses, it is called inoconstrictor because it has inotropic and vasoconstrictor effect.

14. Antiviral drug (s), which is/are a pro-drug?

a) Acyclovir

b) Ganciclovir

c) Ziduvudin

d) Tenofovir

e) Foscarnet

Correct Answer - A:B:C
Ans. is 'a' i.e., Acyclovir, 'b' i.e. Ganciclovir &'c' i.e. Zidovudine
[Ref. KDT 7/e p. 22 & p. 24; Goodman Gillman p. 534: Bennet Brown clinical pharma p. 404; Katzung p. 361, 385; ww.ncbi.nlm.nih.gov]

- **Anti-herpes virus:** Acyclovir, Valacyclovir. penciclovir, Famciclovir, Garciclovir, valganciclovir.
- **Anti-Retrovirus:** Nucleoside reverse transcriptase inhibitors (NRTIs) - Zidovudine, Didanosine. Zalcitabine, Stavudine, amirudin, Abacavir.
- Foscamet is unrelated to any nucleic acid precursor, so does not require phosphorylation for activation.
- Tenofovir is a nucleotide and does not require bioactivation by kinases.
- Oral bioavailability of tenofovir increases with meals (decreased for other NRTIs).

15. Diuretic drugs which are carbonic anhydrase inhibitors include?

a) Acetazolamide

b) Spironolactone

c) Furesemide

d) Chlorthiazide

e) Topiramate

Correct Answer - A:E
Ans. is'a' i.e., Acetazolamide &'e'i.e. Topiramate
Ref: KDT 7/e p. 5g7, 420, 155; Katzung 13h/e p. 255]
Carbonic anhydrase inhibitors (acetazolamide):

- Carbonic anhydrase (CAse) is an enzyme which catalyzes the reversible reaction of bicarbonate formation.
- The enzyme is present in renal tubular cells (specialty PT), gastric mucosa, exocrine pancreas, ciliary body of the eye, brain and RBC,
- Acetazolamide, dichlorphenamide, methazolamide and topiramate are carbonic anhydrase inhibitors.
- Dorzolamide & Brinzolamide is also a carbonic anhydrase inhibitors specific for CA-II.
- Carbonic anhydrase inhibitors act by a non-competitive, reversible inhibition of the enzyme carbonic anhydrase.
- As inhibition is reversible, action of carbonic anhydrase inhibitors is self limiting.

16. Drugs which are used in acute asthma include?

a) Budesonide

b) Terbutaline

c) Salbutamole

d) Theophylline

e) Sodium cromoglycate

Correct Answer - B:C:D

Ans. is'b'i.e., Terbutaline,'c'i.e. Salbutamole &'d'i.e. Theophylline

[Ref: KDT Vh/e p. 223]

Treatment of acute asthma:

- The only drugs effective for the treatment of acute attack of asthma are bronchodilators (beta 2-receptor agonists, anticholinergics, and methylxanthines).

Mild attacks:

- For patients with mild attack inhalation of a short acting beta-2 receptor agonist, e.g. salbutamol (albuterol), terbutaline is used.
- An inhaled anticholinergic, e.g. ipratropium may be added if there is no satisfactory response to beta 2- agonists alone.
- In patients who are refractory to inhaled therapies, i.v. aminophylline (theophylline) may be effective.

Severe attacks:

- Oxygen phts continuous administration of aerosolized salbutamol (albuterol) plus systemic steroids, e.g. methylprednisolone, hydrocortisone.

- Recently, MgSO4 has been tried in acute severe asthma by IV or inhalation route.

17. Antiplatelet drugs with adenosine receptor inhibition property include?

a) Ticlopidine

b) Clopidogrel

c) Prasugrel

d) Abciximab

e) Cilastazole

Correct Answer - A:B:C
Ans. is'a' i.e., Ticlopidine,'b' i.e. Clopidogrel &'c' i.e. Prasugrel
Ref: KDT Vh/e p. 629 & 6h/e p. 609; Katzung lLth/e p. 598

- ADP mediated platelet activation through cAMP is inhibited by (antagonism of P2 Y12) receptors on ADP :-
- Irreversible : Ticlopidine. clopidogrel. prasugrel
- Reversible; Cangrelor, ticagrelor

18. Drugs with first order kinetics show?

a) Increased clearance with increase in concentration

b) Decreased elimination with concentration

c) No relation rate of elimination and concentration

d) Constant fraction of drug is eliminated per unit time

e) Half life remains constant

Correct Answer - A:D:E

Ans. is.a, i.e., Increased clearance with increase in concentration, 'd' i.e. constant fraction of drug is eliminated per unit time &'e' i.e. Half life remains constant

[Ref: KDT p. 31; Katzung 13th/e p 48]

Order of kinetics:

- The rate at which elimination take place is subjected to important influences that are referred to as order of kinetics

There are two orders of such elimination:

- First order kinetic (Linear Kinetics)
- Second order kinetic (Non-Linear Kinetics)
- In first order kinetic,
  - Rate of elimination directly proportional plasma concentration.
  - Clearance remains constant because, as the plasma concentration Increases the rate of elimination increases proportionately (CL = rate of elimination / Plasma Conc).
  - Half life remains constant because time required to reduce the plasma concentration to half is same (rate of elimination).

19. Which of the following is/are true about pregabalin:

a) Approved drug for diabetic neuropathy

b) Approved for treatment of generalized tonic clonic seizure

c) Peripheral edema is side effect

d) Somnolence is side effect

e) Approved for use in Partial seizure

Correct Answer - A:C:D:E

Ans. a. Approved drug For Diabetic neuropathy; c. Peripheral edema is side effect; d. Somnolence is side effect; e. Approved for use in partial seizures.

[Ref KDT 7th/419; Katzung 13th/4M, 419; Harrison tgth/2682; Pharmacology by Satoskar 24th 139)

- Pregabalin side-effect includes: Cognitive changes, sedation & peripheral edema.
- GABA analog.
- Anti seizure activity and for its analgesic property.
- Approved for use in neuropathic pain, including painful diabetic peripheral neuropathy, post herpetic neuralgia & complex regional pain syndrome.
- Toxicity included- Somnolence, dizziness, ataxia

20. Drug(s) used for overactive bladder:

a) Oxybutinin

b) Tolterodine

c) Mirabegron

d) Onabotulinum toxin A

e) Pirenzepine

Correct Answer - A:B:C:D

Ans . a. Oxybutynin; b. Tolterodine; c. Mirabegron; D. Onabotulinum toxin A

[R4 KDf 7th/117-18; Katzung 13th/ 127-28; Rang & Date 8th/366; Pharmacology by Satoskar 24th/ 3OS - 07]

Overactive Bladder:

- Antimuscarinic drugs such as Oxybutynin, Flavoxate, tolterodine & trospium are used for both neurogenic & non- neurogenic overactive bladder.
- Sollfenacin & darifenacin are the new drugs(M3 antagonist) for use in overactive bladder.
- Mirabegron is beta-3 adrenergic agonist used for overactive bladder.
- Onabotulinum toxin A is used as single intradetrusor injection, to treat overactive bladder.

21. All are true about warfarin except:

a) Act through inhibition of coagulation factor IX

b) Protamine sulphate reverses its action

c) Monitoring is done through INR

d) Target of INR with warfarin is generally 2-3

e) Skin necrosis is usually occur in 3-10 days of initiation of warfarin

Correct Answer - B

Ans: b. Protamine sulphate reverses its action.

[Ref KDT 7th/620-24; Katzung 13th/ 590-92; Rang & Dale Sth/ 30q Pharmacology by Satoskar 24th/ jN-301]

- Warfarin induced skin necrosis is a rare complication characterized by the appearance of skin lesion 3-10 days after initiation of treatment.
- Dose of warfarin adjusted to give an INR of 2-4, the precise target depending on the clinical situation.
- The reference range for prothrombin time is usually around 12-13 seconds and the INn in absence of anticoagulation therapy is 0. 8-1. 2
- Warfarin: Dose regulation is done by prothrombin time & INR (Heparin/aPTT/clotting time.
- Antagonist is Vit K (c. f Heparin- Protamine sulphate).

22. True about M/A of doxorubicin:

a) Intercalate b/w DNA strands

b) Inhibition of DNA polymerase

c) Inhibition of RNA polymerase

d) Inhibition of topoisomerase II

e) Inhibition of protein synthesis

Correct Answer - A:D

Ans. A. Intercalate b/w DNA strands; D. Inhibition Of Topoisomerase II

[Ref: KDT 7th/867; Katzung 13th/932'j5; G 6 G 1lth/1358; Pharmacology by Satoskar 24th/ 835)

- Doxorubicin: It acts as a non-specific inhibitor of topoisomerase- II, thus interfering with DNA replication.

23. Anticholinergic drug side-effect includes:

a) Constipation

b) Urinary retention

c) Mydriasis

d) Hypothermia

e) Blurring of vision

Correct Answer - A:B:C:E

Ans: A. Constipation. B. Urinary retention C. Mydriasis E. Blurring of vision

[Ref: KDT 7th/120;G dz G 11th/194; Katzung 13th/ 129; Rang & Dale \th/ 164-65; Pharmacology by Satoskar 24th/301).

- Body temperature is frequently elevated.
- Unfortunately, children, especially infants, are very sensitive to hyperthermic effects of atropine.
- Constipation & urinary retention(precipitation especially in elderly) can occur with atropine
- Difficulty in swallowing, dry mouth, ferer, dry-flushed & hot skin, difficulty in micturition, Mydriasis, photophobia, blurring of near vision, palpitations, dreadful visual hallucination, ataxia, delirium, psychotic behavior, weak & rapid pulse, hypotension, cardiovascular collapse with respiratory depression, convulsion & coma.

24. Which of the following is/are true about benefits of Sustained release formulation of drugs:

a) Decreased incidence and/or intensity of undesired effects

b) Increases potency of the drug

c) Release of drug is less influenced by pH

d) Prolong drug effect

e) Decreased frequency of administration

Correct Answer - A:C:D:E

Ans A. Decreased Incidence and/or Intensity of undesired effects; c. Release Of Drug Is Less Influenced By pH; D. Prolong drug effect; E. Decreased Frequency of administration.

[Ref: KDf 7th/35; G 6'G 11th/5; Pharmacology by Satoskar 24th/7; http://www. pharmatutor. org/articles/review-sustained-release-dosage' forms).

- Sustained release implies slow release of the drug over a time period.
- It may or may not be controlled release

Advantages of sustained release dosage forms:

- Control of drug therapy is achieved.
- Rate and extent of drug absorption can be modified
- Frequency of drug administration is reduced.
- Patient compliance can be improved.
- Drug administration can be made convenient
- Maximizing the availability of drug with minimum dose.
- The safety margin of high potency drug can be increased.

25. True about drug-response curve(DRC):

a) Steepest in middle portion of the DRC

b) Inverted U shaped curve may be for some drug

c) Rectangular hyperbola- when plotted in logarithmic scale

d) Sigmoid shape- when plotted in logarithm is used

e) Enables comparison of potency of drugs

Correct Answer - A:B:C:E

Ans. (A) Steepest in middle portion of the DRC (B) Inverted U shaped curve may be for some drug (C) Rectangular hyperbola- when plotted in logarithmic scale (E) Enables comparison of potency of drugs

Dose-Response Relationship:

- Rectangular hyperbola.
- Sigmoidal curve in dose -response relationship: the steepest portion in the middle-wiki.
- DRC is used to measure- drug potency, drug efficacy & drug safety-slideshare.
- Some drugs cause low-dose stimulation and high-dose inhibition of response.
- These U-shaped relationships for some receptor systems are said to display hormesis.
- Several drug-receptor systems can display this property e.g., prostaglandins, endothelin, and purinergic and serotonergic agonists, among others), which is likely to be at the root of drug toxicity.

26. True about organophosphorus poisoning:

a) Atropine is best for early treatment & maintenance

b) Pralidoxime is important for restoring neuromuscular transmission

c) Phenytoin is the primary drug used for seizure control

d) Mydriasis present

e) Pralidoxime & atropine works synergistically

Correct Answer - A:B:E

Ans. (A) Atropine is best for early treatment & maintenance (B) Pralidoxime is important for restoring neuromuscular transmission (E) Pralidoxime & atropine works synergistically

[Ref Reddy 32nd/495-97;G & G ltth/21};KDT 7th/111: 1 3th/979-80; Pharmacology by Satoskar 24th/ 297]

OrganophosPhorus Poisoning:

- AII case of Anti-ChE poisoning must be promptly given atropine 2 mg i. V repeated every 10 min till dryness & other signs of atropinization appear.
- Continued treatment with maintenance doses may be required for 1-2 weeks
- The use of oximes in organophosphate poisoning is secondary to that of atropine. Moreven the clinical benefit of oximes is highly variable.
- Control of convulsions with judicious use of diazepam.
- Ocular manifestations include marked miosis' ocular pain' conjunctival congestion, diminished vision, ciliary spasm, And brow ache.
- Atropine in sufficient dosage effectively antagonizes the actions at

muscarinic receptor sites, and to a moderate extent at peripheral ganglionic and central sites

27. Which of the following drug(s) act by inhibiting protein synthesis by attaching to 50 S ribosome:

a) Tetracycline

b) Ampicillin

c) Isoniazid

d) Imipramine

e) Ethionamide

Correct Answer - B:C

Ans. (B) Ampicillin (C) Isoniazid

[KDT 7th/734,768; Katzung 13th/789]

- Tetracyclines bind to 30S ribosome & inhibit aminoacyl RNA attachment to the A site
- Erythromycin & clindamycin bind to 50S ribosome & hinder translocation of the elongated peptide chain back from A site to P site. Peptide synthesis may be prematurely Terminated.
- ChloramPhenicol binds to 50S subunit' It interfere with peptide bond formation & transfer of peptide chain from P site
- Aminoglycosides bind to several sites at 30S & 50S subunits- freeze initiation, interfere with polysome formation & cause misreading of mRNA code

28. OCP efficacy decreases with concurrent administration of which of the following drug(s):

a) Phenytoin

b) Ampicillin

c) Isoniazid

d) Imipramine

e) Ethionamide

Correct Answer - A:B

Ans. (A) Phenytoin (B) Ampicillin

[Ref KDT 7th/ 326; Katzung 13th/712; Rang & Dale 9th/ 434: Pharmacology by Satoskar 24th/ 967).

Contraceptive failure may occur with concurrent administration of:

- Enzyme inducer: Phenytoin, phenobarbital, primidone, carbamazepine, rifampin, ritonavir - Metabolism of estrogenic & progestational component is increased.
- Tetracyclines-ampicillin.
- Deconjugation of estrogens secreted in bile fails to occur their enterohepatic circulation is interrupted → blood level fal

29. All are true about tamoxifene except:

a) Used as adjuvant therapy in estrogen receptor positive breast cancer

b) Approved for the primary prophylaxis of breast cancer in high risk woman

c) No effect on uterus

d) Pro-estrogen effect on bone

e) Cause endometrial Ca

Correct Answer - A:C:D:E

Ans. (A) Used as adjuvant therapy in estrogen receptor positive breast cancer (C) No effect on uterus (D) Pro-estrogen effect on bone (E) Cause endometrial Ca

[Ref; KDT 7th/101'02; Katzung 13th/ 106]

- NM is located in neuromuscular junction 6 cause depolarization of muscle end Plate
- NN located on autonomic ganglia, adrenal medulla & CNS
- Most smooth muscles & glands have M2 6 M3 subtypes; M3 Predominates.
- Ach is a major neurotransmitter at autonomic, somatic as well as central sites. Release of Ach from nerve terminal help in synaptic transmission

30. Which of following true regarding acetylcholine receptors:

a) M2 receptor- heart

b) MI receptor- smooth muscle

c) NM receptor is present on neuromuscular junction

d) Synaptic junction-Ach is transmitter

e) NN located on adrenal medulla

Correct Answer - A:C:D:E

Ans. (A) M2 receptor- heart (C) NM receptor is present on neuromuscular junction (D) Synaptic junction-Ach is transmitter (E) NN located on adrenal medulla

[Ref; KDT 7th/101'02; Katzung 13th/ 106]

- NM is located in neuromuscular junction 6 cause depolarization of muscle end Plate
- NN located on autonomic ganglia, adrenal medulla & CNS
- Most smooth muscles & glands have M2 6 M3 subtypes; M3 Predominates.
- Ach is a major neurotransmitter at autonomic, somatic as well as central sites. Release of Ach from nerve terminal help in synaptic transmission

31. Antibiotic of choice for Stenotrophomonas maltophilia infection is:

a) Ampicillin

b) Trimethoprim-sulfamethoxazole (TMP-SMX)

c) Penicillin

d) Ciprofloxacin

e) None

Correct Answer - B
Ans: b. Trimethoprim-sulfamethoxazole (TMP-SMX)

32. TNF-a Inhibitors are used for :

a) Ulcerative colitis

b) Crohn's disease

c) Rheumatoid arthritis

d) Psoariasis

e) Lichen planus

Correct Answer - A:B:C:D

Ans. A,Ulcerative colitis B,Crohn's disease C,Rheumatoid arthritis D,Psoariasis

[Ref Hanison 19th/1961;Neena Khanna 5th/58, 68;CMDT 2016/641; KDT 7th/883-84).

TNF-alpha Inhibitors: Use

- Etanercept -Rheumatoid arthritis, severe/refractory ankylosing spondylitis, plaque psoriasis, polyarticular idiopathic juvenile arthritis.
- Infliximab- refractory rheumatoid arthritis, ankylosing spondylitis, psoriasis, fistulating Crohn's disease, ulcerative colitis
- Adalimumab- Use as like infliximab
- Certolizumab - Crohn's disease
- Golimumab - ulcerative colitis Psoriasis: Treatment includes TNF blockers like etanercept, infliximab.

33. S/E of Bevacizumab includes:

a) Hypertension

b) Hemoptysis

c) Malena

d) Cerebellar stroke

e) Not cause gastrointestinal perforation

Correct Answer - A:B:C:D

Ans. A,Hypertension B,Hemoptysis C,Malena D,Cerebellar stroke

[Ref: KDT 7th/871: Katzung 13th/ 937-38; Rang & Dale 8th/; Pharmacology by Satoskar 24th/840).

S/E of Bevacizumab:

- Hypertension
- Arterial thromboembolism-heart attack 6 stroke
- Vessel injury 6 haemorrhages
- Heart failure
- Proteinuria
- Gastrointestinal perforation
- Healing defect

34. True about methanol poisoning:

a) Gastric decontamination is helpful

b) Formate & formaldehyde are active metabolite

c) Taking with Ethanol cause more toxicity

d) Fomipezole a specific antagonist, is given for treatment

e) Cause high anion gap acidosis

Correct Answer - A:B:D:E

Ans. A,Gastric decontamination is helpfu B,Formate & formaldehyde are active metabolite D,Fomipezole a specific antagonist, is given for treatment E,Cause high anion gap acidosis

[Ref: KDT 7th/ 394-96; Katzung 13th/393; Pharmacology by Satoskar 24th/ 9s-96).

Treatment of Methyl Alcohol

- Fomepizole, an alcohol dehydrogenase inhibitor, is approved for the treatment of ethylene glycol poisoning and methanol poisoning.
- Ethanol used intravenously as treatment for methanol poisoning.
- Methanol concentrations higher than 50 mg/dl are thought to be an absolute indication for hemodialysis and treatment with fomepizole or ethanol, although formate blood levels are a better indication of clinical pathology.
- Hospitalisation, nursing care
- Gastric lavage, activated charcoal
- Treatment of acidosis/hypoglycemia
- Inhibition of methanol metabolism- Giving ethyl alcohol dt fomepizole (a specific inhibitor of alcohol dehydrogenase & drug of choice for methanol poisoning)

- Promote metabolic degradation of formate: folinic acid together with folic acid
- Diuretics, urine alkalinisation
- Hemodialysis in severe case
- Maintenance of nutrition

35. Which of the following is true regarding ropinirole wrt L-dopa :

a) Cognitive symptom improves

b) Lower incidence of hallucination

c) Cause excessive sleepiness

d) More effective in the treatment of patients who have developed on/off phenomena

e) Provide neuroprotective effect

Correct Answer - C:D:E

Ans. C,Cause excessive sleepiness D,More effective in the treatment of patients who have developed on/off phenomena E,Provide neuroprotective effect

[Ref: KDT 7th/430-31; G & G 535-j8;Katzung 13th/478; Rang 6 Date 8th/494-95; Pharmacology by Satoskar 24th/237

- All the dopamine agonists in larger doses can coute tevere neuropsychiatric adverse effects.

Ropinirole & Pramipexole

- Selective D2/D1 receptor agonists
- Better tolerated dt do not show the fluctuations in efficacy associated with levodopa.
- They do, however, cause somnolence 6 sometimes hallucinations (recent evidence suggests that they may predispose to compulsive behaviours, such as excessive gambling, overeating 6 sexual excess, related to the reward functions of dopamine
- A disadvantage of current dopamine agonists is their short plasma half Life(6-8 hr), requiring 3 times daily dosage though slow release

once daily formulations are now available

- Trial have found them to afford symptom relief comparable to levodopa.
- Some trials have noted lower incidence of dyskinesias 6 motor fluctuations among Patients treated with these drugs than dose treated with levodopa
- It is longer acting than levodopa.
- High incidence of hallucination & sleepiness

36. Which of the following drug(s) comes in risk category B of FDA teratogenic risk categories for pregnancy:

a) Phenytoin

b) Resperidone

c) Olanazapine

d) Clozapine

e) Arpirazole

Correct Answer - D

Ans. D. Clozapine

[Ref: KDT 7th/90; Katzung 13th/1018; Rang 6 Dale 8th/700; Pharmacology by Satoskar 24th/ 1 122; http://schizophrenia bulletin-oxford journal]

Category A:

- No risk to fetus in human studies
- Levothyroxine
- Potassium
- Supplementation
- MgSO4

Category B

- Animal studies show no risk
- Human studies are lacking
- Penicillins
- Cephalosporins
- Macrolides
- Brimonidine

Category C

- Animal studies show Positive teratogenic risk
- Human studies are not available
- Albuterol
- Zidovudine
- CCB
- Morphine
- Atropine

Category D

- Human and animal studies show positive teratogenic risk
- Can be used in pregnancy because of benefits greater than risk might be acceptable.
- Corticosteroids
- Azathioprine
- Carbamazepine
- Valproate
- Methotrexate
- Lithium

Category X

- Human and animal studies show positive teratogenic risk
- Absolutely contraindicated in pregnancy because of risk greater than benefits.
- Thalidomide
- isotretinoin
- Fluoroquinolones
- Tetracyclines
- Chloramphenicol
- Warfarin
- ACE inhibitors

37. Which of the follwing is /are action of estrogen except :

a) Development of the alveolar system

b) Proliferation of stroma of breast

c) Ductal growth of the breast

d) ↓C Bone resorption

e) Development of lobules of breast

Correct Answer - A:E

Ans. (A) Development of the alveolar system (E) Development of lobules of breast

- Oestrogen causes only duct development.
- Progesterone is responsible for glandular development.
- It promotes the growth of the lobules and alveolar tissue in breast.
- Promotes the development of the alveolar(acinar) system of the breast

Estrogen - functions:

- Important in maintaining bone mass primarily by retargeting bone resorption.
- Produced at puberty cause growth of breasts proliferation of ducts and stroma, accumulation of fat.
- Stimulate stromal development and ductal growth in the breast
- Contribute to the growth of axillary and pubia hair.
- Pigmentation in the skin, most prominent in the regian of the nipplas and areolae.
- Continuous exposure to estrogens for prolonged periods leads to hyperplasia of the endometrium.

- Decrease the rate of resorption of bone by promoting apoptosis of osteoclasts and by antagonizing the osteoclastogenic and pro-osteoclastic effects of parathyroid hormone and interleukin-6.

38. All are true about bisphosphonates except :

a) Prevent reabsorption of bone by osteoclast

b) Structurally similar to pyrophosphate

c) Absorption increases with food

d) Can be safely given in liver disease

e) None

Correct Answer - C

Ans. C. Absorption increases with food

Bisphosphonates(BPNs):

- BPNs are analogies of pyrophosphate; carbon atom replacing orygen in the P-O-P skeleton
- All oral BNPs are poorly absorbed and produce gastric irritation as major side effect.
- They inhibits bone resorption and have recently attracted considerable attention because of their ability to prevent osteoporosis in addition to their usefulness in metabolic bone diseases and hypercalcemia.
  MOA: Localize to regions of bone resorption & exert their greatest effects on osteoclasts.
- Food reduces absorption even further, necessitating their administration on an empty stomach.
- Nearly half of the absorbed drug accumulates in bone; the remainder is excreted unchanged in the urine.
- Decreased renal function, esophageal motility disorders & peptic ulcer disease are the main contraindications.

39. Which of the following is /are newer drugs for TB:

a) Bedaquiline

b) Clofazimine

c) Coftaroline

d) Rifapentine

e) Etanercept

Correct Answer - A:B:D

Ans. (A) Bedaquiline (B) Clofazimine (D) Rifapentine

Newer Anti-TB drugs:

- Community Medicine with Recent Advances by Suryakantha 4ed/371
- Rifabutin
- Rifapentine - 400mg twice weekly.
- Macrolides:Roxithromycin,Clarithromycin, Azithromycin
- Amikacin
- Fluoroquinolones:Ciprofloxacin, ofloxacin and sparfloxacin
- B-lactam antibiotic: trials are going on with amoxicillin- clavulanic acid
- Clofazimine - 200mg/d
- Paromomycin
- Cytokine immunotherapy:IL-2, cytokine gamma interferon and cytokine IL-12
- Bedaquiline - Multi- drug resistant tuberculosis (MDR-TB) - 400mg/d

40. All are true about oral iron therapy in anemia except :

a) May worsen inflammatory bowel disease

b) It takes minimum 2 weeks for reticulocyte count to increase

c) Generally 3-6 month therapy is required to replenish iron stores

d) Gastrointestinal side-effects limits its dose

e) Hb level is generally attained in 1-3 month

Correct Answer - B

Ans. B. It takes minimum 2 weeks for reticulocyte count to increase

Oral iron Therapy:

- Following oral iron, normal Hb level is usually obtained within 1 to 3 months.
- Depending mainly on the initial Hb level.
- It is important, however, to continue with the therapy for 12-20 weeks after the Hb level has returned to normal, in order to replenish the depleted iron stores.
- The reticulocyte count in the peripheral blood begins to rise within a week, reaches a peak at 10 to 14 days and returns to normal after 3 weeks

Adverse Effects of Oral iron:

- Epigastric pain, heartburn, nausea, vomiting, bloating staining of teeth, metallic taste, col:la,
- Alteration of intestinal flora.
- Gastric irritation and constipation.

Treatment of iron Deficiency:

- Ability of the patient to tolerate and absorb medicinal iron.

41. Drug that can potentiate Torsades de pointes:

a) Amiodarone

b) Sotalol

c) Chlorpromazine

d) Cisapride

e) Aspirin

Correct Answer - A:B:C:D
Ans, A,Amiodarone B,Sotalol C,Chlorpromazine & D,Cisapride
Torsades de Pointes (Ventricular Tachycardia)
Antiarrhythmics:
- Quinidine, procainamide, disopyramide, propafenone, amiodarone

Antimalarials:
- Quinine, mefloquine, artemisinin, halofantrine

Antibacterials:
- Sparfloxacin, moxifloxacin

Antihistamines:
- Terfenadine, astemizole, ebastine

Antidepressants:
- Amitriptyline and other tricyclics.

Antipsychotics:
- Thioridazine, pimozide, aripiprazole, ziprasidone

Prokinetic:
- Cisapride

42. Drug which can be given by inhalation route :

a) Zileuton

b) Steroid

c) Salbutamol

d) Tobramycin

e) None

Correct Answer - B:C

Ans. (B) Steroid (C) Salbutamol

- Inhalatlonal steroids. Beclomethasone, dipropionate, budesonide, fluticasone propionate, flunisolide and ciclesonide.
- Salbutamol: used in form of oral, i.m/ s.c and inhalation.
- Zileuton: It is available only as extended release(oral) formulation.
- Tobramycin: Used in form of i.m/i.v, eye drop

43. Liver function test (LFT) monitoring is /are required in use of which of the following Disease Modifying Antirheumatic Drugs (DMARDs):

a) Methotrexate

b) Hydroxychloroquine

c) Sulfasalazine

d) Leflunomide

e) Gold

Correct Answer - A:D:E

Ans. (A) Methotrexate (D) Leflunomide (E) Gold

DMARDs Used for the treatment of rheumatoid arthritis:

- Hydroxychloroquine - Funduscopic and visual field testing every 12 months.
- Sulfasalazine - CBC every 2-4 weeks for the first 3 months, then every 3 months
- Methotrexate & Leflunomide - CBC, creatinine, LFTs every 2-3 months
- Tocilizumab - CBC and LFTs at regular intervals

44. True about effect of steroid intake in inflammatory conditions:

a) Proanabolic effect on muscles

b) T glucose in plasma

c) -ve feedback on corticotropin-releasing hormone(CRH) production

d) May cause osteoporosis

e) None

Correct Answer - B:C:D

Ans. B,T glucose in plasma C,-ve feedback on corticotropin-releasing hormone(CRH) production & D,May cause osteoporosis

Glucocorticoids:

- Given chronically suppress the pituitary release of ACTH
- Glucocorticoids increase serum glucose level.
- Glucocorticoids stimulate RNA and protein synthesis in the liver, they have catabolic and anti anabolic effects in tymphoful and connective tissue, muscla, peripheral fat' and sldn.
- Cortisol has a negative feedback on ACTH and CRH production.

45. Drugs which can be used in gestational hypertension:

a) Metoprolol

b) Labetalol

c) Methyldopa

d) Sustained release nifedipine

e) Losartan

Correct Answer - A:B:C:D

Ans. (A) Metoprolol (B) Labetalol (C) Methyldopa (D) Sustained release nifedipine

- Antihypertensive agents used in pregnancy: Methyldopa, lrydralazlne, labetalol, Nifedipine, atenolol.

46. True about osmotic diuretics:

a) **Osmotic diuretics have their** major effect **in the distal** convoluted tubule

b) Contraindicated **in** congestive heart **failure**

c) Causes Hyperkalemia

d) Increases **renal blood flow**

e) None

Correct Answer - B:C:D
And. B,Contraindicated in congestive heart failure C,Causes Hyperkalemia & D,Increases renal blood flow
Osmotic Diuretics:

- Major effect in the proximal tubule and the descending limb of Henle's loop.
- Inhibits Transport processes in the think AscLH.

Uses:

- Used to increase water excretion in preference to sodium excretion.
- Extracellular Volume expansion - Effect can complicate heart failure and may produce florid pulmonary edema - Contraindicated in CHF.
- Causes dehydration, Hyperkalemia, and Hypernatremia
- Headache, nausea & vomiting are commonly observed in patients treated with osmotic diuretics.

47. Which of the following dyads show clinically significant drug interactions:

a) Vancomycin—Amphotericin B

b) Rantidine- Atorvastatin

c) Warfarin— Aspirin

d) Allopurinol— Azathioprine

e) Aminoglycoside+Vancomycin

Correct Answer - A:C:D:E

Ans. A,Vancomycin—Amphotericin B C,Warfarin—Aspirin D,Allopurinol— Azathioprine & E,Aminoglycoside+Vancomycin

Drug interaction:

- Drugs may interact, but most can be categorized as pharmacoKInetic (absorption distribution, metabolism, excretion), phartnacodlmamla (aMitive or antagonistic effects), or combined interactions.

Eg:

- Aminoglycosides, vancomycin, cyclosporine and other nephrotoxic drug enhance the renal impairment caused by amphotericin B
- Allopurinol inhibits the degradation of i-mercaptopurine and azathioprine; their doses should be reduced to ?.
- Enhanced' anticoagulant action of warfarin:
- High doses oF salicylates have synergistic hypoprothrombinemic action & also displace warfarin from protein binding site.

48. Adverse effects of mirtazapine is /are:

a) Insomnia

b) Sedation

c) Sexual dysfunction

d) Vomiting

e) Weight gain

Correct Answer - B:E
Ans. (B)Sedation (E)Weight gain
Mirtazapine
Important adverse drug reactions

- marked sedation
- increased appetite
- weight gain
- Somnolence (most common)
- Dry mouth
- Constipation
- Dizziness
- Myalgias
- Increase serum cholesterol concentration to 20 percent
- Orthostatic hypotension
- Agranulocytosis

49. First pass metabolism is significant problem in drug given through:

a) Sublingual route

b) Rectal route

c) Intramuscular route

d) Directly into stomach

e) Directly into large intestine

Correct Answer - D

Ans. D, Directly into stomach

- All orally administered dru.gs are exposed to drug metabolizing enzymes in the intestinal wall and liver (where they first reach through the portal vein).
- Drug given directly into the stomach and intestine still have to pass through first pass metabolism in the intestinal wall and in liver.
- Approximately 50% of the drug that it is absorbed from the rectum will bypass the liver, thus reducing the hepatic first-pass effect.
- Presystemic metabolism In thc gut and liver can be avoided by administering the drug through sublingual, transdermal or parenteral (i. v/i.m/intradermal/s.c) routes.
- The event of first pass metabolism differs for dlfierent drugs and is an important datennlnant of oral bioavallabiltty.
- The hepatic first-pass effect can be avoided to a great extent by the use of sublingual tablets and transdermal preparations and to a lesser extent by the use oF rectal suppositories.
- Subltngu.al absorption provides direct access to systemic not portal-velns.

- The trans canal route ofiers the same advantage.

50. All are true about plasma protein binding except:

a) Acidic drugs generally bind to plasma albumin and basic drugs to a, acid glycoprotein

b) Plasma binding determines volume of distribution

c) More plasma protein binding means more storage in liver

d) More plasma protein binding means less penetration in vascular membrane

e) High degree of protein. inding generally makes the drug long acting

Correct Answer - C

Ans. C, More plasma protein binding means more storage in liver

- Drugs which are highly protein bound or ionized remain largely within the vascular compartment and have very low volume of distribution.
- Acidic drugs generally bind to plasma albumin and basic drugs to a2 acid glycoprotein.
- Albumin ls a major carrier for acidic drugs.a1-acid glycoprotein blinds basic drugs.

Clinically significant implications of plasma protein binding:

- Binding of a drug to plasma protein also limits the drug's glomerular fiLtration.
- Drug transport and metabolism also are limited by binding to plasma proteins.
- Protein bound drug does not cross membranes (except through

large paracellular spaces, such as in capillaries) .

- Tend to have smaller volumes of distribution.
- Bound fraction of drug in not available for action.
- Plasma protein binding thus tantamounts to temporary storage of the drug.
- High degree of protein binding generally makes the drug long acting,

51. Carbonic anhydrase inhibitors (S) is/are:

a) Acetazolamide

b) Amiloride

c) Nitrofurantoin

d) Topiramate

e) None

Correct Answer - A:D

Ans. (A) Acetazolamide (D) Topiramate

- Carbonic anhydrase inhibitor: Topiramate, Acetazolamida, methazolamide, dichlorphenamide
- orally in the treatment of glaucoma - Acetazolamida, methazolamide, dichlorphenamide
- Topically active carbonic anhydrase inhibitors - Dorzolamide and brinzolamide.

52. Which of the following is/are true about pharmacodynamics of drugs :

a) Affinity means how strongly drug binds to receptor

b) Efficacy means maximal effect by a drug

c) Irreversible antagonist mainly forms ionic bonds with receptor

d) Agonist potency depends on two parameters: affinity and efficacy

e) For antagonists, efficacy **is** zero

Correct Answer - A:B:D:E

Ans. A,Affinity means how strongly drug binds to receptor B,Efficacy means maximal effect by a drug D,Agonist potency depends on two parameters: affinity and efficacy & E,For antagonists, efficacy is zero

- Irreversible competitive(non-equilibrium) antagonism occurs with drugs that possess reactive groups that form covalent bonds with receptor.
- Receptor Block Antagonism involves two important Mechanisms
- Reversible competitive antagonist
- Irreversible, ornon-equilibrium, competitive antagonism.
- Drugs acting on receptors may be agonists or antagonists.
- Agonist potency depends on two parameters: affinity (i.e. tendency to bind to receptors) and efficacy (i.e. ability, once bound, to initiate changes that lead to effects).
- For antagonists, efficacy is zero.

53. Which of the following is /are true about Tacrolimus:

a) A macrolides antibiotic

b) Structure similar to cyclosporine

c) Derived from a fungus

d) T cell inhibitor

e) Hirsutism less evident than cyclosporine

Correct Answer - A:D:E

Ans. (A) A macrolides antibiotic (D) T cell inhibitor (E) Hirsutism less evident than cyclosporine

Tacrolimus:

- Immunosuppressant is chemically different from cyclosporine, but has the same mechanism of action 100 times more potent.
- Macrolide antibiotic produced by Streptomyces tsukubaensis(a bacteria)

MOA:

- Inhibition of helper T cells via calcineurin.
- Binds to the immunophilin FK-binding protein (FKBP)
- Therapeutic application, clinical efficacy as well as toxicity profila are similar to cyclosporine.
- Hypertension, hirsutism, gurn hyperplasia and hyperuricemia are less marked than with cyclosporine, but tacrolimus is more likely to precipitate diabetes, cause neurotoxicity alopecia and diarrhoea.
- Dose limiting toxicity is renal.

54. True about Low molecular weight heparin (IAMB):

a) Anti-factor Xa assay monitoring required in every patient

b) It increases aPTT more than UFH

c) Can be safely given in renal failure

d) Toxicity is totally reversed by protamine sulphate

e) Inactivate factor Xa selectively

Correct Answer - E

Ans. E.Inactivate factor Xa selectively

Low MolecularWeight (LMW) Heparins and UFH

- Heparin has been fractionated into LMW forms (MW 3000-7000) by different techniques..
- Inactivate Factor Xa selectively.
- They act only by inducing a conformational change in AT III and, not by providing a scaffolding for interaction of AT III with thrombin.
- As a result, LMW heparins have smaller effect on aPTT and whole blood clotting time than unfractionated heparin (UFH).
- Eliminated primarily by renal excretion are not to be used in patients with renal failure..
- Since aPTT/clotting times are not prolonged, Laboratory monitoring is not needed.
- Protamine does not neutralize fondaparinux and it only partially reverses the anticoagulant effect of LMW heparins.

55. True about Mafenide :

a) Can penetrate eschars

b) Doesn't cause burning sensation when applied to raw surface

c) Can be used orally

d) May cause metabolic acidosis

e) None

Correct Answer - D

Ans. D, May cause metabolic acidosis

Mafenide:

- Typical sulpHonamide.
- Used only totally-inhibits a variety of gram-positive and gram-negative bacteria.
- Biggest limitation - Produces burning sensation and severe pain when applied to raw surface.
- Mainly employed for bunt dressing to prevent infection, but not to heat already infected cases.

56. True about competitive antagonists are ?

a) It decreases efficacy of agonist

b) It decreases potency of agonist

c) DRC is shifted to right side

d) K_m is increased

e) V_{max} is reduced

Correct Answer - B:C:D

Ans. (B) It decreases potency of agonist (C) DRC is shifted to right side (D) K_m is increased

Competitive inhibition:

- km is increased.
- V-max remains unchanged.

Competitive antagonist:

1. Antagonist binds to the same receptors as agonist
2. Antagonist resembles chemically with the agonist
3. The same maximal response can be obtained
4. Potency is reduced (Right shift of DRC)
5. Km is increased but Vmax is unchanged

Non competitive antagonist:

1. Binds to another site of receptor
2. Does not resemble
3. Maximal response is suppressed
4. Efficacy is reduced (Flattening of DRC)
5. Km is unchanged but Vmax. is reduced

57. Physiological antagonism is found in ?

a) Isoprenaline and salbutamol

b) Isoprenaline and adrenaline

c) Isoprenaline and propranolol

d) Adrenaline and histamine

e) Salbutamol and leukotrienes

Correct Answer - D:E

Ans. (D) Adrenaline and histamine (E) Salbutamol and leukotrienes

[Ref KDT p. 56]

Physiological antagonists:

- Produce opposite action by acting on different receptors.
- Histamine - bronchoconstriction & adrenaline - bronchodilation.
- Leukotrienes - bronchoconstriction & salbutamol - bronchodilation.

58. Side effect of clozapine are ?

a) Sedation

b) Seizures

c) Urinary incontinence

d) Decreased salivation

e) None

Correct Answer - A:B:C

Ans. (A) Sedation (B) Seizures (C) Urinary incontinence

[Ref : KDT p.429;Katzang /ep- 497-498]

Side effects of clozapine

- Agranulocytosis
- Urinary incontinence
- Unstable BP & Tachycardia
- Hypersalivation (sialorrhoea)
- Worsening of diabetes
- Weight gain
- Seizures
- Sedation

59. Which is true regarding naltrexone -

a) It is an opioid antagonist

b) It is an opioid agonist

c) Used in alcohol dependence

d) Used to treat opioid dependence

e) Used as a respiratory stimulant

Correct Answer - A:C:D

Ans. (A) It is an opioid antagonist (C) Used in alcohol dependence (D) Used to treat opioid dependence

[Ref KD p.467; 433,353]

Naltrexone:

- Pure opioid antagonist devoid of agonistic activity.
- Recommended in alcohol dependence by US-FDA as adjuvant in comprehensive treatment.
- Used for 'opioid blockade' therapy of post-addicts.
- Used to treat acute intoxication and maintenance therapy of opioid withdrawal. However, it can precipitate withdrawal symptoms.

60. Which of the following is/are cholinomimetic (Cholinergic) drug(s)?

a) Pilocarpine

b) Neostigmine

c) Bethanechol

d) Donepezil

e) Methacholine

Correct Answer - A:C:E

Ans. (A) Pilocarpine (C) Bethanechol (E) Methacholine

[Ref KDT 7/e p. 104; Katzung 11*/e p. 98]

- Cholinergic drugs may be divided into : (i) Directly acting, and (ii) Indirectly acting (anticholinesterase).

Directly Acting:

- With muscarinic action: Acetylcholine, methacholine, carbachol, bethanechol, pilocarpine, muscarine, arecholine
- With nicotinic action :- Acetylcholine, carbachol, arecholine (these three drugs have both muscarinic and nicotinic effects).

Indirectly Acting (Anticholinesterase):

- Two types
- **Carbamates:** Physostigmine, Pyridostigmine, Ambenonium, Galantamine, Neostigmine, Edrophonium, Donepezil, rivastigmine.
- **Organophosphates:** Echothiophate, Diazinon.

61. True about Carvedilol ?

a) al blocker

b) 31 blocker

c) 32 blocker

d) Antioxidant

e) Used in hypertension

Correct Answer - A:B:C:D:E

Ans. (A) al blocker (B) 31 blocker (C) 32 blocker (D) Antioxidant (E) Used in hypertension

Carvedilol:

- β1 + β2 + α1 adrenoceptor blocker with α-β blocking property of 1:9.
- Antioxidant and antimitotic ProPerty.
- Produces peripheral vasodilation due to α-1 blockade as well as calcium channel blockade (direct effect).
- Cardioprotective in CHF.
- Causes orthostatic hypotension.

62. Interferon-alpha is used in the treatment of ?

a) Hepatitis B

b) Hepatitis C

c) Multiple sclerosis

d) Chronic granulomatous disease

e) Multiple myeloma

Correct Answer - A:B:C

Ans. (A) Hepatitis B (B) Hepatitis C (C) Multiple sclerosis

[Ref. KDT P. 501, 802; Clinical pharmacologist P. 712]

Uses of interferon-α are:

1. CML
2. Non-Hodgkin's lymphoma & cutaneous T-cell lymphoma
3. Hairy cell leukemia
4. Multiple myeloma
5. AIDS related Kaposi sarcoma
6. Chronic Hepatitis B & C
7. HSV, HZV & CMV infection
8. Rhinoviral cold
9. Condyloma acuminata (HPV)
10. Malignant melanoma
11. Renal cell carcinoma

63. True about bedaquiline is ?

a) Not to be used in single line therapy

b) To be used in case of resistance to streptomycin

c) New unique antimicrobial introduced

d) Bactericidal drug

e) Used in TB resistant to rifampicin & isoniazide

Correct Answer - A:C:D:E

Ans. (A) Not to be used in single line therapy (C) New unique antimicrobial introduced (D) Bactericidal drug (E) Used in TB resistant to rifampicin & isoniazide

[Ref Katung 14/e p. 849; Lehn's Pharmacology ip. l081]

Bedaquiline (sirturo):

- New antitubercular drug
- Treatment of mulit-drug resistant tuberculosis
- Works faster and better than all other anti-TB drugs.
- Tuberculocidal.
- By inhibiting ATP synthase.
- No cross - resistance.
- Pregnancy category B drug.

Uses:

- Combination therapy for multidrug resistance TB (i.e. resistance to rifampicin and lNH).
- Not approved for treatment of latent TB, extrapulmonary TB or drug-sensitive TB.

Adverse Effects:

- Prolongation of QT interval.
- Hepatotoxicity.

64. Extensive drug resistance TB is defined as resistance to?

a) Amikacin

b) INH

c) Rifampicin

d) Pyrazinamide

e) Ciprofloxacin

Correct Answer - A:B:C:E

Ans. (A) Amikacin (B) INH (C) Rifampicin (E) Ciprofloxacin

[Ref KDT 7th e p. 776]

Multidrug resistance (MDR) and extensive drug resistance (XDR) TB:

- MDR is defined as resistance to INH and rifampin with or without resistance to other drugs.
- XDR is defined as resistance to INH and rifampicin as well as to all fluoroquinolones and one of injectable drugs (capreomycin, kanamycin, amikacin).

65. Alternative to rifamicin based treatment of leprosy in patient with hepatitis?

a) Clofazimine

b) Ofloxacin

c) Minocycline

d) Clarithromycin

e) Moxifloxacin

Correct Answer - A:B:C:D

Ans. (A) Clofazimine (B) Ofloxacin (C) Minocycline (D) Clarithromycin

- The World Health Organization (WHO) and the Indian Association of leprologists have recommended an alternative combination therapy of Clarithromycin, ofloxacin anil clofazimine to be prescribed in such cases.
- Minocycline can be used as an alternative to clarithromycin (i.e., minocycline, ofloxacin & clofazimine).

66. Anticancer drug(s) which does/do not suppress bone marrow ?

a) 5-FU

b) Cisplatin

c) Chlorambucil

d) Vincristine

e) Vinblastine

Correct Answer - D
Ans. D. Vincristine
[Ref: Katzung p. 951-952]
Anticancer drugs with bone marrow sparing effect:

- Vintistine
- Bleomycin
- Asparaginase

67. A patient has platelet count <1 lakh, hemoglobin 8gm, which of the following anticancer drug can be used in him ?

a) Cisplatin

b) Methotrexate

c) Vincristine

d) Vinblastin

e) Dleomycin

Correct Answer - C:D

Ans. (C) Vincristine (D) Vinblastin

- Vincristine and bleomycin are bone marrow sparing drugs - can be used in anemia and thrombocytopenia.

68. Which of the following drug(s) can cause diarrhea?

a) Zinc

b) Ampicillin

c) Magnesium hydroxide

d) Aluminium hydroxide

e) None

Correct Answer - B:C

Ans. (B) Ampicillin (C) Magnesium hydroxide

Drugs causing diarrhea:

- Broad spectrum antibiotics Digitalis Lactose
- OCP
- clindamycin
- Magnesium antacids
- Lincomycin
- Purgative
- Cocaine
- Donepezil
- Methyldopa
- Reserpine
- Colchicine Guanethidine
- Misoprostol
- Ticlopidine
- AmPicillin

69. Selective norepinephrine (noradrenergic) reuptake inhibitor(s) is/are?

a) Fluoxetine

b) Desipramine

c) Imipramine

d) Doxepin

e) Amoxapine

Correct Answer - B:E

Ans. (B) Desipramine (E) Amoxapine

Selective noradrenergic reuptake inhibitors (SNARIs)

- Antidepressants which have high selectivity for noradrenergic reuptake inhibitor over serotonin reuptake inhibition.
- This group also includes the TCAs with predominant NA reuptake inhibitory action.
- Examples are - **Desipramine, Nortriptyline, protriptyline, Amoxapine, Reboxetine, Atomoxetine, maprotiline.**

70. Management of NSAIDs toxicity include -

a) Sodium bicarbonate

b) Diazepam

c) Phenobarbitone

d) Hemodialysis

e) NH4C1

Correct Answer - A:B:C:D

Ans. (A) Sodium bicarbonate (B) Diazepam (C) Phenobarbitone (D) Hemodialysis

[Ref, Principles of emergency medical care p. 301]

- Ibuprofen is the most commonly used NSAIDs taken in overdose followed by naproxen.
- **In acute overdose, activated charcoal can be used as mechanical antidote.**
- **Vomiting should be induced by Ipecac syrup**, if the ingestion occurred within minutes of arrival.
- **For dehydration oral or intravenous fluid** should be given.
- Metabolic acidosis will often respond to fluid resuscitation/ IV sodium bicarbonate.
- Convulsions are managed with IV benzodiazepines (diazepam, lorazepam). Phenobarbitone is second choice if convulsions are not controlled by BZDs.
- Proton pump inhibitors (omeprazole etc) can be given for persistent upper GI Symptoms.
- Intubation may be required for airway protection due to coma or prolonged uncontrolled convulsion activity.
- Thiopentone is the DOC in these conditions.

71. True about first order kinetics of elimination -

a) Constant amount of drug is eliminated

b) Rate of elimination is not related to plasma concentration

c) Clearance remains constant

d) Half life decreases with decreased concentration

e) None

Correct Answer - C
Ans. C. Clearance remains constant
[Ref KDT p. 30]
First order kinetics:

- Rate of elimination is directly proportional to Plasma Concentration.

Clearance remains constant -

- Due to increasing plasma concentration, increases the rate of elimination proportionately.
- (CL = rate of elimination / Plasma Conc).

Half life remains constant -

- Due to time required to reduce plasma concentration to half is same (rate of elimination
- change proportionately with plasma concentration).

72. Antibiotic(s) that require dose reduction in renal failure?

a) Amikacin

b) Amphotericin B

c) Doxycycline

d) Rifampicin

e) Ceftriaxone

Correct Answer - A:B
Ans. (A) Amikacin (B) Amphotericin B
[Ref: Essentials of Pharmacology p 131]
Antimicrobials given after dose reduction:

- Aminoglycosides
- Ethambutol
- Quinolones (except Grepa & trovafloxacin)
- Cephalosporins (except cefoperazone & ceftriaxone)
- Vancomycin
- Amphotericin B

Antimicrobials contraindicated:

- Nitrofurantoin
- Nalidixic acid
- Cephalothin & cephaloridine
- Tetracyclines (except doxycycline)
- Methanamine

73. True about sugamadex is/are -

a) It is a SRBA

b) Used to reverse rocuronium blockade

c) Used to reverse NM blockade

d) Use to reverse Sch blockade

e) Used in malignant hyperthermia

Correct Answer - A:B:C

Ans. (A) It is a SRBA (B) Used to reverse rocuronium blockade (C) Used to reverse NM blockade

[Ref KDT e p. 355; Essentials of pharmacology p. 113]

Sugammadex:

- Neuromuscular reversal drug,
- 1st in a new class of selective relaxant binding agent (SRBA) or steroidal muscle relaxant encapsulators (SMRE).
- Modified y-cyclodextrin with high affinity for aminosteroid non-depolarizing muscle relaxants rocuronium and vecuronium.
- Used to reverse neuromuscular block produced by rocuronium and vecuronium (rocuronium > vecuronium).
- Acts by forming a complex with muscle relaxant (rocuronium or vecuronium).

74. 13 agonists are preferred over other sympathomimetic drugs for -

a) Asthma

b) Uterine relaxation

c) Nasal decongesents

d) Orthostatic hypotension

e) Glaucoma

Correct Answer - A:B

Ans. (A) Asthma (B) Uterine relaxation

- Clonidine and methyldopa are used in hypertension.
- Other uses of clonidine are (i) preanaesthetic medication, (ii) diarrhea in diabetic neuropathy, (iii) analgesic, (iv) withdrawal syndrome of opoid, alcohol and nicotine, (v) prophylaxis of migrain, (vi) postmenopausal syndrome, (vii) suppression test for pheochromocytoma, and (viii) for treatment of ADHD.

75. Long acting 13 agonist(s) which is/are used as once a day drug?

a) Salmeterol

b) Formoterol

c) Olodaterol

d) Vilanterol

e) Indacaterol

Correct Answer - C:D:E

Ans. C,Olodaterol D,Vilanterol & E,Indacaterol

Ref: Katzung 13'h/e p. j40; Rang 6 Dale 8'h/e p. 348

Long acting beta-1 agonist

- (8- 12 hrs)
- Given twice daily

.. Salmeterol

2. Formoterol

3. Arformoterol

Ultra-long acting

- (24 hrs)
- given once daily

.. Indacaterol

2. Olodaterol

3. Vilanterol

76. Drug of choice for strongyloides stercoralis?

a) Mebendazole

b) Albendazole

c) Ivermectin

d) Levamisole

e) Diethylcarbamazine

Correct Answer - C
Ans. C. Ivermectin
Ref: K.D,T, Thle p, 850i Katzung 13th/e p. 909; Satoskar Pharma 24'e p. 816; Rang and Dale |th/e p. 573

- Strongyloid - Ivermectin
- Anaerobes - Metronidazole
- Atypical Pneumonia (mycoplasma) - Erythromycin
- Cholera - Doxycycline
- Staphylococci - Penicillin
- VRSA - Linezolid
- P. Carinii (jiroveci) - Cotrimoxazole
- Pseudomonas - **Antipseudomonal beta-lactam + aminoglycos**ide
- Streptococcus - Penicillin
- Toxoplasma - Cotrimoxazole **Toxoplasma in pregnancy Spiramycin.**
- Rheumatic fever - Benzathine penicillin
- TB - INH with or without rifamPicin
- Rickettsia - TetracYclines

- Influenza A and B - Osetamivir
- Diphtheria - Penicillin / Erythromycin
- Anthrax
- Ciprofloxacin / Doxycycline + Pertussis - ErYthromYcin
- HSV - AcYclovir
- LePtosPirosis
  Milder - Oral amoxicillin
  Severe - Iv Penicillin G
- Lyme's disease - DoxycYcline
- Syphilis - Penicillin G
- Pertussis - ErYthromYcin
- Actinomycosis - Penicillin G
- Lymphogranuloma venereum - Azithromycin or Doxycycline
- Legionella - Azithromycin or levofloxacin
- Plague - StrePtomYcin
- Listeria - Ampicillin + Gentamicin
- MAC - Azithromycin / clarithromycin
- Group B - streptococcus - Ampicillin
- UTI - Cotrimoxazole
- Endocarditis - Amoxicillin / Clindamycin
- Babesiosis - Quinine + Clindamycin
- P vivax - Chloroquine
- Chloroquine resistant P vivax - Artemisinin combination therapy (ACT)

77. DOC for mycoplasma is/are ?

a) Doxycycline

b) Ceftriaxone

c) Azithromycin

d) Penicillin

e) Gentamycin

Correct Answer - A:C
Ans. A, Doxycycline & C, Azithromycin
Ref: Harrison rgh/e p. 1164
For M. pneumoniae infections:

- Azithromycin, clarithromycin, erythromycin, doxycycline, levofloxacin, moxifloxacin, gemifloxacin (not ciprofloxacin or floxacin).

For M. Hominis -

- Doxycycline, clindamycin

78. Which of the following dyad of anti-HIV drug and mechanism of action is/are correctly matched?

a) Maraviroc - Entry inhibitor

b) Reltegravir - Intergase inhibitor

c) Indinavir - Protease inhibitor

d) Nevirapine - Nonnucleoside reverse transcriptase inhibitor

e) Darunavir - Fusion inhibitor

Correct Answer - B:C:D

Ans. B,Reltegravir - Intergase inhibitor C, Indinavir - Protease inhibitor & D,Nevirapine - Nonnucleoside reverse transcriptase inhibitor

Antiretroviral drugs

a) Nucleoside reverse transcriptase inhibitors (NRTIs) -

- Zidovudine, Didanosine, Zalcitabine, Stavudine, Iamivudine, Abacadr, Emtricitabine

b) Nucleotide reverse transcriptase inhibitor + Tenofovir

c) Non Nucleoside reverse transcriptase inhibitors (NNRTIS) -

- Nevirapine, Efavirenz, Delavirdine, Etravirine, rilpivirine.

d) Protease inhibitors -

- Ritonavir Indinavir, NeIf navb, Saquinavir, amprenavir, Lopinavir, Fosamprenavir, Atazanavir, Darunavir, Tipranavir.

e) Fusion inhibitor - Enfuvirtide, Maraviroc.

f) Integrase inhibitors - Raltegravir, Elvitegravir.

g) CCR5 receptor inhibitor - Maraviroc

79. Anti-influenza drug which is/are given through inhalation route ?

a) Amantadine

b) Oseltamivir

c) Zanamivir

d) Rimantadine

e) None

Correct Answer - C

Ans. C. Zanamivir

[Ref: KDT 7'/e p. S0l 0.3; Park's 24't'/e 1t.169; Katzung 13th/e p. 862 63]

Anti-influenza drugs

- Amantadine, rimantadine, oseltamivir and zanamivir.
- Only zanamivir is given by parenteral route (intranasd or intravenous). all others are given orally.
- Zanamivir has lowest oral bioavailability lowest t1/2 (shortest acting).
- Rimantadine has maximum plasma protein binding, while oseltamivir has minimum plasma protein binding.
- Rimantadine has maximum metabolism.

80. True statement(s) about albendazole?

a) Undergoes first-pass metabolism in the liver

b) Active against both larva and adult of Nematodes

c) Absorption increases with fatty meal

d) Excreted in the urine

e) Thiabendazole is less toxic than albendazole

Correct Answer - A:B:C:D

Ans. A,Undergoes first-pass metabolism in the liver B,Active against both larva and adult of Nematodes C,Absorption increases with fatty meal & D,Excreted in the urine

[Ref: Katzung 13't'/e p.90E 09; Goodman and Gilmatr's ll't'/e p. 1079; Satoskar Phanna 24't'/e p. 818]

Albendazole:

- Broad-spectrum oral anthelmintic.
- Acts by binding to tubulin and thereby inhibiting its polymerization
- After oral administration, it is erratically absorbed (increased with a fatty meal) and then rapidly undergoes first-pass metabolism in the liver to the active metabolite albendazole sulfoxide.
- excreted in the urine.
- Has amiciilal effects in hydatid disease, cysticercosis, ascariasis, and hookworm infection and ovicidal effects in ascariasis, ancylostomiasis, and trichuriasis.

81. Which of the following is/are not 5th generation cephalosporin ?

a) Cefoxitin

b) Cefoperazone

c) Ceftolozane

d) Ceftaroline

e) Ceftabiprole

Correct Answer - A:B

Ans. A,Cefoxitin & B,Cefoperazone

[Ref: KDT 7/e p. 26; Ketung p- 779; Goodman & Gilman's p. 781; Pharma 241/e p. 693]

	First	Second	Third	Fourth	Fifth
Parenteral	Cephalothin Cefazoline Cephapirin	Cefuroxime Cefoxitin Cefotetan Cefmetazole Cefamendole Cefonicid, ceforanide	Cefotaxime Cetizoxime Ceftriaxone Ceftazidime Cefoperazone	Cefepime Cefpirome	Ceftob Ceftar Ceftol
Oral	Cephalexin Cephradine Cefadroxil Cephaloridine	Cefaclor Cefuroxime axetil Cefprozil	Cefixime Cefpodoxime proxetil Cefdinir Ceftibuten, Ceftamet		

82. Which of the following is true about aminoglycoside associated acute kidney injury?

a) Seen in around 10-20% of patients treated with the drug

b) May occur within 1 week of initiation of treatment

c) Occur only after 3 weeks of treatment

d) Interstitial nephritis occur

e) Usually develops within 72 hours of initiation of treatment

Correct Answer - A:B

Ans. A, Seen in around 10-20% of patients treated with the drug & B,May occur within 1 week of initiation of treatment

[Re/: KDf 7e/d p. 715; Katzung e p. 802]

- Non-oliguric acute kidney injury (AKI) occurs in 10-30% of patients on aminoglycoside therapy.
- AKT typically manifests after 5-7 days of therapy.

Nephrotoxicity:

- Neomycin is most nephrotoxic, while streptomycin is least nephrotoxic.
- Nephrotoxicity is increased by advanced age, liver disease, hypokalemia, septic shock, concurrent use of nephrotoxic drugs (amphotericin B, cisplatin, cyclosporine) and prolonged therapy.

83. Which of the following is true about antifungal drugs?

a) Echinocandins have very less side effects

b) Flucanazole is first line drug for invasive aspergillosis

c) Oral fluconazole has 100% bioavailability

d) Amphotericin B is fungistatic

e) Nephrotoxicity is dose limiting side effect of amphotericin B

Correct Answer - A:E

Ans. A, Echinocandins have very less side effects &
E, Nephrotoxicity is dose limiting side effect of amphotericin B
[Ref KDT zh/e p. 787-95]

- Echinocandins are well tolerated with mild GI side effects.
- Fluconazole is not 1st line drug for aspergillosis.
- Oral bioavailability of fluconazole is 94%.
- Amphotericin-B is fungicidal as well as fungistatic
- The most important dose limiting toxicity is nephronicity.
- Adverse effects include infusion related acute reactions (most common), nephrotoxicity, anemia, cNS toricity And, hypomagnesemia Infusion related acute reaction can be prevented by premedications like corticosteroids and antihistamines.
- It is manifested by azotemia, reduced GFR, RTA, hypokalemia, and hypomagnesemia.

84. Drugs affecting purine synthesis ?

a) Azathioprine

b) Methotrexate

c) Fludarabine

d) 6-Mercaptopurine

e) Capecitabine

Correct Answer - A:B:C:D

Ans, A,Azathioprine B, MethotrexateC,Fludarabine & D,6-Mercaptopurine

[Ref: KDT 7h/e p. 858; Katzung p. 928, 931; Goodman & Gilmin's I tth/e p. 1336, 1346-48; Satoskar Pharma 24a'/e p. G29.]

Antimetabolites:

- Drugs affect intermediary metabolism of proliferating cells.
- All these drugs interfere with nucleic acid synthesis → Act on.S,phase.

Purine antagonists = Mercaptopurine, Thioguanine, Azathioprine, Fludarabine And Cladribine.

- Pyrimidine antagonists = S-Fluorouracil, cytosine arabinoside (cytarabine), capecitabine, Gemcitabine.
- Folate antagonist = Methotrexate, pemetrexed.
- **Note:** Tetrahydrofolate is required for purine synthesis and its formation is inhibited by methotrexate.
- Methotrexate and pemetrexed dihydrofolate reductase (DHFRcse) inhibitors.

85. Methotrexate affects ?

a) Purine synthesis

b) Pyrimidine synthesis

c) Conversion of DHFA to THFA

d) Polymerization of mitotic tubule

e) None

Correct Answer - A:C

Ans. A, Purine synthesis & C, Conversion of DHFA to THFA

- Methotrexate and pemetrexed dihydrofolate reductase (DIlFRcse) inhibitors.
- These drugs also inhiUit ttrymiapate synthase and de novo purine synthesis, which contribute to methotrexate toxicity.

86. Long acting Insulin is/are?

a) Lispro

b) Detemir

c) Glargine

d) Isophane

e) Glulisine

Correct Answer - B:C
Ans. B, Detemir & C, Glargine
[Ref: KDT e p- 263: satashkar khanna 24e/ep '893]

- Rapid Acting Insulin = Insulin lispro, Insulin aspart, Insulin glulisine.
- Short acting = Regular (soluble) insulin, semilente insulin'
- Intermediate acting = Insulin zinc suspension (Lente), Neutral protamine hagedorn (isophane insulin)
- Long acting = Protamine zinc insulin, Insulin glargine, Insulin detemir

87. Among ACE inhibitors, which of the following is/are prodrug(s)-

a) Perindopril

b) Captopril

c) Lisinopril

d) Ramipril

e) Enalapril

Correct Answer - A:D:E
Ans. A,Perindopril D, Ramipril & E, Enalapril
[Ref KDT F/e p' 23, 501]

- All ACE inhibitors are prodrugs except captopril and Lisinopril.

88. Which of the following anti-tumor drug have high risk of gonadotoxicity?

a) Dactinomycin

b) Cyclophosphamide

c) Busulfan

d) Vinblastine

e) Ifosfamide

Correct Answer - B:C:E
Ans. B,Cyclophosphamide C,Busulfan & E,Ifosfamide
[ReF K.D-t.P. 859;]

- All alkylating agents are highly gonadotoxic.
- High Alkylating agents = Cyclophosphamide, ifosfamide, busulfan, chlorambucil, melphalan, procarbazine.
- Medium = Carboplatin, doxorubicin
- Low = Vinca alkaloids (vincristine, vinblastine), methotrexate, mercaptopurine, bleomycin, dactinomycin.

89. Adrenaline can be used in ?

a) Bronchial asthma

b) Allergic disorder

c) Cardio-pulmonary resuscitation

d) Anaphylaxis

e) As anti-analgesic medicine

Correct Answer - B:C:D

Ans. B,Allergic disorder C,Cardio-pulmonary resuscitation & D,Anaphylaxis

- Adrenaline is the drug of choice for anaphylaxis (anaphylactic shock) -> an allergic hypersensitivity reaction (Type-I hypersensitivity).
- 1st line drug used in cardiopulmonary resuscitation.

90. Drug(s) causing QT interval prolongation?

a) Amiodarone

b) Cisapride

c) Calcium gluconate

d) Magnesium therapy

e) Ketoconazole

Correct Answer - A:B

Ans. (A)Amiodarone & (B)Cisapride

[Ref: KDT Vh/e p. 528; Davison 27d/e p. 571]

Drugs that prolong Q-T interval (have potential to precipitate Torsades de pointes)

- Antiarrhythmics = Quinidine, procainamide, disopyramide, propafenone, amiodarone
- Antimicrobials = Quinine, mefloquine, artemisinin, halofantrine, sparfloxacin, gatifloxacin
- Antihistamines = Terfenadine, astemizole, ebastine
- Antidepressants = Amitriptyline and other tricyclics
- Antipsychotics = Thioridazine, risperidone
- Prokinetic = Cisapride

91. Which of the following drugs is excreted mainly by kidney?

a) Tetracycline

b) Rifampicin

c) Digoxin

d) Penicillin

e) Lithium

Correct Answer - A:C:D:E
Ans. (A)Tetracycline (C)Digoxin (D)Penicillin & (E)Lithium
[Ref: KDT p. 695; Katzung 13'h/e p, 790]

- Lithium = > 95% renal excret
- Penicillin = Excreted by the kidney, 10% by glomerular filtration and 90% by tubular secretion.
- Digoxin = Primarily excreted by kidney
- Tetracyclines = Primarily excreted in urine, except for doxycycline.
- Rifampicin = Excreted mainly in bile, some in urine ; Urine and secretions may become orange-red.

92. Which of the following is true statement(s) about codeine ?

a) Used as anti-tussive agent

b) Analgesic potency is equivalent to morphine

c) Causes respiratory depression

d) Partly metabolized to morphine

e) Completely metabolized to morphine

Correct Answer - A:C:D

Ans. (A)Used as anti-tussive agent (C)Causes respiratory depression & (D)Partly metabolized to morphine

[Ref: KDT 7/e p. 474; Katzung ljh/e p. 545-49]

Codeine:

- Codeine is a pure opioid agonist which is less potent than morphine (1/l0s analgesic action).
- It has partial agonistic activity on opioid receptors with a low ceiling effects.
- Partly converted to morphine in the body.
- It is used as antitussive (drugs for cough) and antidiarrheal drugs
- Ceusa same degree of respiratory depression as morphine.

93. All are true about tamoxifen except:

a) Used as adjuvant therapy in estrogen receptor positive breast cancer

b) No effect on uterus

c) Pro-estrogen effect on bone

d) Reduces chance of osteoporosis

e) Reduces coronary artery diseases

Correct Answer - B:E

Ans. (B) No effect on uterus (E) Reduces coronary artery diseases

[Ref: KDT 7th/ 312-15; Katzung 13th/713; Harrison 19th/2498]

Tamoxifen:

- Approval for the primary prophylaxis of breast cancer in high risk women.
- Reduces the recurrence rate of breast cancer in ipsilateral as well as contralateral breast.
- Associated with reduced risk of cancer in the contralateral breast.
- Improves the bone mass due to antiresorptive effect.
- Increases the risk of thromboembolic events.
- Hypertglyceridaemia, deep vein thrombosis, ischemic heart disease, retinopathy & other complications to be observed during tamoxifen therapy.

94. True about Hyoscine :

a) Cause mydriasis

b) Cause miosis

c) Used for motion sickness

d) Better BBB penetration than atropine

e) Central nervous system depressant

Correct Answer - A:C:D:E

Ans. (A) Cause mydriasis (C) Used for motion sickness (D) Better BBB penetration than atropine (E) Central nervous system depressant

Hyoscine (scopolamine):

- Applied to eyes they freely penetrate cornea
- Has better BBB penetration
- Shorter duration of action than atropine.
- Most effective drug for motion sickness
- CNS depressant.
- Produce sedation and amnesia during labour(twilight sleep)
- Cause definite mydriasis & loss of accommodation"
- Lie detector during world war II

95. True statement(s) about Rutin:

a) Has anti-fibrinolytic action

b) Has anti-platelet action

c) Antioxidant property

d) A citrus flavonoid glycoside found in many plants including buckwheat

e) None

Correct Answer - B:C:D

Ans. (B) Has anti-platelet action (C) Antioxidant property (D) A citrus flavonoid glycoside found in many plants including buckwheat

Rutin (Bioflavonoids):

- Richest source is buckwheat.
- Plant glycoside claimed to reduce capillary bleeding.
- Used in a dose of 60mg oral BD-TDS along with Vit. C which is believed to facilitate its action (support blood circulation, as an antioxidant, afld to treat allergies, yiruses, or arthritis and other inflammatory conditions).
- Strengthens the lining of the blood vessels throughout the body.
- Helps treat hemorrhoids, internal bleeding.
- Helps prevent hemorrhagic strokes.
- Stop the formation of a blood clot (thrombosis).
- Very effective with blood clots because it treats and prevent clots in both arteries and veins
- Most potently anti-thrombotic.
- An antioxidant.

96. Side-effect(s) of Zoledronic acid is/are all except:

a) Flu-like symptoms

b) Osteonecrosis of the jaw

c) Dizziness

d) Constipation

e) Renal toxicity

Correct Answer - D
Ans. D. Constipation
Zoledronate:

- Flu-like symptoms due to cytokine release attend the i.v infusion
- Nausea, vomiting, bodyache, dizziness are common
- Renal toxicity has been encountered
- Osteonecrosis of Jaw is a rare complication of i.v high dose

97. Anti-microbial agents acting on nucleic acid are all except:

a) Acyclovir

b) Linezolid

c) Fluroquinolones

d) Streptomycin

e) Rifampin

Correct Answer - B:D
Ans. (B) Linezolid (D) Streptomycin
[Ref:KDT 7th/ 689-90]
1. Inhibit cell wall synthesis: Penicillins, Cephalosporins, Cycloserine, Vancomycin, Bacitracin.
2. Cause leakage from cell membranes: Polypeptides-Polymyxins, Colistin, Bacitracin. Polyenes-Amphotericin B, Nystatin, Hamycin
3. Inhibit protein synthesis: Tetracyclines, Chloramphenicol, Erythromycin, Clindamycin, linemlid,
4. Cause misreading of m-kNA code and affect permeability: Aminoglycosides-Streptomycin, Gentamicin, etc.
5. Inhibit DNA gyrase: Fluoroquinolones - Ciprofloxacin and others
6. Interfere with DNA function: Rifampin
7. Interfere with DNA synthesis: Acyclovir, Zidovudine
8. Interfere with intermediary metabolism; Sulfonamides, Sulfones, PAS, Trimethoprim, Pyrimethamine, Metronidazole

98. CNS stimulants are:

a) Cocaine

b) Amphetamine

c) Cannabis

d) Dexamphetamine

e) MDMA (ecstasy)

Correct Answer - A:B:D:E

Ans. (A) Cocaine (B) Amphetamine (D) Dexamphetamine (E) MDMA (ecstasy)

[Ref,KDT 7th/ 486,452.]

- Psychotogenic (Hallucinogens) drugs are Cannabis, LSD, mescaline, endocannabinoid.

CNS Stimulant:

1. Convulsants: Strychnine, picrotoxin, bicuculline, penty lenetetrazol
2. Analeptics: Doxapram
3. Psychostimulants: Amphetamine, Methylphenidate, atomoxetine, modafinil, armodafinil, pemoline, cocaine & caffeine.

99. Drug contraindicated in pregnancy:

a) Sulfonamide

b) ACE inhibitors

c) Phenytoin

d) Ciprofloxacin

e) Furosemide

Correct Answer - B:C

Ans. (B) ACE inhibitors (C) Phenytoin

[Katzung 10th/975]

- ACE inhibitors - In All trimester, especially second and third - Renal damage.
- Phenytoin - In All trimester - Fetal hYdantoin sYndrome
- Thalidomide - First trimester = Phocomelia (shortened or absent long bones of the limbs) and many Internal malformations

100. In which of the following liver flukes, triclabendazole is/are used:

a) Clonorchis sinensis

b) Opisthorchis viverrini

c) Fasciola hepatica

d) Fasciola gigantica

e) Opisthorchis felineus

Correct Answer - C:D

Ans. (C) Fasciola hepatica (D) Fasciola gigantica

[Ref: Harriison 19th/1428; I(DT 7th/851]

- Triclabendazole is highly effective against adults of the common liver fluke (Fasciola hepatica) as well as all immature stages.
- Also effective against Fasciola gigantica and Fascioloides magna.
- No efficacy against roundworms or tapeworms.

101. Mechanism of action of gabapentin is/are:

a) Enhances GABA release

b) Agonist at GABAA receptor

c) Act on NMDA receptor

d) Prolongation of Na+ Channel Inactivation

e) Inhibition of voltage-gated Ca2+ channels

Correct Answer - A:E

Ans,. (A) Enhances GABA release (E) Inhibition of voltage-gated Ca2+ channels

[Ref: K. D. T 7th/419-21; Katzung 12th/41j; Harrison 19th/2548, 2551- 56]

Gabapentin:

MOA:

- Modify the synaptic or non synaptic release of GABA.
- An increase in brain GABA concentration is observed in patients receiving gabapentin.
- Gabapentin is transported into the brain by the L-amino acid transporter.
- Gabapentin binds avidly to voltage-gated Ca2+ channels.
- Gabapentin also act presynaptically to decrease the release of glutamate; this effect is probably dependent on reduced Presynaptic entry of Ca2+ via voltage-activated channels.

102. Which of the following is/are features of Triamcilone with respect to hydrocortisone:

a) Florinated at carbon atom 9

b) Not used in oral form

c) Mineralocorticoid activity present

d) More potent than hydrocortisone

e) Glucocorticoid activity is 5 times of hydrocortisone

Correct Answer - D:E

Ans. (D) More potent than hydrocortisone (E) Glucocorticoid activity is 5 times of hydrocortisone

[Ref K. D. T 7th/289; Katzung 12th/700,703,712]

Triamcinolone:

- Slightly more Potent than prednisolone but highly selective glucocorticoid; 4-i2 mg/day oral; 5-40 mg i. m, intra articular injection.
- Also used topically

103. Which of the following is/are true regarding muscarianic action except:

a) Miosis

b) Detrusor muscle contraction

c) Dicylomine is antimuscuarnic drug used for smooth muscle relaxation

d) Cardiac muscuranic receptors are predominantly M 3 type

e) salivary gland secretion

Correct Answer - B:D

Ans. (B) Detrusor muscle contraction (D) Cardiac muscuranic receptors are predominantly M 3 type

[Ref KDT 7th/100-103, 117; Katzung 12th/97-102]

- Cardiac muscarinic receptors are predominantly M 2 type & mediate vagal bradycardia.

Dicyclomine:

- Antagonist of M1 & M3 (smooth muscle)-

Muscarinic Actions

Heart:

- At the A-V node & His-purkinje fibers refractory period (W) is increased & conduction is slowed; PRinteryal inteases 6 partial to complete A-V block may be produced.

Eye:

- Contraction of circular muscle of iris → miosis
- Contraction of the ciliary muscle → spasm of accommodation, increased outflow facility, reduction in intraocular tension (especially in glaucomatous patients

Smooth Muscle:

- Peristalsis in ureter is increased.
- Detrusor muscle contracts while the bladder trigone & sphincter relaxes → voiding of bladder.

Glands:

- Secretion from all parasympathetically innervated glands is increased via M3 & some M2 receptors: sweating, salivation, lacrimation, increased tracheobronchial & gastric secretion.

104. Disease modifying drug (s) used in treatment of rheumatoid arthritis:

a) Neproxen

b) Nabumetone

c) Abatacept

d) Monoclonal antibodies

e) Methotrexate

Correct Answer - C:D:E

Ans. (C) Abatacept (D) Monoclonal antibodies (E) Methotrexate

[Ref K. D. T 7tW211-12, 871-72; Katzung t2th/642; Goodman & Gilman\ 11th/1942]

Disease modifying Antl-rheumatoid drugs (DMARDs)

Non Biological Drugs

- Immunosuppressants: Methotrexate, Azathioprine,
- Cyclosporine
- Sulfasalazine
- Chloroquine or Hydroxychloroquine
- Leflunomide
- Biological agents
- TNF-a inhibitors: Etanercept, Wiximab, Adalimumab
- IL-1 antagonists: Anakinra

105. Which of the following is/are teratogens:

a) Artemisinin

b) Aminoglycoside

c) Carbamezapine

d) Retinoic acid

e) Phenytoin

Correct Answer - B:C:D:E

Ans. (B) Aminoglycoside (C) Carbamezapine (D) Retinoic acid (E) Phenytoin

[Ref K. D. T Ttlr/&g, 8j1; Katzung 10th/975; Katzung 12th/1042-43; G & G 11th/; Drugin Pregnancy & Lactation by G. Briggs 6th/339]

Teratogens:

- **Quinine:** Continues to be the drug of choice for severe falciparum during 1st trimester of pregnancy, because safety of artemisinins is not yet Proven.
- **Artesunate:** Use is limited in second 6 third trimesters of pregnancy only when other drugs are found resistant.
- **Aminoglycosides:** Avoid during pregnancy: Risk of foetal ototoxicity.
- **ACE inhibitors:** 2. 7 fold higher malformation rate in fetus exposed for ACE inhibitors in the first trimester..

106. Desmopressin is/are used in:

a) Diabetes insipidus

b) Esophageal varices

c) Haemophilia A

d) Von Willebrand disease

e) Hemophila B

Correct Answer - A:C:D

Ans. (A) Diabetes insipidus (C) Haemophilia A (D) Von Willebrand disease

[Ref. K. D. T 7th/596-97, 616; Katzung 12th/616, 674, 677; G & G 1fir/784-86]

Desmopressin:

- Selective V2 agonist.

Uses:

- Diabetes insipidus, bedwetting in children & nocturia in adults, renal concentration test, Haemophilia & Von Willebrand disease.

107. Levetiracetam is commonly used for:

a) Juvenile myoclonic epilepsy

b) Absence seizure

c) Generalised Tonic clonic seizure

d) Complex partial seizure

e) Act through GABA

Correct Answer - A:C:D:E

Ans. (A) Juvenile myoclonic epilepsy (C) Generalised Tonic clonic seizure (D) Complex partial seizure (E) Act through GABA

[Ref K D- T 7thl 420-421]

Levetiracetam:

- Treatment of Generalized tonic-chronic seizure & simple partial seizures.
- Treatment of Complex partial seizures.
- Myoclonic & atonic seizures - unresponsive case
- Adjuvant treatment of partial seizures in adults & children for primary generalized tonic- clonic seizure & for the myoclonic seizures of juvenile myoclonic epilepsy
- Approved as adjuvant therapy for focal onset seizure.
- Approved as adjuvant therapy for primary generalized tonic- clonic

108. Penicillinase resistant penicillin is/are:

a) Methicillin

b) Cloxacillin

c) Ampicillin

d) Dicloxacillin

e) Vancomycin

Correct Answer - A:B:D
Ans. (A) Methicillin (B) Cloxacillin (D) Dicloxacillin
[Ref, K. D. T 7th/721]
Penicillinase- Resistant Penicillins:

- Methicillin, cloxacillin, Dicloxacillin
- These congeners have side chains that protect the beta-lactam ring from attack by staphylococcal penicillinase.
- Their only indication is infections caused by penicillinase producing staphylococci, for which they are drug of choice, accept in areas where methicillin resistant staph. Aureus (MRSA) has become prevalent

109. Which of the following condition increase chance of hyponatremia in patient treated with antidepressant:

a) Old age

b) Low weight

c) Cold climate

d) Obesity

e) Female sex

Correct Answer - A

Ans. (A) Old age

[Ref. Niraj Ahuja 7th/188.]

- Cases of SSRI-associated hyponatremia & the syndrome of inappropriate antidiuretic hormone have been seen in some patients, especially those who are older or treated with diuretics.

110. True about Jarisch - Hexheimer reaction:

a) Occur within hours after giving penicillin

b) Develop only after 1 week of Penicillin therapy

c) Aggravation of signs and symptoms of syphilis

d) It occur due to allergy to penicillin

e) Most common in secondary syphilis

Correct Answer - A:C:E

Ans. (A) Occur within hours after giving penicillin
(C) Aggravation of signs and symptoms of syphilis (E) Most common in secondary syphilis

[Ref: K.D.f 7th/720; CMDT 201s/1460; Harison 19th/1140; Neena Khanna 4th/206; G 6 G 11th/1181; Ananthanarayan 9th/377, 384]

Jarisch-Herxheimer Reaction:

- Penicillin injected in a syphilitic patient (particularly secondary syphilis) may produce shivering fever, myalgia, exacerbation of lesions, even vascular collapse
- May occur after institution of chloramphenicol therapy for syphilis, brucellosis & typhoid fever.
- This is due to sudden release of spirochetal lytic products & lasts for 12-72 hours
- It does not recur & does not need interruption of therapy
- Aspirin & sedation afford relief of symptoms

111. In comparison to haloperidol, clozapine causes:

a) Weight gain

b) Agranulocytosis

c) Sedation

d) Severe extrapyramidal symptoms

e) Less eliptogenic potential

Correct Answer - A:B:C
Ans. (A) Weight gain (B) Agranulocytosis (C) Sedation
[Ref K. D. T 7th/'M1; Katzung 12th/509]
Haloperidol:

- Produces fewer autonomic effects, is less epileptogenic, does not cause weight gain, jaundice is rare
- Severe extraPyramidal syndrome.
- Preferred drug for acute schizophrenia

Clozapine:

- Produces few or no extrapyramidal symptoms; tardive dyskinesia is rare & prolactin level does not rise.
- Quite sedative sedation.
- Higher incidence of agranulocytosis.
- Metabolic complications like weight gain, hyperlipidemia & precipitation of diabetes is another major limitation.
- High doses can induce seizures even in non-epileptics.

112. For which of the following drug bacteria acquire drug resistance by inactivation or degradation by enzyme:

a) Quninolones

b) Aminoglycosides

c) Vancomycin

d) Ampicillin

e) Chloramphenicol

Correct Answer - A:E

Ans. (A) Quninolones (E) Chloramphenicol

[Ref: K D. T 7th/692-93; Ihtzung 12th/792, 816]

Drug destroying:

- The resistant microbes elaborate an enzyme which inactivates the drug
- Many of aminoglycosides-resistant coliforms have been found to produce enzymes which adenylate acetate phosphorylate specific aminoglycosides antibiotics.
- Chloramphenicol acetyl transferase is acquired by resistant E. coli, H. influenzae & S. tyPhi.

113. A person was on chemotherapy for 2 week for some mediastinal tumour. Now he develops high frequency hearing loss. Most probable cause of this condition is use of:

a) Cisplatin

b) Etoposite

c) Doxorubicin

d) Methotrexate

e) None

Correct Answer - A

Ans. (A) Cisplatin

Ototoxic drugs:

- Cytotoxic drugs causing hearing loss are- nitrogen mustard (mechlorethamine), cisplatin & carboplatin.

Cisplatin:

- Tinnitus, deafness,sensory neuropathy & hyperuricemia are other problem

Carboplatin:

- Nephrotoxicity, ototoxicity & neurotoxicity are low as compared to cisplatin

114. Which of the followings are feature of benzodiazepine withdrawal except:

a) Anxiety

b) Increased appetite

c) Hypersomnia

d) Bad dreams

e) Tremor

Correct Answer - B:C

Ans. (B) Increased appetite (C) Hypersomnia

[Ref K. D. T 7th/406; Niraj Ahuja 7th/ 51]

Benzodiazepine withdrawal:

- Withdrawal symptoms are generally mild; may be more intense in case of ultra rapid elimination drugs
- Anxiety, insomnia, restlessness, malaise, loss of appetite, bad dreams is all that occurs in most cases
- Agitation, Panic reaction, tremors & delirium are occasional; convulsions are rare
- Characterized by marked anxiety, irritability, tremors, insomnia, vomiting weakness, automatic hyperactivity with postural hypotension (t seizures
- Depression, transient psychotic episode, suicidal ideation, perceptual disturbances & rarely delirium have also been reported in withdrawal period

115. Which of the following drug is mainly excreted by kidney:

a) Tetracyclines

b) Doxycyclines

c) Ampicillin

d) Acyclovir

e) Rifampicin

Correct Answer - A:C:D

Ans. (A) Tetracyclines (C) Ampicillin (D) Acyclovir

[Ref: K. D. T 7th/735,721; Katzung 12th/794]

- **Ampicillin:** Partly executed in bile & reabsorbed- enterohepatic circulation occurs; primary channel of excretion is kidney.
- **Acyclovir:** Primarily excreted unchanged in urine, both by glomerular filtration dt tubular secretion..
- **Tetracyclines:** Primarily excreted in urine by glomerular rtltration; dose has to be reduced in renal failure; doxycycline is an exception.
- **Rifampicin:** Metabolized in liver to an actively acetylated. metabolite which is excreted mainly in bile, some in urine.

116. S/E of clofaziamine includes:

a) Icthyosis

b) Thrombocytosis

c) Skin pigmentation

d) Gastrointestinal disturbances

e) Weight gain

Correct Answer - A:C:D

Ans. (A) Icthyosis (C) Skin pigmentation (D) Gastrointestinal disturbances

Clofazimine: Side effects:

- Ichthyosis
- Pigmentation - Reddish-black discoloration of skin, especially on exposed parts.
- Discoloration of hair & body secretions may also occur.
- Conjunctival pigmentation may create cosmetic problem.
- Gastrointestinal side effects.

117. Fomepizole can be used in:

a) Methanol poisoning

b) Organophosphorus poisoning

c) Ethylene glycol poisoning

d) Barbiturate poisoning

e) None

Correct Answer - A:C

Ans. (A) Methanol poisoning (C) Ethylene glycol poisoning

[Ref: KDT 7th/395-96; Katzung 12th/398,400, 1033]

Fomepizole:

- Competitive inhibitor of the enzyme alcohol dehydrogenase, found in the liver.
- This enzyme plays a key role in the metabolism of ethylene glycol and methanol.
- Fomepizole is most effective when given soon after ingestion of ethylene glycol or methanol.
- Delaying the administration of fomepizole allows for the generation of harmful metabolites

118. Not indicated for anaerobic colitis treatment:

a) Metronidazole

b) Aminoglycoside

c) Amikacin

d) Piperacillin-tazobactam

e) Imipenem

Correct Answer - B

Ans. (B) Aminoglycoside

[Ref: KDT 7th/838; Hanison 19th/1101, 18th/1338-39;Katzung 12th/904-05]

Treatment of anaerobic intra-abdominal infections:

Oral:

- Moxifloxacin 400 mg every 24 hour

IV:

- **Moderate to moderately severe infections**
- Ertapenem 1 g every 24 hours
- Ceftriaxone 1 g every 24 hours (or ciprofloxacin 400 mg every 12 hours, if penicillin allergic) plus metronidazole 500 mg every 8 hours or
- Tigecycline 100 mg once followed by 50 mg every 12 hours or
- Moxifloxacin 400 mg every 24 hours

Severe infections:

- imipenem,0.5 g every 6-8 hours; meropenem 1g every 8 hours; doripenem 0.5 g every 1 hour; piperacillin/tazobactam 4.5gevery8hours

119. Which of the following drug interact with Warfarin:

a) ACE inhibitor

b) Azithromycin

c) Fluconazole

d) Aspirin

e) Benzodiazepine

Correct Answer - C:D

Ans. (C) Fluconazole (D) Aspirin

[Ref KDT 7th/62i,503; Katzung 12th/610]

Drug Causing Enhanced Anticoagulant Action of Warfarin:

- Aspirin: inhibit platelet aggregation eb cause G.I bleeding
- Never cephalosporins (ceftriaxone, cefoperazone): Cause hypoprothrombinemia
- Broad Spectrum antibiotics: Inhibit gut flora 6 reduce vit. Kproduction
- Long acting sulfonamide, indomethacin, phenytoin & probenecid: Displace warfarin from plasma protein binding.
- Chloramphenicol, erythromycin, celecoxib, cimetidine, allopurinol, amiodarone & metronidazole: Inhibit warfarin metabolism
- Tolbutamide & phenytoin: Inhibit warfarin metabolism & vice versa .
- Liquid paraffin (habitual use): Reduce vit. K absorption

Drug Causing Reduced Anticoagulant Action of Warfarin:

- Barbiturates (but not benzodiazepines), carbamazepine, rifampin, & griseofulvin: Induce the metabolism of oral Anticoagulant.
- Oral contraceptive Increase blood levels of clotting factors

120. All of the following is true about hydroxyurea except:

a) Cause myelosuppression

b) Oral bioavailability is very less

c) Used in CML

d) Act as radiosensitizer

e) Used in sickle cell anaemia

Correct Answer - B

Ans. B. Oral bioavailability is very less

[Ref: KDT 7th/868; Kntzung 12th/582]

Hydroxyurea:

- Hydroxyurea is an analog of urea whose mechanism of action involves the inhibition of DNA synthesis by inhibiting the enzyme ribonucleotide reductase, resulting in depletion of deoxynucleoside triphosphate pools.
- This agent exerts its effects in the S phase of the cell cycle.
- Nearly 100% oral bioavailability.
- Mainly used in chronic myelogenous leukemia, blast crisis of acute myeloid leukemia, psoriasis & sickle cell anaemia.
- Myelosuppression is the ilose-limiting toxicity.

121. Which of the following is/are true regarding plasma concentration time curve of a drug:

a) Peak concentration determine bioavailability

b) Intramuscular administration have curve different from oral administration

c) Area under curve determine therapeutic response

d) Bioavailability of an orally administered drug can be calculated by comparing the area under curve after oral & after i.v. administration

e) Changes in the rate of absorption and extent of bioavailability can influence both the duration of action and the effectiveness of the same total dose of a drug administered in different formulations

Correct Answer - B:D:E

Ans. (B) Intramuscular administration have curve different from oral administration (D) Bioavailability of an orally administered drug can be calculated by comparing the area under curve after oral & after i.v. administration (E) Changes in the rate of absorption and extent of bioavailability can influence both the duration of action and the effectiveness of the same total dose of a drug administered in different formulations

(Ref: KDT 7th/ 16-17; Katzung 12th/43-44)

- The area under the blood concentration-time curve (area under the curve, or AUC) can be used to calculate the clearance for first-order elimination.

- used as a measure of bioavailability.
- Bioavailability variation assumes practical significance for drugs with low safety margin (iligoxin) or where dosage needs precise control (oral hypoglycemics, oral hypo coagulants).

122. All are true about hydrochlorothiazide except:

a) Cause hyperglycemia

b) Inhibit Na-Cl symport

c) Increases calcium excretion in urine

d) Cause hyperuricaemia

e) Used in treatment of renal stone

Correct Answer - C

Ans. C. Increases calcium excretion in urine

[Ref KDT 7th/5%-86; Katzung 12th/260-61,270]

Hydrochlorothiazide:

- Inhibits Na+-Cl-symport predominantly in the DCT.
- Enhance Ca2+ reabsorption & decrease urine calcium excretion (causes hypercalcemia).
- Thiazide cause carbohydrate intolerance & cause preciPitation of diabetes

Toxicity:

- Hypokalemic metabolic alkalosis and hyperuricemia
- Impaired Carbohydrate Tolerance.

123. A Patient presented in emergency room with severe malaria. He was given artusunate at 0 hr, 12 hr, 24 hr & then once a day till 3 day. Which of the following statement (s) is/are correct regarding further management of the patient

a) Patient may later switched to oral drug if patient able to tolerate

b) Dextrose drip should be started

c) Artesunate should never be given singly

d) Steriod is beneficial

e) None

Correct Answer - A:B:C

Ans. (A)Patient may later switched to oral drug if patient able to tolerate (B) Dextrose drip should be started (C) Artesunate should never be given singly

[Ref: KDT 7th/819-21;Park 23rd/262-67;Harrison 19th/1379-81, 18th/1698-1705]

- Artemisinin derivatives must never be given as monotherapy for uncomplicated malaria.
- The rapidly acting drugs, if used alone, can lead to the development of parasite resistance
- When the patient is unconscious, the blood glucose level should be measured every 4-6 hrs.

- All patients should receive a continuous inFusion of dextrose, and blood concentrations ideally should be maintained above 4 mmol/L.

124. ATT drug with significant renal excretion is/are:

a) INH

b) Rifampicin

c) Pyrazinamide

d) Amikacin

e) Streptomycin

Correct Answer - A:C:D:E

Ans. (A) INH (C) Pyrazinamide (D) Amikacin (E) Streptomycin

[Ref KDT 7th/767; Katzung 12th/841]

Rifampin:

- It is metabolized in the liver to an active deacetylated metabolite which is excreted mainly in bile, some in urine.
- Urine & secretions may become orange-red

INH:

- It is extensively metabolized in liver; most important pathway being N-acetylation by NAT2.
- The acetylated metabolite is excreted in urine

Pyrazinamide:

- Extensively metabolized in liver & excreted in urine.
- Pyrazinamide metabolites are renally cleared.
- Aminoglycosides (streptomycin & amikacin) are not metabolized.

125. Valid drug combinations are:

a) Sulfamethoxazole +trimethoprim

b) Penicillin + Tetracycline/chloramphenicol: Pneumococci

c) Piperacillin-Tazobactam

d) Enalapril-Hydrochlorothiazide

e) Ibuprofen & serratiopeptidase

Correct Answer - A:C:D:E

Ans. (A) Sulfamethoxazole +trimethoprim (C) Piperacillin-Tazobactam (D) Enalapril-Hydrochlorothiazide (E) Ibuprofen & serratiopeptidase

[Ref KDT 7 th/ 69 8 - 99, 7 2 5, 6 1 -6 2; Katzung 1 2th/ 80 1]

- Tazobactam pharmacokinetics matches with piperacillin with which it has been combined for use in severe infections Like peritonitis, pelvic/urinary/respiratory infections caused by beta-lactamase producing bacilli.
- ACE inhibitors/ARBs are particularly synergistic with diuretics; this combination is very good for patients with associated CHF or LVH.
- Serratiopeptidase is a proteolytic enzyme (protease) produced by enterobacter Serratia sp.Brand name Nildol- SP (400+15) is combination of Serratiopeptidase & Ibuprofen (Royal Sapphire Remedies Tablet.

126. Which of the following statement about proton pump inhibitors is/are true except:

a) Hit & run drug

b) Acidic medium is essential for activity

c) Act on H+/K+ ATPase

d) Forms an integral component of anti-H.pylori regimens

e) Act best in alkaline medium

Correct Answer - E

Ans. E. Act best in alkaline medium

[Ref KDT 7thBa,651-52; Katzung 12th/1085-89]

Hit & run drugs:

- Effects last much longer than the drug itself), e.g., reserpine, guanethidine, MAO inhibitors, omeprazole.
- One of the PPIs is an integral component of all anti-H.pylori regimens along with 2 (triple drug) or 3 (quadruple drug) antimicrobial.
- Since an acidic pH in the parietal cell acid canaliculi is required for drug activation & since food stimulate acid production, these drugs ideally should be given about 30 minutes before meals.
- Proton pump inhibitors are administered as inactive prodrugs.

127. Common action (s) of epinephrine & norepinephrine includes:

a) Skin vasodilation

b) Bronchial muscle contraction

c) Increase systolic BP

d) Increase HR

e) Renal vasoconstriction

Correct Answer - C:E

Ans. (C) Increase systolic BP (E) Renal vasoconstriction

[Ref KDT 7th/124-133; Gooilman & Gillman llth/2z4-248; Ganong 25th/353-56]

- Epinephrine cause bronchial muscle relaxation (through beat-2 receptor) whereas norepinephrine has no aetion (no action on beat-2.
- Both epinephrine & norepinEphrine increases renal vascular resistance & thus reduce renal blood flow.

128. Antibiotic which acts through cell wall inhibition:

a) Penicillin

b) Daptomycin

c) Aminoglycoside

d) Cephalosporin

e) Imipenam

Correct Answer - A:D
Ans. (A) Penicillin (D) Cephalosporin
[Ref KDT 7th/689-90; Katzung p803]
Mechanism of Action of Drugs:

- Inhibit cell wall synthesis: Penicillins, Cephalosporins, Cycloserine, Vancomycin, Bacitracin.
- Cause leakage from cell membranes: Polypeptides- Polymyxins, Colistin, Bacitracin. Polyenes-Amphotericin B, Nystatin, Hamycin.
- Inhibit protein synthesis: Tetracyclines, Chloramphenicol, Erythromycin, Clinda-mycin, Linezolid.
- Cause misreading of m-RNAcodeandaffect permeability: Aminoglycosides-Streptomycin, Gentamicin, etc.
- Inhibit DNA gyrase: Fluoroquinolones -Ciprofloxacin and others.
- Interfere with DNA function: Rifampin.
- Interfere with DNA synthesis: Acyclovir, Zidovudine.
- Interfere with intermediary metabolism: Sulfonamides, Sulfones, PAS, Trimethoprim, Pyrimethamine, Metronida- zole.

129. True about amphotericin B:

a) Liposomal preparation is available

b) Orally absorbed

c) Used only in intravenous form

d) Protein synthesis inhibitor

e) None

Correct Answer - A

Ans. A. Liposomal preparation is available

[Ref: KDT 7th/787-89; Katzung 12th/934,849-52, 1066]

- AMB is not absorbed orally, it can be given orally for intestinal candidiasis without systemic toxicity.
- Administered i,v, as suspension made from deoxycholate (DOC), it gets widely distributed in the body.
- It can be also administered topically for vaginitis, otomycosis

Liposomal AMB:

- It has been produced to improve tolerability ofi.v. infusion, reduce its toxicity & achieve targeted delivery.
- It delivers AMB particularly to reticuloendothelial cells in liver & spleen-especially valuable for kala azar & in Immunocompromised.

130. Peripheral neuropathy is/are caused by:

a) Vincristine

b) Sulfonamide

c) Amiodarone

d) Paclitaxel

e) None

Correct Answer - A:C:D
Ans. (A) Vincristine (C) Amiodarone (D) Paclitaxel
[Ref: Harrison 19th/2686-88, 18th/3463-66; KDT 7th/706]

- Sulfonamide not mentioned in list of drugs causing neuropathies

131. Which of following is/are true about metformin:

a) Cause lactic acid

b) PPAR y agonist

c) Contraindicated in Renal failure

d) Cause hypoglycemia

e) GI disturbances are common side effect

Correct Answer - A:C:E

Ans. (A) Cause lactic acid (C) Contraindicated in Renal failure (E) GI disturbances are common side effect

[Ref. KDT 7th/275-76; Katzung 12th/757]

Metformin:

- PPAR y agonist (peroxisome proliferator-activated receptor l)
- Cause little or no hypoglycemia
- Reported to improve lipid profiles in type II Dm (decreased LDL).
- Contraindicated in renal disease, alcoholism, hepatic disease, or conditions predisposing to tissue anoxia (e.g., chronic cardiopulmonary dysfunction), because of an increased risk of lactic acidosis, induced by biguanide drugs in the presence of these diseases.

132. Which of following statement is true about canagliflozin:

a) SGLT-2 inhibitor

b) Blocks Na/glucose symport.

c) Causes glycosuria & polyuria

d) Increases chance of vaginal infections

e) None

Correct Answer - A:C:D
Ans. (A) SGLT-2 inhibitor (C) Causes glycosuria & polyuria (D) Increases chance of vaginal infections
[Ref KDT 7th/270: http: / /tvww.diabetesincontrol.eom]
Canagliflozin:

- Antidiabetic drug used to improve glycemic control in patients with type 2 diabetes.
- SGLT-2 inhibitor.
  ? Sodium-glucose co-transPorter-2 (SGLT-2) inhibitors are a new group of oral medications used for treating type 2 diabetes
- Produces beneficial effects on HDL cholesterol and systolic blood pressure, but these effects are offset by increased LDL cholesterol.
- Vaginal yeast infections and urinary tract infections are the most common side effects
- Canagliflozin is less effective in patients with moderate renal failure end probably ineffective in severe renal failure and type 1 diabetics

133. Which of the following pair of G receptor is correctly matched with its action:

a) Gi- Activation of calcium channel

b) Gq- T cytoplasmic calcium

c) Gs- Opening of calcium channel

d) Go- Opening of potassium channel

e) Gt- Activation of potassium channel

Correct Answer - B:C:D

Ans. B,Gq- T cytoplasmic calciumC,Gs- Opening of calcium channel & D, Go- Opening of potassium channel

[Ref KDT 7th/a5-49; Katzung 31]

- Gs open Ca2+ channels in myocardium 6 skeletal muscle, while Gi & Go open K+ channel in heart & smooth muscle as weII as inhibit neuronal Ca2+ channel

G Receptor:

- Gs: Adenylyl cyclase activation, Ca2+ channel opening
- Gi: Adenylyl cyclase inhibition, K+ channel opening
- Go: Ca2+ channel inhibition.
- Gq: Phospholipase C activation

134. Which of the following CLASP human experiment:

a) Main center for the experiment was Geneva

b) Main center for the experiment was Tokoyo

c) Main center for the experiment was in United kingdom

d) Heparin low dose given

e) Drug used in experiment significantly reduces eclampsia in subjects

Correct Answer - C

Ans. C. Main center for the experiment was in United kingdom

[Ref ; http: /www.researchgate.net; httP://www.ncbi.nlm,nih.gov/pubmed/7905809]

CLASP human experiment:

- Correspondence to: CLASP Co-ordinating Centre, Harkness Building, Radcliffe Infirmary, Oxford OX2 6HE, UK- http: // www,researchgate.net

CLASP

- The impact of aspirin on proteinuric preeclampsia and its fetal sequelae in CLASP was certainly smaller than in some previous reviews.
- The results of available trials do not support the widespread routine prophylactic or therapeutic use of antiplatelet therapy in pregnancy among all women judged to be at risk of pre-eclampsia or IUGR.
- Overall, the use of aspirin was associated with a reduction of only 12% in the incidence of proteinuria pre-eclampsia, which was not significant.

- Nor was there any significant effect on the incidence of IUGR or of stillbirth and neonatal death.

135. Mineralocorticoid receptors antagonist(s) is/are:

a) Spironolactone

b) Triamterene

c) Epleroenone

d) Amiloride

e) Acetazolamide

Correct Answer - A:C

Ans. (A)Spironolactone & (C) Epleroenone

[Ref KDT.Tth/578; Katzung 12th/261 -62]

Potassium Sparing Diuretics

- Aldosterone antagonists: Spironolactone, eplerenone
- Inhibitors of renal epithelial Na+ channel: Triamterene, Amiloride

MOA:

- Act by direct pharmacologic antagonism of mineralocorticoid receptors (spironolactone, eplerenone) or by inhibition of Nat influx through ion channels in the luminal membrane (amiloride, triamterene).

136. TNF-a inhibitors are:

a) Bevacizumab

b) Ranibizumab

c) Adalimumab

d) Infliximab

e) Etanercept

Correct Answer - A:B:D

Ans. (A) Bevacizumab (B) Ranibizumab (D) Infliximab

- TNF alpha- inhibitor: Etanercept, infliximab, certolizumah, golimumab, & Adalimumab.

MOA:

- Binds TNF-alpha, a proinflammatory cytokine.
- Blocking TNF-alpha from binding to TNF receptors on inflammatory cell surfaces results in suppression of downstream inflammatory cytokines such as IL-1 & IL-6 and adhesion molecules involved in leukocyte activation and migration.
- An increased risk of lymphoma is common to each of these agents.

137. Unwanted interactions of MAO inhibitors occur with:

a) Levodopa

b) Hydrochlorothiazide

c) Reserpine

d) Pethidine

e) None

Correct Answer - A:C:D
Ans.A,Levodopa C, Reserpine & D, Pethidine
Non Selective MAO Inhibitors: Interactions:
Cheese reaction -

- Varieties of cheese, beer, wine, pickled meat & fish, yeast extract contain large quantities of tyramine, dopa etc.
- In MAO inhibited patients cause hypertensive crisis & cerebrovascular accidents.
- **Cold & cough remedies -** Ephedrine.
- Reserpine, guanethidine, tricyclic antidepressants

Levodopa:

- Excitement & hypertension.

Antiparkinsonian anticholinergics:

- Hallucinations & symptoms similar to those of atropine poisoning

Barbiturates, alcohol, opioids, antihistamines:

- Actions of these drug is intensified & prolonged. Respiration may fail..

Pethidine:

- High fever, sweating, excitation, delirium, convulsions & severe

respiratory depression.

Note:

- Hydrochlorothiazide drug interactions not include MAO- Inhibitors

138. True about doxorubicin:

a) Antineoplastic drug

b) Alkylating agent

c) Topoisomerase III inhibitor

d) Anthracycline antibiotic

e) Cardiotoxic

Correct Answer - A:D:E

Ans. (A) Antineoplastic drug (D) Anthracycline antibiotic (E) Cardiotoxic

[Ref KDT 7th/867; Katzung 13th/934-35]

Doxorubicin:

- Anthracycline antibiotic having antitumor activity
- It intercalate b/w DNA strands & block DNA as well as RNA synthesis.
- They are also capable of causing breaks in DNA strands by activating topoisomerase-2 & generating quinine type free radicals.
- Cardiotoxic adverse effect.

139. Which of the following is/are true about Sulfonylurea except:

a) Increase insulin secretion

b) Cause hypoglycemia

c) Cause weight loss

d) Disulfiram-like reaction after alcohol intake

e) Safe in pregnancy

Correct Answer - C:E

Ans. C, Cause weight loss & E, Safe in pregnancy

[Ref KDT 7th/270-73; Katzung 12th/754-5]

Sulfonylureas:

- Provoke a brisk release of insulin from pancreas.
- Hypoglycemia is the most common problem.
- Majority of diabetics started on SUs tend to gain 1-3 kg.
- Flushing & disulfiram-like reaction after alcohol occur in some individuals taking SUs
- Safety during pregnancy is not established.

140. True about daptomycin:

a) Causes diarrhea as side-effect

b) It is a glycopeptide antibiotic

c) Cause myopathy

d) It can be used orally

e) Excretion through kidney

Correct Answer - C:D

Ans. (C) Cause myopathy (D) It can be used orally

[Ref Katzung 13th/783-85; Goodman & Gilman 11th/1197-98: Harrison 19th/961]

Daptomycin:

- Cyclic lipopeptide fermentation product of Streptomyces roseosPorus.
- Newly-approved antibacterial agent, the first lipopeptide agent to be released onto the market.
- Its spectrum of activity is limited to Gram-positive organisms, including a number of highly resistant species (MRSA, VISA, VRSA, VRE)

MOA:

- Precise mechanism of action is not known, but if appears to bind to and depolarize the cell membrane, causing Potassium efflux and rapid cell death.

Features:

- Only administered intravenously.
- Cleared renally.
  - Approximately 80% of the administered dose is recovered in urine.
- Can cause myopathy, and creatine phosphokinase levels should be

monitored.

141. Weight gain is not seen with:

a) Clozapine

b) Risperidone

c) Olanzapine

d) SSRI

e) Zotepine

Correct Answer - D

Ans. (D) SSRI

[Ref KDT 7th/aal,442; Katzung 12d/512, 509]

- **Clozapine Metabolic complications (Major)** - Weight gain, hyperlipidemia & precipitation of diabetes.
- Olanzapine causes weight gain.
- Risperidone causes weight gain & incidence of new onset diabetes is less than with clompine
- increased appetite & weight gain is noteil with most TCAs & trazodone, but not with SSRIs, SNRIs & bupropion.
- **Zotepine:** Weight gain, hyperglycemia & dyslipidemia are Likely as with clozapine
- **Quetiapine:** Weight gain & rise in blood sugar is moderate.
- **Aripiprazole:** Little tendency to weight gain.

142. Which of the following is/are true about dobutamine:

a) Selective (3 2 receptor agonist

b) T ventricular filling pressure

c) Half life is about 2 min

d) Dopamine receptor agonist

e) None

Correct Answer - C

Ans. (C) Half life is about 2 min

[R4 KDf 7th/134; Katzung 12th/141-42, 218, 225; Goodman & Gilman 11th/251]

Dobutamine:

- Derivative of dopamine, but not a Dl ot D2 receptor agonist.
- Has action on alpha & beta receptors also.
- Yet, only prominent action of clinically employed doses is increased force of cardiac contraction & outPut, without significant change in heart rate, peripheral resistance & BP.
- Considered to be a relatively selective beta-1 agonist.
- Half-life of about 2 minutes & onset of action is rapid.
- Used as an inotroPic agent in pump failure accompanying myocardial infarction, cardiac surgery & for short term management of severe congestive heart failure.

143. Drugs active against MRSA:

a) Vancomycin

b) Ceftriaxone

c) Linezolid

d) Piperacillin-tazobactam

e) Meropenam

Correct Answer - A:C

Ans. (A) Vancomycin (C) Linezolid

[Ref KDT 7th/731, 757, 6th/700, 708,732,7i4; G 6 G 11th/1132; Kntzung 1 3th/779, 781 ; Harrison 19th/96 1-62. 18th/2134]

MRSA:

- Vancomycin and daptomycin are now recommended as the drug of choice for the treatment of MRSA infections.
- Imipenema, Dalfopristino/Quinpristin, Mupirocin, Teicoplanina are also effective against MRSA
- Ceftaroline is a 5th gen. cephalosporin with bactericidal activity against MRSA (including strains with reduced susceptibility to vancomycin and daptomycin) - Approved for use in nosocomial pneumonias and for skin and soft tissue infections.
- Other drugs are- Linezolid, daptomycin, Quinupristin/ dalfopristin.

144. Which of the following is/are true about phenytoin -

a) Inactivation by Liver enzyme

b) Causes Vit B12 deficiency

c) Causes thiamine deficiency

d) Gum hypertrophy is commonest side-effect

e) Inhibitor of CYP3A4/5

Correct Answer - A:D

Ans. (A) Inactivation by Liver enzyme (D) Gum hypertrophy is commonest side-effect

[Ref: KDT 7th/a13-15; Katzung 13th/2100-N2; A to Z Drug Facts 2003 by Daild S. Tatro; Goodman 6 Gilman 11th/335; Hanison l9ttt/2554' 18th/893,888]

Phenytoin:

- Metabolized in liver by hydroxylation involving CYP2C9 & 2C19 as well as by glucuronide conjugation.
- Megaloblastic anaemia: It decreased folate absorption & increase its excretion.
- It interferes with metabolic activation of Vit D & with calcium absorPtion/metabolism.
- Gum hypertrophy: commonest (20% incidence)
- Potent inducer of CYP2C8/9, CYP3A4/5 & some other CYPs.
- It competitively inhibits CYP2C9/19

145. A person has given 0.175 gm oral digoxin with bioavailabilty 70%. The amount of drug reaching in systemic circulation is:

a) 0.175

b) 0.175 x 0.7

c) 0.175/7

d) 0.175 + 0.7

e) 0.175 + 1/0.7

Correct Answer - B
Ans. (B) 0.175 x 0.7
[Rd KDT 7th/16, 515; Katzung t2th/43]

- Amount of drug reaching in systemic circulation= drug dose given x bioavailability
= 0.175 gm x 70/100
= 0.175 gm x 0.7

146. True about Placebo:

a) It works only in psychiatric person

b) Response is both objective & subjective

c) Effect also seen in normal person

d) It is an inert substance

e) None

Correct Answer - B:C:D

Ans. B,Response is both objective & subjective C, Effect also seen in normal person & D, It is an inert substance

[Ref KDT 7th/67; Katzung 12th/72]

Placebo:

- An inert substance which is given in the garb of a medicine.
- Work by psychodynamic rather than pharmacodynamic means & often produces responses equivalent to the active drug
- Placebo do induces physiological responses, e.g., they can release endorphins in brain- causing analgesia.
- Substances commonly used as placebo are lactose tablets/capsules & distilled water injection.
- The manifestation of this phenomenon in the subject is the placebo response (Latin, 'I shall please') and may involve objective physiologic and biochemical changa as well as changes in subjective complaints associated with the disease

147. True about morphine:

a) Act as antagonist on IA receptor with no agonist action

b) Activation in liver

c) Half life 4 hr

d) Cause miosis

e) Clearance time is around 20 hr

Correct Answer - B:D:E

Ans. (B) Activation in liver (D) Cause miosis (E) Clearance time is around 20 hr

[Ref: KDT 7th/469-75; Katzung 13th/531-44; Goodman & Gilman p62-66]

Morphine:

- Primarily metabolized in liver by glucuronide conjugation.
- Morphine-6-glucuronide is an active metabolite (more potent than morphine on p opioid recePtors), which contribute to analgesia.
- Another metabolite morPhine-3- glucuronide has neuroexcitatory proPerty.
- Plasma half life morphine averages 2-3 hours
- Effect of a parenteral dose lasts 4-6 hours.
- Elimination is almost comPlete in 24hours.
- Morphine stimulate Edinger Westphal nucleus of 3rd nerve is stimulated producing miosis.
- No meiosis occur on topical aPPlication of morPhine to the eye, since this is a central action

148. Treatment of nocardia infection includes:

a) Ampicillin

b) Floroquinolones

c) Azithromycin

d) Cotrimoxazole

e) Amikacin

Correct Answer - A:B:D:E

Ans. A,Ampicillin B, Floroquinolones D, Cotrimoxazole & E, Amikacin

[Ref KDf 7th/706,755; Hanison lgth/1087]

Nocardiosis:

- Sulfonamides are of value in treating infections due to Nocardia grp.
- Sulfisoxazole or sulfadiazine may be given in dosaga of 6-8 g daily and is continued for several months after aII manifestations have resolved.
- administration of a sulfonamide with 2nd gen. antibiotic (ampicillin, erythromycin, ard streptomycin) advised.
- Co Trimoxazole is used in nocardiosis.