General Pharm

GP01 [Mar96] A drug is given at a dose of 50 mg/kg to a 70 kg man. The plasma concentration after giving it is 10 mg/ml. The elimination half-life is 8 hours. Clearance would be:

A. 1.3 l/h
B. 3 l/hr
C. 0.03 L/hr
D. 125 l/hr
is elim half life!!!

thus need to use:

VD (ml)= dose (mg)/plasma conc (mg/ml)

50x70 = 3500mg ⟹ 3500/10 = 350ml

Clearance ml/hr= 0.693 x VD/elim t1/2

= 30ml/hr

= 0.03L/hr

GP02 [Mar96] A drug is given orally and 95% absorbed. Only 25% reaches the general circulation due to hepatic first pass metabolism. If hepatic blood flow is 1500 mls/min, the hepatic clearance is:

A. 400 mls/min
B. ?
C. 1100 mls/min
D. ?
E. 1425]] mls/min

Hepatic clearance = HER x HBF

= ((0.95 – 0.25) / 0.95) x 1,500 ml / min

= 1,105 mls/min Extraction ratio= conc of inflow-conc outflow/conc of inflow

GP03 [Jul97] Histamine release

A. ? (*no other details*)

GP04 [Jul97] Rectal administration of drugs:

A. Gives predictable blood levels
B. From lower 1/3rd avoids first pass & upper 2/3rds doesn't
C. None undergoes first pass metabolism
D. All of it undergoes first pass metabolism

GP05 [Mar99] [Jul00] [Apr01] [Jul04] LD50 is:

A. Median lethal dose
B. Determined in phase I clinical trial
C. Determined from log-dose response curve
D: Dose causing death in 50% of animals within ?1/?4 hours
E. Half the mean lethal dose.
F. Best expressed as ratio of lethal dose in 50% of animals to effective dose in 50%

GP06 [Mar99] [Feb00] [Jul02] [Mar03] Which ONE of the following crosses the blood-brain barrier?

A. GABA
B. Propranolol
C. Suxamethonium
D. Edrophonium
E. Dopamine

GP07 [Jul98] [Jul99] [Apr01] With regard to drug-receptor binding:

A. A competitive antagonist has no intrinsic activity
B. A partial agonist has less receptor affinity than a full agonist
C. KD is maximal intrinsic efficacy
D. ?

KD is the equilibrium dissociation constant, with units mmol/L.

KA is the equilibrium affinity constant and is the reciprocal of KD, with units L/mmol.

From Peck and Hill: The potency is determined by a drug's KD; the lower the KD, the higher the potency. For many drugs, the ED50 (dose producing 50% of maximum response) corresponds to the KD.

GP07b [Feb00] [Feb04] [Jul04] A partial agonist:

A. Always antagonises a full agonist
B: Can never be used to antagonise a full agonist
C: Has a dose response curve similar to that of a full agonist in the presence of a non-competitive antagonist.
D. ?

GP08 [Jul98] [Jul01] [Mar02] Placental transfer of drugs:

A. Increases in late pregnancy
B. Increases late because of decreased albumin
C. Do not cross if MW > 600 daltons >500Da cross less easily but not absolute
D. Lipid soluble drugs diffuse through placenta depending on concentration gradient
E. Icreased diffusion if greater plasma protein binding in fetus

GP09 [Jul98] [Jul99] Regarding pharmacokinetics:

A. ?
B. Half-life is inversely proportional to clearance
C. ?
D. Half-life is proportional to steady-state maybe
E. B & D

GP10 [Jul99] [Jul04] An ether bond:

A. Formed from condensation of 2 alcohols
B. Hydroxyl group on middle bond
C. ?
Ether - "Any of a class of organic compounds in which two hydrocarbon groups are linked by an oxygen atom."

GP11 [Feb00] [Mar03] The NMDA receptor

A. Ketamine is an agonist
B. Requires glycine as a modulating protein (“YES PROTEIN ! ”) to have its effect glycine is an amino acid

C. Mg+2 blocks the receptor - in closed state it sits blocking channel
D. Is not permeable to Calcium when open is permeable to Na, K , CA
agonist = glutamate, NMDA (and coagonist glycine for full activation)

GP12 [Feb00] [Jul02] Activated charcoal:

A. Should be given with sorbitol
B. Is not effective against theophyllinemaybe
C. Should be given with ipecac - pro-emetic
D. Should be given in a drug:charcoal ratio of 1:10
charcoal not useful in
alkalies, or acids
alcohols
metals
petroleum products

GP13 [Apr01] [Jul04] Therapeutic index:

A. Easy to determine in humans
B. ?
C.
D.
E. Derived from LD50/ED50

GP14 [Apr01] [Jul04] (A Basic drug with a pKa of 8.7)

A. ?
B. ?
C. Will be predominantly ionised at plasma pH
D.

GP15 [Apr01] [Jul02] [Mar03] Oxygen toxicity

A. Causes convulsions at less than 100 kPa CNS toxcity >200KPa
B. Causes lipid peroxidation at less than 100 kPa
C. ?

In general, "hazards" associated with oxygen use include

1. hypoventilation, i.e. COPD
2. Absorption Atelectasis (alveolar collapse)-. VC can be decreased by 500-800ml as a consequence
3. Retinopathy of prematurity (previously called retrolental fibroplasia) - FIO2 > 0.50 to neonates can encourage "disorganized vascular proliferation and fibrosis".. which can make the retina opaque, ." as well as retinal detachment"
4. Bronchopulmonary dypasia - in neonates
5. Fire hazard

GP16 [Jul01] With regard to log/dose response curves:

A. The response is fairly linear over the 20-80% range.
B. The Dose is fairly linear over the 20-80% range
C. The ED50 and slope are characteristic for each drug
D. ?
E. ?

GP17 - renumbered to another section.

GP18 [Jul01] With regards to diffusion through a membrane:

A. Directly proportional to thickness
B. Inversely proportional to thickness
C. Inversely proportional to Surface area
D. Inversely proportional to concentration difference
E. ?

GP19 [Mar02] [Mar03] Which of following act via ligand gated channel?

A. ?
B. ?
C. Morphine G proteins
D. Vecuronium
E. ?

GP20 [Jul02] Zero order kinetics means:

A. ?
B. ?

C. Drug is eliminated at a constant rate regardless of dose.
D. Elimination half time will vary according to dose.
E. ?

GP21 [Feb04] All exist as Racemic mixtures except:

A. Thiopentone
B. Lignocaine
C. Bupivucaine
D. Isoflurane
E. Enflurane

GP22 [Feb04] Clearance of a drug with a high hepatic extraction will be:

A. Decreased in shock ???
B. Increased in high output states ???
C. ?
D.

GP23 [Feb04] Chemoreceptor trigger zone

A. Contains 5HT3 and D2 receptors
B. Not involved in inner ear mediated nausea - anticholinergics imp eg hyoscine
C. ?
D.

GP24 [Feb04] [Jul04] Glutamate

A. Dissociates slowly from the NMDA receptor
B. Does not act at AMPA and kainite receptors
C. Inhibitory neurotransmitter in CNS
D. ?
E.

GP25 [Feb04] Regarding pharmacokinetics in pregnancy:

A. paracetamol uptake increased
B. increased sensitivity and faster onset with thiopentone - ↓albumin & progestrone CNS effects (resp alkaosis should be compensated!)
C. hepatic clearance decreased by decreased protein binding
D. ?

GP26 [Jul04] Which is an antagonist at the NMDA receptor?

A. Dexamethasone
B. Dextropropoxyphene - opioid related to methadone
C. Dexmedetomidine α2
D. Dextromethorphan
E. Dexmethamphetamine sympathomimetic

GP27 [Jul04] Comparing dexamethasone and hydrocortisone:

A. Both are endogenous hormones
B. Dexamethasone has 8x potency of hydrocortisone x25
C. Both have mineralocorticoid activity but very little
D. Dexamethasone is the only water-soluble compound hydrocort is poorly water soluble

GP28 A drug has hepatic extraction ratio of 0.7 and is 30% abosorbed, what is the bioavailability

A. 0.3
B. 0.7
C. 0.21
D. 0.09
E. 0.03

0.3 x (1- 0.7) = 0.09

GP29 Which of the following drugs cannot cross the BBB?

A. Ondansetron
B. Scopolamine
C. Metoclopramide
D. Droperidol
E. Domperidone

GP30 [Mar09] With regard to LD50:

A. Is the mean lethal dose in animals
B. *Something about probit's relation to standard deviation*
C. Animals are given increasing doses of a drug until they die
D. calculated from quantal dose response curves
E. *Something about log concentration being plotted against something using probits to linearize the data for humans*

GP31 [Mar10] Which is not a ligand gated channel?.

A. Alpha-2 Receptor
B. 5HT3 Receptor
C. Nicotinic cholinergic receptor
D. GABA receptor
E. NMDA receptor

GP32 G proteins:

A. Always have 3 subunits
B. Alpha subunit has intrinsic GTPase activity
C. One G protein only attached to one G protein coupled receptor
D. Spans membrane 7 times - the receptor!! not the protein!!

GP33 [Aug11] When is the safest time to give a drug to a lactating mother?

A. 3 - 4 hours before breastfeeding
B. Immediately before breastfeeding
C. Immediately after breastfeeding
D. 30 - 60 minutes after breastfeeding
E. Either A or D

GP34 [Aug11] Which of the following drugs has low first pass metabolism

A. Lignocaine
B. Morphine
C. Metoclopramide
D. Midazolam
E. Aspirin

Bioavailability values of the others
Morphine: 44%
Metoclopramide: 32-95%
Midazolam: 44%
Aspirin: 70%

GP35 [Aug11] All are secreted by the proximal tubule in the kidney except:

A. Diazepam
B. Morphine
C. Probenicid

D. Penicillin
E. Frusemide

GP36 [Aug11] Elimination coefficient Units (Repeat)

A. ?
B. mcg/ml
C. mg/ml
D. ?
E. ?

GP36b [Feb12] The units of rate constant k are?

A. mg/min
B. mcg/kg/min
C. min
D min-1
E. ml^{-1}

Presumably these questions specified whether the drug in question underwent First or Zero Order kinetics assuming that it was for First Order Kinetics, the answer will always be time-1

GP37 [Aug11] Which drug reversibly inhibits platelet aggregation?* Repeat*

A. clopidogrel
B. warfarin no effect
C. [[heparin] no effect
D. diclofenac
E. aspirin