

Final Exam of Pharmacology for 1999 EM student (A)
2003-1-9

I Choice questions (60 points)

Type A (only one answer is correct)

1. A drug with $t_{1/2} = 3\text{h}$ is given intravenously, the steady state of plasma concentration can be expected within
D
A 3 hrs
B 8 hrs
C 10 hrs
D 15 hrs
E 20 hrs
2. The drug able to penetrate brain barrier is a compound with B
A high polarity
B high lipid solubility
C high molecular weight
D low molecular weight
E high water solubility
3. A weak base has $\text{pK}_a = 9$, if the medium in which it is dissolved has a $\text{pH} = 7$, what will be ratio of the concentrations of ionized to unionized forms of the base?
A 100: 1
B 1: 100
C 10: 1
D 1000: 1
E 1: 1
4. After repeated administration, the response of the body to drugs is reduced, this phenomenon is called
B
A selectivity of drugs
B tolerance of drugs
C dependency of the organism
D habituation
E none of above is right
5. Antagonist has A
A affinity for receptors but no intrinsic activity
B neither affinity nor intrinsic activity
C affinity and weak intrinsic activity
D affinity and low efficacy
E high affinity and efficacy
6. The mechanism of treating aspirin poisoning with bicarbonate sodium is that it C
A Neutralize aspirin
B promoting biotransformation of aspirin
C Alkalinizing urine fluid, prevent aspirin from reabsorption, and stimulates excretion of drug
D B and C are right
E A and C are right
7. The half-life time is A
A the time that the concentration of the drug in plasma declines by 50%
B the time that the amount of the drug in the body declines by 50%
C the time that the amount of the drug in the body are metabolized in half
D the time that the effects of the drug decline in a half
E all of above are wrong
8. Each of the following agents are endogenously occurring neurotransmitters except C
A. Ach
B. Adr
C. Isoproterenol
D. Dopamine
E. NE

9. Acetylcholine is mainly removed from synaptic cleft by B
- reuptake
 - hydrolysis
 - oxidation
 - reduction
 - diffusion into circulation
10. Epinephrine added to a solution of procaine for a peripheral nerve block will E
- increase the risk of convulsions
 - prevent local ischaemia
 - stimulate β receptor
 - decrease histamine release from mast cells
 - prolong the duration of procaine effect
11. Among M receptor blockers the drug that has CNS depression is C
- atropine
 - anisodamine
 - scopolamine
 - probanthine
 - belladonnine
12. Pindolol can increase heart rate by activating beta-receptors in the absent of other drugs, however, in the presence of potent beta-stimulants in much higher doses, pindolol decreases heart rate. Therefore, pindolol is D
- noncompetitive antagonist
 - physiological antagonist
 - chemical antagonist
 - partial agonist
 - spare receptor agonist
13. Atropine has the following effects except B
- mydriasis
 - spasm of accommodation
 - increasing intraocular pressure
 - decrease salivary secretion
 - stimulation of brain in larger dose
14. The beta-blocker that is usually used in treating glaucoma is D
- propranolol
 - pindolol
 - atenolol
 - timolol
 - metoprolol
15. Prazosin is a(n) D
- alpha-agonist
 - beta-agonist
 - alpha₁-antagonist
 - beta₁-antagonist
 - alpha₁-agonist
16. All of the following statements about propranolol are true except C
- $\beta_1 \beta_2$ -receptor blockers
 - no intrinsic sympathomimetic activity
 - high bioavailability
 - can penetrate blood-brain barrier
 - mainly metabolized in liver
17. A patient who has “spasms of accommodation”, miosis, increased gut motility, excessive salivation, and increased sweating may have been given a therapeutic dose of C
- a ganglionic blocking drug
 - a muscarinic blocking drug
 - an anticholinesterase drug
 - a β -adrenergic blocking drug
 - an α -adrenergic blocking drug
18. Which of the following drugs can be used in treating the patient with atrioventricular block? C

- A. adrenaline
 B. noradrenaline
 C. isoprenaline
 D. aramine
 E. propranolol
19. Which of the following drugs could pass through the blood–brain barrier, and cause insomnia
 A. adrenaline C
 B. dopamine
 C. ephedrine
 D. isoprenaline
 E. norepinephrine
20. All is true about the action of therapeutic dosed scopolamine EXCEPT C
 A. blocking the M receptor
 B. anti-motion sickness
 C. stimulate CNS
 D. sedation
 E. anesthesia
21. Which of the following sympathomimetic agents will most likely lead to arrhythmia and ventricular fibrillation? B
 A. ephedrine
 B. adrenaline
 C. metaraminol
 D. dopamine
 E. norepinephrine
22. Which of the following therapeutic projects would be used in the treatment of patient with serious organophosphate intoxication? C
 A. atropine
 B. atropine + neostigmine
 C. atropine + pyraloxime methoiodide
 D. atropine + norepinephrine
 E. pyraloxime methoiodide
23. The main reason for the combination use of levodopa with carbidopa is B
 A: to increase the absorption of L-dopa
 B: to inhibit levodopa decarboxylation in the periphery
 C: to inhibit MAO D: to inhibit COMT
 E: to increase L-dopa converting to dopamine directly
24. If one patient is taking imipramine and another is taking chlorpromazine, they are both likely to experience C
 A. akathisia B. tardive dyskinesia C. constipation and dry mouth
 D. diarrhea E. gynecomastia
25. Which of the following statements concerning the barbiturates is FALSE? E
 A. Barbiturates may decrease the half-lives of drugs metabolized by liver
 B. An increase in urinary pH will accelerate the elimination of Phenobarbital
 C. Anesthesia can occur when a large dose of Phenobarbital is given
 D. Barbiturates can cause additive CNS depression when used with alcohol, antihistamines
 E. Respiratory depression caused by barbiturate overdose can be reversed by epinephrine
26. To relieve anxiety symptoms, we usually use E
 A Phenobarbital B perphenazine(奋乃静) C chlorpromazine
 D imipramine E benzodiazepines
27. A three-month-old infant is brought to the emergency room with seizures of the tonic-clonic type. His mother reports that these seizures have been occurring for the past 50 min. The treatment of choice is A
 A diazepam B phenytoin C phenobarbital
 D carbamazepine E valproate
28. Extrapyramidal symptoms caused by chlorpromazine is due to E
 A. blocking DA receptor in mid-brain-limbic (中脑边缘) system
 B. inhibiting α -receptor in brain

- C. inhibiting Doreceptor in tuberoinfunfibular (结节漏斗) pathway
 D. inhibiting M-receptor in CNS
 E. blocking DA receptor in nigrostriatal (黑质纹状体) pathway
29. Aspirin can induce all of the following effect EXCEPT E
 A. reducing fever
 B. reducing prostaglandin synthesis in inflamed tissue
 C. stimulating respiratory when taken in toxic dosage
 D. inducing tendency to bleeding
 E. reducing leukotrienes
30. Which of the following agents is effective in the treatment of depression B
 A. lithium carbonate B. imipramine C. chlorpromazine
 D. haloperidole E. fluphenazine
31. Which agent should be given to the patient with fever complicated with gastric ulcer A
 A. acetaminophen B. ibuprofen C. aspirin D. indomethacin
 E. phenylbutazone
32. The most serious toxic effects of acetaminophen overdose is E
 A. nephrotoxicity B. CNS toxicity C. cardiotoxicity
 D. respiratory depression E. hepatotoxicity
33. The cardinal mechanism of antidepressant action of tricyclic agents is B
 A. Blockade of M-receptor in CNS
 B. Blockade of NE and 5-HT reuptake centrally
 C. Stimulation of reticular ascending activating system
 D. Blockade of α -receptors
 E. Promoting release of 5-HT
34. Intravenous administration of epinephrine in a patient already taking an effective dose of chlorpromazine will often C
 A. increase skin temperature B. reduce pupil C. decrease blood pressure D. decrease heart rate
 E. increase total peripheral resistance
35. verapamil decreases conduction velocity in B
 A. atrial muscle B. A-V node C. Purkinje fibers
 D. ventricular muscle E. all of them
36. A drug that consistently decrease the heart rate and can cause vasospastic angina attacks is D
 A. isosorbide dinitrate B. nifedipine C. nitroglycerin
 D. propranolol E. verapamil
37. Orthostatic hypotension occurs most frequently in which of the following drug in first use E
 A. clonidine B. nifedipine C. propranolol
 D. methyldopa E. prazosin
38. The best drug used to treat ventricular premature beats and paroxysmal ventricular tachycardia is D

A. propranolol B. digitoxin C. quinidine
D. lidocaine E. verapamil

39. Which of the following drugs is an antioxidant B

A. simvastatin B. probucol C. prostigmine
D. cholestyramine E. benzafibrete

40. propranolol and hydralazine share which of the following effects D

A. tachycardia B. decreased cardiac force
C. increased systemic vascular resistance
D. decreased mean arterial blood pressure
E. decreased cardiac output

41. Cardiac glycoside can treat atrial fibrillation because it can C

A. increase concealed conduction in SA node
B. decrease concealed conduction in SA node
C. decrease concealed conduction in AV node
D. increase concealed conduction in AV node
E. inhibit Na⁺ channel

42. Which of the following drugs is a HMG-CoA reductase inhibitor ? C

A. Cholestyramine B. Colestipol C. Lovastatin
D. Nicotinic E. Probucol

43. Which of the following statements about sodium nitroprusside are NOT true ? A

A. the solution is stable to light
B. the most serious toxicity is related to accumulation of SCN⁻
C. most side effects are associated with extensive vasodilation
D. it is parenterally used
E. it can be used to manage severe cardiac failure

44. All of the following statements about amiodarone are true EXCEPT

A. it increase APD and ERP
B. it suppresses premature ventricular contraction and ventricular tachycardia
C. its half life is 8 hours
D. it can cause hyper- or hypothyroidism
E. it can cause corneal microdeposits and blurred vision

45. All of the following measures can be used in the treatment of digoxin-induced arrhythmias EXCEPT B

A. stopping digoxin administration
B. diuretic agents such furosemide is used to improve excretion
C. phenytoin administration
D. atropine administration
E. lidocaine administration

46. which of the following disease is the contraindication of glucocorticoids? E

A. fulminant epidemic cerebrospinal meningitis
B. psychosis

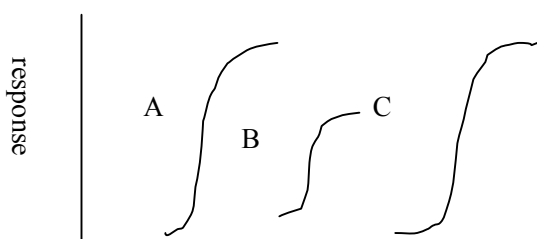
- C. diabetes mellitus
D. severe hypertension
E. B+C+D
47. glucocorticoids can be used to treat severe bacterial infection. The reason is that E
A. they can act as good antimicrobials
B. they are able to enhance the immunity of organisms
C. they possess an anti-inflammatory and antitoxic actions
D. the phagocytic ability of neutrophils can be promoted by these agents
E. they produce a synergistic action with antibacterial drugs
48. which drug can inhibit α -glycosidase D
A. gliclazide B. glipizide C. gliquidon
D. acarbose E. metformin
49. The primary site of action of the following drugs is(are) E
A. hydrochlorothiazide—thick ascending limb of Henle loop
B. triamterene—the distal segment of the nephron and as aldosterone antagonists
C. spironolactone—the distal portion of the ascending limb
D. furosemide—the medulla portion of thick ascending limb of Henle loop
E. none of above is right
50. All of the following statements about famotidine are true except C
A. used in peptic ulcer
B. reduced the secretion of gastric acid
C. a H_1 -receptor blocker
D. little effect on heart and blood pressure
E. has no antiandrogenic effect
51. which of the statements about thioureas is wrong D
A. they are used in patients with hyperthyroidism
B. they inhibit synthesis of thyroxin
C. they have immunosuppressive effect
D. propylthiouracil stimulates T4 to transform to T3
E. they can cause thyroid enlargement when long term used
52. Which of the following statement about insulin is NOT true? C
A. It can cause hypoglycemic reaction
B. It cannot be administrated orally
C. Its mechanism of action is through intracellular receptor pathway
D. It can be used in IDDM and NIDDM
E. It can cause anaphylactic reaction
53. Which is the best scheme for treatment of megaloblastic anemia D
A. folic acid
B. folic acid plus ferrous sulfate
C. Vit B12
D. folic acid plus Vit B12
E. Vit B12 plus ferrous sulfate
54. The antiplatelet mechanism of aspirin is A
A. inhibiting synthesis of TXA2 in platelet
B. inhibiting synthesis of TXA2 in endothelium
C. promoting synthesis of PGI2 in platelet
D. promoting synthesis of PGI2 in endothelium
E. promoting synthesis of PGE2 in endothelium
55. Which of the following therapies is the best for a patient with status asthmaticus (哮喘持续状态)? B
A. aminophylline p.o.
B. hydrocortisone i.v.
C. inhaling sodium cromoglycate
D. inhaling becmethasone
E. salbutamol p.o.
56. In the following drugs, which can act on thrombus selectively? C
A. streptokinase B. urokinase C. t-type plasminogen activator
D. anistreplase E. abciximab
57. The structure required for biological activity of penicillins is C
A. penicillanic acid B. thiozolidine C. β -lactam ring

- D. the side chains E. penicilloys-polylysine
58. Which of the following drugs inhibit dihydrofolate reductase? D
 A.sulfamethoxazole B.Amikacin C.Probenecid D.Trimethoprim E.Norfloxacin
59. β -lactamase produced by *Neisseria gonorrhoeae* confers resistance against penicillin G. which of the following antibiotic is most likely to be effective against of the organisms? B
 A.ampicillin B.spectinomycin C.carbenicillin D.gentamicin E.vancomycin
60. Which of the following statements about the pharmacodynamics of antifungal drugs most accurate
 E
 A. amphotericin B blocks the conversion of lanosterol(羊毛固醇) to cholesterol
 B. flucytosine inhibits ergosterol in fungi
 C. griseofulvin inhibits hepatic cytochrome P₄₅₀
 D. ketoconazole binds to ergosterol to form artificial pores in fungal cell membranes
 E. terbinafine inhibits squalene epoxidase(a key enzyme in synthesis of ergosterol)
61. Metronidazole can be used in treatment of patients with D
 A. syphilis B. bacterial dysentery C. gonorrhea(淋病)
 D. anaerobic(厌氧的) infections E.erysipelas(丹毒)
62. A patient with typhus can be given B
 A. streptomycin B.doxycycline C.sulfadiazine D.ampicillin E.erythromycin
63. Drugs that are not effective for pseudomonas aeruginosa(绿脓杆菌) are B
 A.carbenicillin B.tetracyclines C. netilmicin D.ciprofloxacin E.ofloxacin
64. First choice for brucellosis(布鲁斯病) and rickettsia disease B
 A. amikacin B. doxycycline C. cyclophosphamide D.griseofulvin
 E. vancomycin
65. The drug of choice in treatment of typhoid fever E
 A. penicillin B. amphotericin C. erythromycin D. rifampin
 E. chloramphenicol

TYPE X

1. The reason for the epinephrine in the treatment of allergic shock induced by penicillins is (are)
 A. cardiac stimulation ABCDE
 B. vasoconstriction to increase blood pressure
 C. cell membrane stabilization to reduce the release of allergic substance
 D. bronchial dilation
 E. decrease mucosa edema
2. Which of the following would be expected in a severe case of organophosphate poisoning?
 A. Salivation ABCDE
 B. tremor of skeletal muscle
 C. sweating
 D. bronchoconstriction
 E. coma
3. You treat a patient with atropine, which of the following side effects will be have to endure?
 A. dry mouth ABCDE
 B. tachycardia
 C. mydriasis
 D. gastric and urinary retention
 E. fever
4. Factor(s) affecting distribution of a drug include(s) A B C D E
 A binding of the drug to plasma proteins
 B pH of body fluids
 C blood brain barrier
 D affinity to certain tissues
 E. pK_a of the drug

5.



dose

In this graph, drugs B and C are analogs of drugs A, then A B C

- A a has a greater affinity than c
- B b has less efficacy than c
- C a has greater efficacy than b
- D a has greater efficacy than c
- E c has greater affinity than b

6. The drugs that cannot be used to treat patient with bronchial asthma is(are) A B C

- A. morphine B aspirin C. propranolol
- D. dopamine E. atropine

7. Morphine can be used in patient with acute myocardial infarction. The mechanism is(are) that A B D

- A. it has analgesic effect
- B. it has sedative effect.
- C. it can excite respiratory center and relieve dyspnea(呼吸困难)
- D. it can dilate vessels
- E. it can increase the contractility of myocardium.

8. Phenytoin can induce A B C D

- A. arrhythmia B. antiepileptic effect C. gingival hyperplasia
- D. megaloblastic anemia E. sedative effect

9. Compared with heparin, which of the following statements about low molecular weight heparin are(is) true ? A C

- A. anticoagulant action is weaker
- B. $t_{1/2}$ is shorter
- C. anti-thrombosis effect is stronger
- D. plasma protein binding rate is higher
- E. it will not cause thrombocytopenia completely

10. Which of the following drugs may cause granulocytopenia? A D E

- A. propylthioracil
- B. heparin
- C. erythromycin
- D. ticlopidine
- E. zidovudine

11. which of the following drug(s) is (are) useful in treatment of atrial fibrillation A B C

- A. quinidine B. Digoxin C. Verapamil D. Lidocaine E. sodium phenytoin

12. Calcium channel blocker can cause A B C D

- A. negative inotropic effect B. relaxation of blood vessels
- C. relaxation of bronchial smooth muscle D. diuresis E. blurred vision

13. Which of the following effects of digoxin can be seen in failure heart ACD

- A. slowing sinus rhythm
- B. Increasing the oxygen consumption of heart
- C. increasing the cardiac output
- D. increasing the force of myocardial contraction
- E. all above

14. antibiotics that act by interfering with protein synthesis include: ABC

- A. tetracycline B. streptomycin
- C. chloramphenicol D. ampicillin

15. epidemic cerebrospinal meningitis can be given ABC

- A. Penicillin G B. SD C. chloramphenicol D. furazolidone

PART II Please explain the following pharmacological terms(10 points)

1. competitive antagonist
2. placebo
3. tolerance
4. first-pass elimination
5. after effect
6. PA₂
7. redistribution
8. bioavailability
9. agonist
10. LD₅₀

PART III Assay questions(30 points)

1. Please discuss the effects of morphine on central nerve system.
2. Please describe the mechanism of resistance of bacteria .
3. Please discuss the antiinflammation effect of glycocorticoids.
4. Please describe the phararmacological effects and clinical uses of β -receptor antagonists.
5. Please describe the phararmacological effects and clinical uses of calcium-channel blocker.