

山东大学医学院

(2006 — 2007 学年第二学期)

2004 级 临床医学七年制 药理学期末考试试题 (A 卷)

FINAL EXAMINATION OF PHARMACOLOGY FOR 7-YMS-2004

题号	一	二	三	四	五	六	七	总分	统分人
得分									

得分	评卷人

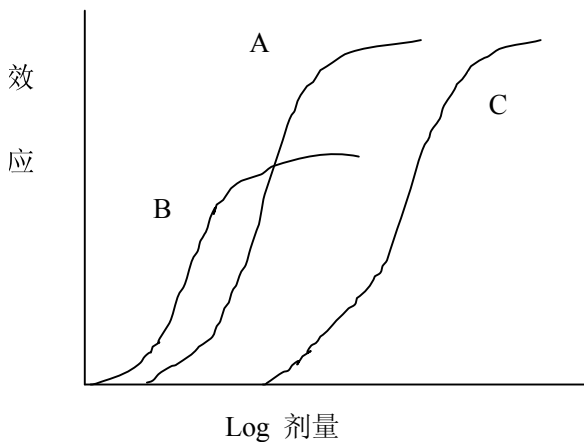
一、选择题：(A 型每题 0.5 分，X 型每题 1 分，共 50 分)

Type A Choice questions (only one answer is correct)

1. A drug with $t_{1/2}$ 3 hours is given intravenously, the steady state of plasma concentration can be expected within
 - A. 3 hrs
 - B. 8 hrs
 - C. 10 hrs
 - D. 15 hrs
 - E. 20 hrs
2. Which of the following is true for a drug whose elimination from plasma shows first-order kinetics?
 - A. the half-life of the drug is proportional to the drug concentration in plasma
 - B. the amount eliminated per unit time is constant
 - C. the rate of elimination is proportional to the plasma concentration
 - D. elimination involves a rate-limiting enzyme reaction operating at its maximal velocity
 - E. a plot of drug concentration versus time is a straight line
3. A drug eliminated with first-order kinetics, the concentration of the drug in plasma is 200mg/L, at 10 o'clock in the morning after administration of a single dose, the drug plasma concentration is 25 mg/L, at 10 o'clock on second day morning, its $t_{1/2}$ is
 - A. 4h
 - B. 6h
 - C. 12h
 - D. 24h
 - E. 8h

4. Aspirin is a weak acid with 4.5 of pKa, what percentage of lipid-soluble form will be in the stomach juice with 2.5 of pH?
- 0.99%
 - 9%
 - 9.09%
 - 90.9%
 - 99.0%

5. In this graph, drugs A, B and C are analogs, then
- A has a greater potency than B
 - A has a greater efficacy than C
 - B has less potency than C
 - A has a greater potency than C
 - B has a greater efficacy than C



6. Which of the following statements is correct?
- if 10mg of drug A produces the same response as 100mg of drug B, drug A is more efficacious than drug B.
 - the greater the efficacy, the greater the potency of a drug
 - in selecting a drug, potency is usually more important than efficacy
 - a competitive antagonist increases ED_{50}
 - variation in response to a drug among different individuals is most likely to occur with a drug showing a large therapeutic index
7. Among the following drugs, which will be excreted most quickly in acidic urine?
- a weak acid drug with pKa of 5.5
 - a weak base drug with pKa of 7.5
 - a weak base drug with pKa of 4.5
 - a weak acid drug with pKa of 3.5
 - a weak base drug with pKa of 6.5
8. The mechanism of treating phenobarbital poisoning with bicarbonate sodium is that it

- A. neutralizes Phenobarbital
 - B. stimulates Phenobarbital transference from the brain to the plasma
 - C. alkalizes urine fluid, prevents Phenobarbital from reuptake, and stimulates excretion of drug
 - D. both B and C are right
 - E. both A and C are right
9. After repeated administration of phenobarbital sodium, the patients complain the drug is less useful, this phenomenon is called
- A. tolerance
 - B. resistance
 - C. dependence
 - D. side reaction
 - E. residual effect
10. The effect of pilocarpine on eye is
- A. miosis, increase intraocular pressure, paralysis of accommodation
 - B. miosis, decrease intraocular pressure, spasm of accommodation
 - C. mydriasis, decrease intraocular pressure, paralysis of accommodation
 - D. mydriasis, increase intraocular pressure, spasm of accommodation
 - E. mydriasis, increase intraocular pressure, paralysis of accommodation
11. All of the following statements are related with succinylcholine EXCEPT
- A. have muscle fasciculation before muscle relaxation
 - B. have no ganglionic blocking actions at therapeutic dose
 - C. can be antagonized by neostigmine
 - D. elevate blood potassium concentration
 - E. assistant agents of anesthetics
12. A male patient is brought to the emergency department following ingestion of an unknown substance. He is found to have an elevated temperature, hot and flushed skin, dilated pupils, and tachycardia. Of the following, which would most likely cause these findings?
- A. propranolol
 - B. tolazoline
 - C. prazosin
 - D. organophosphate
 - E. atropine
13. A predictably dangerous side effect of metoprolol that constitutes a contraindication to its clinical use in susceptible patients is the induction of
- A. hypertension
 - B. cardiac arrhythmia
 - C. asthmatic attacks
 - D. angina pectoris
 - E. hypersensitivity

14. Which of the following therapeutic projects would be used in the treatment of patient with serious organophosphate intoxication?
- A. atropine + norepinephrine
 - B. atropine+ neostigmine
 - C. atropine + pralidoxime iodide
 - D. atropine + epinephrine
 - E. atropine + morphine
15. The released norepinephrine is disposed mainly by
- A. the metabolism in the liver
 - B. enzymatic inactivation
 - C. reuptake by the neuronal terminal
 - D. hydrolysis
 - E. MAO and COMT in the circulation
16. The elevated blood pressure caused by epinephrine may be reversed by
- A. propranolol
 - B. phentolamine
 - C. norepinephrine
 - D. nicotine
 - E. atropine
17. Epinephrine may be mixed with certain anesthetics, such as procaine, in order to
- A. stimulate local wound repair
 - B. increase the potency of the local anesthetics
 - C. enhance their interaction with neural membranes and their ability to depress nerve conduction
 - D. retard their systemic absorption
 - E. facilitate their distribution along nerves
18. Which is correct description about the β -adrenoceptor effect?
- A. both cardiac excitation and bronchial dilation belong to β_1 effect
 - B. both cardiac excitation and bronchial dilation belong to β_2 effect
 - C. both cardiac excitation and vascular dilation belong to β_1 effect
 - D. both cardiac excitation and vascular dilation belong to β_2 effect
 - E. both vascular dilation and bronchial dilation belong to β_2 effect
19. Which is NOT the indication of phentolamine?
- A. shock
 - B. diagnosis of pheochromacytoma
 - C. male sexual dysfunction
 - D. primary hypertension
 - E. peripheral vascular occlusive disorders
20. Chlorpromazine can be used for
- A. hypertension

- B. hypothermic anesthesia
 - C. epilepsy
 - D. coma
 - E. coronary heart disease
21. Which of the following statements about aspirin is incorrect?
- A. its analgesia is due to inhibition of PG synthesis
 - B. it is mainly used to relieve headache and other dull pain
 - C. its main adverse effect is GI reaction
 - D. it can inhibit lipoxidase
 - E. it inhibits the synthesis of both PGI₂ and TXA₂
22. Extrapyramidal symptoms caused by chlorpromazine is due to
- A. blocking DA receptor in mid-brain-limbic system
 - B. inhibiting α -receptor in brain
 - C. inhibiting DA receptor in tuberoinfundibular pathway
 - D. inhibiting M-receptor in CNS
 - E. blocking DA receptor in nigrostriatal pathway
23. The main reason for the combination use of levodopa with carbidopa is
- 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. 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 50min. The treatment of choice is
- A. Diazepam
 - B. phenytoin
 - C. phenobarbital
 - D. carbamazepine
 - E. valproate sodium
25. Which one of the following analgesic drugs can be used for artificial hibernation?
- A. morphine
 - B. methadone
 - C. pethidine
 - D. fentanyl
 - E. anadol
26. All of the following are observed in patients taking neuroleptic agents EXCEPT:
- A. sexual dysfunction.
 - B. bronchial asthma
 - C. altered endocrine function.

D. constipation.

E. orthostatic hypotension

27. Which of the following is not the adverse effect of Morphine?

A. urinary retention

B. nausea and vomiting

C. diarrhea

D. addiction

E. constriction of bronchial smooth muscle

28. A 50-year-old male with a two-year history of essential hypertension well controlled on hydrochlorothiazide is found on a recent physical examination to have a blood pressure of 160/105 mmHg. The hydrochlorothiazide is substituted with another agent. Two weeks later, he returns for follow-up complaining of a loss of taste and dry cough. Which of the following drug is responsible for this ?

A. clonidine

B. hydrochlorothiazide

C. propranolol

D. captopril

E. verapamil

29. All of the following are useful in the treatment of digitalis overdose EXCEPT:

A. anti-digoxin Fragments

B. potassium supplements

C. lidocaine

D. phenytoin

E. quinidine

30. Which of the following Lipidemic-modulating drugs that can decrease Lp(a) obviously?

A. niacin

B. gemfibrozil

C. lovastatin

D. cholestyramine

E. probucol

31. Which one of the following is the most serious adverse reaction of statins and this effect would be increased if a statin is taken with ciclosporin, gemfibrozil or nicotinic acid.

A. gastrointestinal problems

B. rhabdomyolysis

C. elevated blood pressure

D. migraine headaches

E. palpitations

32. The antihypertensive mechanism of diuretics for long-term treatment is:

A. increasing water and sodium excretion from the kidneys.

B. decreasing sodium concentration in vascular smooth muscle cell

- C. increasing the activity of rennin
 - D. decreasing the activity of rennin
 - E. decreasing the secretion of aldosterone
33. Which of the following statements is NOT the characteristics of ACEI ?
- A. it can be used in mild, moderate and severe hypertension
 - B. it does not cause reflective quick heart rate
 - C. it not only improve life quality but also decrease mortality
 - D. it will cause disorder of lipid metabolism
 - E. it will not affect glucose metabolism
34. Which of the following antianginal drugs is harmful to patients with variant angina?
- A. verapamil
 - B. nifedipine
 - C. nitroglycerin
 - D. propranolol
 - E. aspirin
35. Which of the following statements about the treatment of chronic heart failure is wrong?
- A. Patients with evidence of fluid retention should receive a diuretic.
 - B. Treatment with an ACE inhibitor and a β -R blocker should be initiated and maintained unless specifically contraindicated.
 - C. Digoxin may be added if needed to reduce symptoms or to slow the ventricular response in patients with rapid atrial fibrillation.
 - D. Patients with severe heart failure should also receive a β -R blocker
 - E. Spironolactone may reduce mortality in patients with severe heart failure
36. A 58-year-old patient with a history of hypertension and congestive heart failure administrating some drugs, now he complains of nausea, blurred vision and bradycardia, intoxication of glycoside is suspected, then digoxin is stopped, which of the following drugs also must be stopped?
- A. nifedipine
 - B. diazoxide
 - C. hydrochlorothiazide
 - D. prazosin
 - E. clonidine
37. A patient with edema is using streptomycin, which of the following diuretics is unwisely used?
- A. osmotic diuretics
 - B. thiazide diuretics
 - C. loop diuretics
 - D. aldosterone antagonists
 - E. triamterone and amilorde
38. The therapeutic effect of β -adrenergic receptor blockers such as propranolol in angina

pectoris is believed to be primarily the result of

- A. reduced production of catecholamines
- B. dilation of the coronary vasculature
- C. decreased requirement for myocardial oxygen
- D. increased peripheral resistance
- E. increased sensitivity to catecholamines

39. A 59-year-old female with CHF is treated with Hydrochlorothiazide. What is its primary mechanism of action?

- A. inhibition of $\text{Na}^+/\text{K}^+ / 2\text{Cl}^-$ cotransporter
- B. inhibition of Na^+/Cl^- cotransporter
- C. inhibition of sodium-potassium ATPase
- D. inhibition of Na^+/H^+ exchanger
- E. inhibition of carbonic anhydrase

40. The drug of choice for ventricular arrhythmia caused by cardiac glycosides poisoning is

- A. propranolol
- B. sodium phenytoin
- C. quinidine
- D. amiodarone
- E. procainamide

41. All of the following statements about glucocorticoids are true except

- A. inhibiting both the early and the late manifestation of inflammation
- B. affecting all types of inflammatory reactions
- C. decreasing the number of neutrophils
- D. inhibiting the release of arachidonic acid
- E. inhibiting granulation tissue formation

42. Which of the following can be used for megaloblastic anemia

- A. folic acid
- B. folic acid + VitB₁₂
- C. folic acid + VitB₆
- D. folic acid + VitB₁₂ + VitB₆
- E. folic acid + VitB₁₂ + VitB₆ + VitC

43. Which of the statements about thiourea is WRONG?

- A. They inhibit the synthesis of thyroxine
- B. They have immunosuppressive effect
- C. Propylthiouracil stimulates T₄ transform to T₃
- D. They can cause thyroid enlargement when long term used
- E. They can excrete from milk and pass through placenta barrier

44. Which of the following factors interferes with the absorption of ferrous agents?

- A. Gastric acid
- B. Vit C

- C. Foodstuff with abundant calcium and phosphate
 - D. Fructose in foodstuff
 - E. Cysteine
45. Which of the following is the most important approach in preventing peptic ulcers from recurrence?
- A. coating the ulcer crater
 - B. eradicating infection with H. Pylori
 - C. inhibiting secretion of gastric acid at the proton pump
 - D. blocking receptor activation of gastric acid secretion
 - E. neutralizing secreted gastric acid
46. The antiplatelet mechanism of aspirin is
- 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
47. Which of the following therapies is the best for a patient with status asthmaticus
- A. aminophylline p.o.
 - B. hydrocortisone i.v.
 - C. inhaling sodium cromoglycate
 - D. inhaling becmethasone
 - E. salbutamol p.o.
48. Which of the following symptoms is a withdrawal syndrome of glucocorticoids?
- A. Induction and aggravation of infections
 - B. Rebound phenomenon
 - C. central obesity
 - D. Hypertension
 - E. Osteoporosis
49. All of the following are indications of glucocorticoids EXCEPT
- A. rheumatic arthritis
 - B. bronchial asthma
 - C. peptic ulcer
 - D. endotoxic shock
 - E. childhood acute leukemia
50. Which of the following mechanisms best accounts for the hypoglycemic effect of glibenclamide
- A. Stimulating β -cell in pancreatic island directly, prompting the release of insulin
 - B. Inhibit the activity of α -glycosidase
 - C. Decreasing the absorption of glucose
 - D. Increase the sensitivity of insulin to target organism

E. Directly activating insulin-receptors

51. A young woman using an oral contraceptive is to be treated for pulmonary tuberculosis. She is advised to use an additional method of contraception since the efficacy of the oral agent is commonly decreased, which drug may include in her regimen?

- A. streptomycin**
- B. ethambutol**
- C. rifampin**
- D. isoniazid**
- E. pyrazinamide**

52. Which of the following statements about the pharmacodynamics of antifungal agents is most accurate

- A. amphotericin B blocks the conversion of lanosterol(羊毛固醇) to cholesterol**
- B. flucytosine inhibits ergosterol synthesis 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 the synthesis of ergosterol)**

53. A 35-year-old female complains of itching in the vulval area, examination of the urine reveals trichomonads, what is the preferred treatment for trichomoniasis?

- A. doxycycline**
- B. ofloxacin**
- C. piperacillin**
- D. metronidazole**
- E. chloramphenicol**

54. Which of the following statements about the mechanism of action of antibiotics is most accurate?

- A. aminoglycosides bind to receptors on the 50s ribosomal subunit to prevent attachment of aminoacyl-tRNA**
- B. cephalosporins inhibit the synthesis of precursor of the linear peptidoglycan chain of the cell wall**
- C. fluoroquinolones inhibit DNA-dependent RNA polymerase**
- D. the bactericidal action of penicillin is partly due to their activation of autolytic enzymes**
- E. vancomycin inhibit peptidyl transferases involved in cell wall synthesis**

55. All of the following statements about penicillin G are correct except:

- A. it is excreted from the body primarily via the hepatobiliary route**
- B. it is orally ineffective because of its degradation by stomach acid**
- C. it is more effective in killing growing bacteria than microorganisms in the stationary phase**
- D. it can act synergistically with aminoglycosides**
- E. levels in the blood can be increased by administration of probenecid**

56. A 75-year-old woman is hospitalized for pneumonia and treated with an intravenous antibiotic. On the third day, she develops severe diarrhea. Stool is positive for Clostridium

difficile toxin. What is the best treatment?

- A. clindamycin
- B. cefaclor
- C. metronidazole
- D. erythromycin
- E. doxycycline

57. Which of the following statements about chemotherapeutic index (CI) is true ?

- A. a drug with great CI possesses great toxicity and high potency.
- B. a drug with great CI possesses less toxicity and low potency.
- C. a drug with great CI possesses less toxicity and high potency.
- D. a drug with low CI possesses great toxicity and high potency.
- E. a drug with low CI possesses less toxicity and low potency.

58. Erythromycin can not be used for patients with

- A. mycoplasmal pneumonia
- B. legionella disease
- C. diphtheria
- D. typhoid
- E. pertussis

59. A 45-year-old female being treated for a chronic urinary tract infection develops acute alcohol intolerance. Which of the following agents could have caused this intolerance?

- A. cefoperazone
- B. amoxicillin
- C. SMZ
- D. norfloxacin
- E. tetracycline
- E. vancomycin

60. The antineoplastic agent that is classified as a alkalyting agent is :

- A. busulfan
- B. vinblastine
- C. tamoxifen
- D. fluorouracil
- E. paclitaxel

Type X Choice questions (one or more answers are correct)

61. The agents which can be used to treat glaucoma are

- A. timolol
- B. atropine
- C. physostigmine
- D. acetazolamide

E. pilocarpine

62. Which of the following belong to muscarinic actions caused by M-receptor activation?

- A. heart depression
- B. vessel dilation
- C. smooth muscle contraction
- D. glands secretion increased
- E. mydriasis

63. Which of the following receptors locate(s) on the vessels?

- A. α -receptor
- B. N_2 -receptor
- C. M-receptor
- D. β_1 -receptor
- E. β_2 -receptor

64. In a hypertensive patient who is taking insulin to treat diabetes, which of the following drugs is to be used with extra caution and advice to the patient?

- A. prazosin
- B. hydrochlorothiazide
- C. propranolol
- D. captopril
- E. losartan

65. Which of the following drug is (are) not the indication of mannitol?

- A. cerebral edema
- B. glaucoma
- C. preventing acute renal failure
- D. congestive heart failure
- E. migraine headache

66. Calcium channel blockers can cause

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

67. Which of the following is (are) the merits of prazosin in treatment of Hypertension?

- A. Do not reduce the renal blood flow
- B. Do not increase renin activity
- C. Do not reflex increase in heart rate obviously
- D. improve lipid metabolism: \downarrow TG, TC, LDL-c, \uparrow HDL-c
- E. has no first dose phenomenon

68. which of the following diseases is(are) the indications of β -receptor blockers?

- A. glaucoma
- B. hyperthyroidism
- C. angina pectoris
- D. hypertension
- E. hypothyroidism

69. Which of the following diseases are the contraindications of glucocorticoids?

- A. fulminant epidemic cerebrospinal meningitis
- B. psychosis
- C. diabetes mellitus
- D. severe hypertension
- E. varicella

70. Which of the following drugs is(are) useful in the treatment of diabetes mellitus after the excision of pancreas?

- A. Tolbutamide
- B. Phenformin
- C. Glibenclamide
- D. Insulin
- E. Gliclazide

71. Which of the following megaloblastic anemia are NOT the indication of folic acid

- A. megaloblastic anemia caused by AIDS
- B. megaloblastic anemia caused by TMP
- C. megaloblastic anemia caused by MTX
- D. megaloblastic anemia caused by pyrimethamine(乙胺嘧啶)
- E. megaloblastic anemia caused by malignant tumor

72. Which of the following statements about morphine are correct?

- A. It is used therapeutically to relieve pain caused by severe head injury
- B. Its withdraw symptoms can be relieved by methadone
- C. It causes constipation
- D. It is most effective by parenteral administration
- E. It rapidly enters all body tissues, including the fetus of a pregnant woman

73. The drugs that cannot be used to treat patient with bronchial asthma is(are)

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

74. Which of the following statements about phenytoin are true?

- A. has a sedative effect
- B. can be used for patients with epilepsy
- C. can be used to treat patients with arrhythmia

- D. can be used to manage patients with trifacial neuralgia
 - E. can cause gingival hyperplasia
75. Metronidazole can be used in the treatment of
- A. Syphilis
 - B. Trichomonas vaginalis infection
 - C. Bacterial dysentery
 - D. Anaerobic infections
 - E. Helicobacter pylori infection
76. Quinolones can NOT be used in patients who
- A. have epilepsy history
 - B. are in growth and development period
 - C. are taking antacid
 - D. are pregnant
 - E. are allergic to penicillin
77. In chemotherapy of neoplastic disease, cell cycle-specific agents which can kill tumor cells in S phase is(are)
- A. methotrexate (MTX)
 - B. vinblastine
 - C. mercaptopurine (6-MP)
 - D. cyclophosphamide (CTX)
 - E. busulfan
78. Which of the following clinical indications may require a combination of antibiotics?
- A. treatment of mixed infections
 - B. treatment of tuberculosis
 - C. treatment of cryptococcal meningitis
 - D. treatment of gonorrhoea
 - E. treatment of severe infections of unknown origin
79. Penicillin G is effective in treating which of the following infections
- A. streptococcal infection
 - B. pneumococcal infection
 - C. leptospira infection
 - D. staphylococcal infection
 - E. legionella infection
80. which is(are) the effective agent against pseudomonas aeruginosa among the following drugs
- A. gentamicin
 - B. carbenicillin
 - C. polymyxins
 - D. ampicillin
 - E. imipenem

得分	统分人

二. 问答题: (每题 8 分, 共 40 分)

1. Please describe the therapeutic uses of atropine.

扣分	评卷人

2. Please describe the antianginal action of nitroglycerin and its mechanism.

扣分	评卷人

3. Please describe the pharmacological effects of morphine.

扣分	评卷人

4. Please describe the purpose and mechanism of thioureas plus large dose of iodide for pre-operative preparation before subtotal thyroidectomy.

扣分	评卷人

5. Please describe the general properties of aminoglycosides.

扣分	评卷人

2004 级医学七年制药理学期末考试试题 (A 卷) 标准答案

一、选择题

1.D 2.C 3.E 4.E 5.D 6.D 7.B 8.D 9.A 10.B 11.C 12.E 13.C
14.C 15.C 16.B 17.D 18.E 19.D 20.B 21.D 22.E 23.B 24.A 25.C 26.B 27.C
28.D 29.E 30.A 31.B 32.B 33.D 34.D 35.D 36.C 37.C 38.C 39.B
40.B 41.C 42.E 43.C 44.C 45.B 46.A 47.B 48.B 49.C 50.A 51.C
52.E 53.D 54.D 55.A 56.C 57.C 58.D 59.A 60.A 61.ACDE
62.ABCD 63.ACE 64.BC 65.DE 66.ABCE 67.ABCD 68.ABCD
69.BCDE 70.BD 71.BCD 72.BCDE 73.ABC 74.BCDE 75.BDE
76.ABCD 77.AC 78.ABCE 79.ABCD 80.ABCE

二、问答题

1. Please describe the therapeutic uses of atropine. (8 分)

答: (1) 解除平滑肌痉挛 适用于各种内脏绞痛 (1 分)

(2) 抑制腺体分泌 用于麻醉前给药及严重盗汗等 (1 分)

(3) 眼科: 虹膜睫状体炎, 验光配镜 (2 分)

(4) 缓慢型心律失常 适用于迷走神经过度兴奋所致窦房阻滞, 房室阻滞等 (1 分)

(5) 抗休克 治疗感染性休克, 可解除血管痉挛, 舒张外周血管, 改善微循环 (2 分)

(6) 解救有机磷酸酯类中毒 (1 分)

2. Please describe the antianginal action of nitroglycerin and its mechanism. (8 分)

答: (1) 扩张血管, 减少心肌耗氧量 (2 分)

a. 扩张动脉, 降低外周阻力, 降低后负荷, 降低心室壁张力, 减少耗氧量

b. 扩张静脉, 减少回心血量, 降低前负荷, 缩小心室容积, 减少耗氧量

(2) 改变心肌血液分布, 增加缺血区血液供应 (3 分)

a. 增加心内膜下区的血液供应: nitroglycerin 扩张动脉和静脉, 降低 LVEDP, 降低对心内膜下血管的压力。

b. 选择性舒张心外膜下较大的输送血管, 对小阻力血管的舒张作用弱, 有利于血液由非缺血区流向缺血区

c. 开放侧枝循环

(3) 保护心肌细胞, 抑制血小板聚集 (1 分)

机制: 进入机体后, 释放 NO, 激活 GC, 使 cGMP 增多, 激活 cGMP 依赖性蛋白激酶, 降低细胞内钙离子浓度, 使肌球蛋白轻链去磷酸化, 血管平滑肌松弛, 血管舒张。(2 分)

3. Please describe the pharmacological effects of morphine. (8分)

答: (1) 中枢神经系统: (3分)

镇痛: 作用强大, 对急慢性疼痛均有效

镇静、致欣快作用

抑制呼吸

镇咳

其他: 如缩瞳

(2) 平滑肌 (3分)

胃肠道平滑肌: 升高胃肠道平滑肌张力, 减少其蠕动

胆道平滑肌: 引起胆道奥狄括约肌痉挛性收缩, 使胆道排空受阻, 胆内压升高, 可致胆绞痛

其他: 降低子宫平滑肌张力, 提高输尿管平滑肌及膀胱括约肌张力, 引起尿潴留。

(3) 心血管系统: 扩张血管, 降低外周阻力, 可引起体位性低血压, 升高颅内压。(2分)

4. Please describe the purpose and mechanism of thioureas plus large dose of iodide for pre-operative preparation before subtotal thyroidectomy. (8分)

答: 甲亢术前应服用硫脲类及大剂量碘化物

(1) 服用硫脲类目的: 为减少病人在麻醉和术后的合并症及甲状腺危象, 术前应先服用硫脲类药物, 使甲状腺恢复或接近正常。(2分)

原理: 硫脲类可抑制过氧化物酶, 抑制甲状腺激素的合成 (2分)

(2) 服用大剂量碘化物的目的及原理: 由于用硫脲类后负反馈性引起 TSH 分泌增多, 使腺体增生, 组织脆而充血, 不利于手术进行, 所以在术前 2 周加服大剂量碘化物 (2分)。可抑制 TSH 使腺体增生的作用, 使腺体缩小变韧, 血管减少, 利于手术进行及减少出血。(2分)

5. Please describe the general properties of aminoglycosides. (8分)

答: (1) 抗菌谱广, 主要对需氧 G-杆菌有强大抗菌作用 (1分)

(2) 作用机制: 结合到细菌核糖体 30S 亚基上, 抑制菌体蛋白质合成 (1分)

(3) 体内过程: 口服不吸收, 在肾脏和内耳有蓄积, 经肾小球过滤排泄 (1分)

(4) 临床应用: 以 G-为主的严重感染, 其中链霉素还可用于结核病的治疗 (1分)

(5) 不良反应:

耳毒性: 前庭功能障碍和耳蜗听神经损伤 (1分)

肾毒性：（1分）

神经肌肉麻痹（1分）

变态反应（1分）