

# 山东大学医学院

(2007—2008 学年第一学期)

2004 级英语医学专业、2005 级口腔七年制

药理学期末考试试题 (A 卷)

FINAL EXAMINATION OF PHARMACOLOGY FOR

2004 EM STUDENTS AND 7-YEARS-2005

题号	一	二	三	四	五	六	七	总分	统分人
得分									

得分	统分人

## 一、名词解释 (每题 2 分, 共 10 分)

1. Half life

扣分	
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2. First-order kinetics

扣分	
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3. Bioavailability

扣分	
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4. Drug resistance

扣分	
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5. Superinfection

扣分	
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得分	统分人

二、选择题 (A 型每题 0.8 分, X 型每题 1 分,共 60 分)

(一) 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 statements is correct?
  - A. weak bases are absorbed efficiently across the epithelial cells of the stomach
  - B. coadministration of atropine speeds the absorption of a second drug
  - C. drugs showing large  $V_d$  can be efficiently removed by dialysis of the plasma.
  - D. stressful emotions can lead to a slowing of drug absorption.**
  - E. if the  $V_d$  for a drug is small, most of the drug is in the extraplasmic space.
3.  $pD_2$  is
  - A. therapeutic index
  - B. antagonist
  - C. affinity index**
  - D. dissociation constant
  - E. elimination rate constant
4. All of the following statements are true except
  - A. aspirin( $pK_a$  3.5) is 90% in its lipid-soluble, protonated form at pH 2.5
  - B. the basic drug promethazine ( $pK_a=9.1$ ) is more ionized at pH=7.4 than at pH 2**
  - C. absorption of a weakly basic drug is likely to occur faster from the intestine than from the stomach
  - D. acidification of the urine accelerates the secretion of a weak base,  $pK_a = 8$
  - E. uncharged molecules more readily cross cell membranes than charged molecules
5. Which of the following statements is correct
  - A. if 10mg of drug A produces the same response as 100mg of drug B, drug A is more efficacious than drug B
  - B. the greater the efficacy, the greater the potency of a drug
  - C. in selecting a drug, potency is usually more important than efficacy
  - D. a competitive antagonist increases  $ED_{50}$**
  - E. variation in response to a drug among different individuals is most likely to occur

with a drug showing a large therapeutic index

6. Among the following drugs, which will be excreted most quickly in acidic urine?
- A. a weak acid drug with pKa of 5.5
  - B. a weak base drug with pKa of 7.5**
  - C. a weak base drug with pKa of 4.5
  - D. a weak acid drug with pKa of 3.5
  - E. a weak base drug with pKa of 6.5
7. Which is NOT the indication of phentolamine?
- A. shock
  - B. diagnosis of pheochromocytoma
  - C. male sexual dysfunction
  - D. primary hypertension**
  - E. peripheral vascular occlusive disorders
8. The intoxication of tubocurarine can be antagonized by
- A. atropine
  - B. adrenaline
  - C. neostigmine**
  - D. dopamine
  - E. ephedrine
9. Which of the following adrenomimetic agents is able to dilate renal vessel and increase renal blood flow?
- A. metaraminol
  - B. epinephrine
  - C. dopamine**
  - D.  $\alpha$ -methyldopa
  - E. ephedrine
10. Atropine has the following effects except
- A. mydriasis
  - B. spasm of accommodation
  - C. increasing intraocular pressure
  - D. decrease salivary secretion
  - E. stimulating CNS in larger dose**
11. Which is correct description about the  $\beta$ -adrenoceptor effect?
- A. both vascular dilation and bronchial dilation belong to  $\beta_2$  effect**
  - B. both cardiac excitation and bronchial dilation belong to  $\beta_2$  effect
  - C. both cardiac excitation and vascular dilation belong to  $\beta_1$  effect
  - D. both cardiac excitation and vascular dilation belong to  $\beta_2$  effect
  - E. both cardiac excitation and bronchial dilation belong to  $\beta_1$  effect
12. Release of Ach is promoted by
- A.  $\text{Na}^+$

- B.  $\text{Ca}^{2+}$
- C.  $\text{K}^{+}$
- D.  $\text{Na}^{+}$  and  $\text{K}^{+}$
- E.  $\text{Ca}^{2+}$  and  $\text{K}^{+}$

13. Pilocarpine is

- A. a M-receptor agonist
- B. a M-receptor antagonist
- C. a N-receptor agonist
- D. a N-receptor antagonist
- E. an antihypertensive agent

14. The patients with bronchial asthma can't be given

- A. adrenaline
- B. ephedrine
- C. isoprenaline
- D. propranolol
- E. ipratropine

15. Antiparkinsonism agents do NOT include

- A. Amantadine
- B. chlorpromazine
- C. Levodopa
- D. artane
- E. selegiline

16. To relieve anxiety symptoms, we usually use

- A. Phenobarbital
- B. perphenazine
- C. chlorpromazine
- D. imipramine
- E. benzodiazepines

17. When phenobarbital poisoning, in order to reducing toxicity and promoting toxic substance excretion, we should

- A. apply acidic drug to decrease the pH of plasma and urine
- B. apply basic drug, to increase the pH of plasma and urine
- C. infuse intravenously dextran 40
- D. administer normal saline solution
- E. administer 10% glucose intravenously

18. Which of the following statements about the mechanism of aspirin's antipyretic effect is true?

- A. Inhibition of PG synthesis of temperature regulating center
- B. Inhibition of DA synthesis of temperature regulating center
- C. Promoting of PG synthesis of the temperature-regulating center

- D. Promoting of DA synthesis of the temperature-regulating center  
E. Direct dilation of blood vessel, increment of hot spread
19. The aim of adding adrenaline into the local anesthetics is to
- A. contract the blood vessel and decrease the absorption of the local anesthetics
  - B. prevent the allergic reaction
  - C. prolong the time of action of the local anesthetics
  - D. A+C**
  - E. eliminate fear and nervousness of the patient
20. Gastric ulceration by long-term use of aspirin is due to
- A. direct irritation of gastric mucosa
  - B. inhibition of PG synthesis
  - C. increase of gastric acid release
  - D. increase of pepsin release
  - E. A and B**
21. Which is the drug of choice in the treatment of absence seizure?
- A. phenytoin sodium
  - B. carbamazepine
  - C. amobarbital
  - D. ethosuximide**
  - E. glutethimide
22. The drug of choice to treat trigeminal neuralgia is
- A. phenobarbital
  - B. diazepam
  - C. chlorpromazine
  - D. ethosuximide
  - E. carbamazepine**
23. The mechanism of anti-hypertensive effect of losartan is:
- A. decrement of renin activity
  - B. inhibition of angiotensin converting enzyme
  - C. blockade of the angiotensin II type 1 receptor**
  - D. increment of kinin synthesis
  - E. causing vasodilation directly
24. Which of the following antihypertensive drugs can treat morphine addiction?
- A. enalapril
  - B. clonidine**
  - C. prazosin
  - D. metoprolol
  - E. methadone
25. Which of the followings is **NOT** the characteristics of ACEI ?
- A. it can be used in mild, moderate and severe hypertension**
  - B. it doesn't cause reflective quick heart rate
  - C. it not only improve life quality, but also decrease mortality

- D. it will not cause disorder of lipid metabolism  
 E. it will not affect glucose metabolism
26. The best drug used to treat ventricular premature beats and ventricular tachycardia is  
 A. propranolol  
 B. digitoxin  
 C. quinidine  
 D. lidocaine  
 E. verapamil
27. Which of the following antianginal drugs is harmful to patients with variant angina?  
 A. Verapamil  
 B. Nifedipine  
 C. Nitroglycerin  
 D. Propranolol  
 E. Aspirin
28. The mechanism of vasodilation of nitroglycerin is  
 A. vasodilating directly  
 B. blocking  $\alpha$  receptor  
 C. producing NO  
 D. stimulating  $\beta_2$  receptor and causing vasodilation  
 E. stimulating adenylyl cyclase to increase intracellular cAMP concentration
29. In which of the following drugs orthostatic hypotension occurs most frequently in first use:  
 A. clonidine  
 B. nifedipine  
 C. propranolol  
 D. enalapril  
 E. prazosin
30. Captopril can do all of the following EXCEPT  
 A. inhibiting ACE  
 B. causing dry cough  
 C. inhibit the formation of angiotensin II  
 D. promote the excretion of potassium  
 E. increase bradykinin concentration in the blood
31. Cardiac glycoside can treat atrial fibrillation because it can  
 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  $\text{Na}^+$  channel
32. All of the following measures can be used in the treatment of digoxin-induced arrhythmias EXCEPT  
 A. stopping digoxin administration  
 B. diuretic agents such as furosemide is used to improve excretion  
 C. phenytoin administration

- D. atropine administration  
E. lidocaine administration
33. 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  $\text{Na}^+ /2\text{Cl}^-$  cotransporter  
C. inhibition of sodium-potassium ATPase  
D. inhibition of  $\text{Na}^+/\text{H}^+$  exchanger  
E. inhibition of carbonic anhydrase
34. All of the following statement about glucocorticoids are true **EXCEPT**  
A. inhibiting both the early and the late manifestation of inflammation  
B. affecting all types of inflammatory reactions  
C. inhibiting the amount of neutrophil  
D. inhibiting the release of arachidonic acid  
E. inhibiting granulation tissue formation
35. Vit K is a substance to prevent or reduce bleeding caused by  
A. heprin  
B. aspirin  
C. urokinase  
D. streptokinase  
E. dicoumarin
36. Which of the following mechanisms best accounts for the anti-thyroid effect of methylthiouracil?  
A. Inhibiting peroxidase and decreasing the thyroxin synthesis  
B. Inhibiting the thyroid releasing  
C. Inhibiting the absorption of iodine  
D. Interfering with the utilization of iodine  
E. Decomposing the thyroxin
37. Which of the following mechanisms best accounts for the anticoagulant effect of heparin?  
A. Binding antithrombin III and accelerating the deactivation of coagulant factors consequently  
B. Interfering with the utilization of Vit k and decreasing synthesis of coagulant factors  
C. Inhibiting the platelet aggregation  
D. Inhibiting the activity of thrombase  
E. Antagonizing the effect of thromba
38. Which of the following statements about insulin is NOT true?  
A. It can cause hyperglycemic reaction  
B. It can't 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
39. 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
40. The patients with bronchial asthma can not be given  
A. adrenaline  
B. ephedrine  
**C. aspirin**  
D. aminophylline  
E. salbutamol
41. Under which of the following conditions is mannitol contraindicated?  
A. Glaucoma  
**B. Chronic heart failure**  
C. Oliguria caused by shock  
D. Before colonoscopy  
E. Edema
42. Which is the best scheme for treatment of megaloblastic anemia  
A. folic acid  
B. folic acid plus ferrous sulfate  
C. Vit B<sub>12</sub>  
**D. folic acid plus Vit B<sub>12</sub>**  
E. Vit B<sub>12</sub> plus ferrous sulfate
43. Sulfonamide act synergistically with trimethoprim because  
A. sulfonamides inhibit the metabolism of trimethoprim  
B. trimethoprim inhibit the metabolism of sulfonamides  
C. both drugs act at the same step in inhibiting folic acid synthesis  
**D. both drugs act at different steps in inhibiting folic acid synthesis**  
E. none of the above
44. A 75-year-old woman 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



45. Metronidazole can not be used to treat patients with
- A. trichomoniasis
  - B. amebic dysentery
  - C. rheumatic arthritis**
  - D. infection caused by anaerobe
  - E. giardiasis
46. 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
47. Which of the following drug has no effect on pseudomonas aeruginosa infections?
- A. carbencillin
  - B. imipenem
  - C. netilmicin
  - D. ciprofloxacin
  - E. amoxicillin**
48. A young woman suffering from urinary tract infection caused by a G<sup>-</sup> rod can be treated with
- A. penicillin G
  - B. vancomycin
  - C. gentamicin**
  - D. clindamycin
  - E. erythromycin
49. Which of the following drugs may cause superinfection?
- A. penicillin G
  - B. streptomycin
  - C. erythromycin
  - D. tetracycline**
  - E. neomycin
50. Which of the following drugs is the drug choice in treating pneumonia caused by Legionella?
- A. tetracycline
  - B. azithromycin**
  - C. gentamicin

- D. cefuroxime
- E. amoxicillin

(二) **Type X choice questions (in a question, one or more answers may be correct)**

51. Which of the following statements is(are) **NOT** true
- A.  $E_{max}$  of drug is also called the potency of drug
  - B. antagonist is the drug that interacts with receptor with high affinity and intrinsic activity
  - C. the allergic reaction is the side effect of drug
  - D. some drugs have first-pass elimination after parenteral administration
  - E. all drug can be metabolized by hepatic microsomal enzymes
52. Factor(s) affecting distribution of a drug include(s)
- A. pKa of the drug
  - B. pH of body fluids
  - C. blood brain barrier
  - D. affinity to certain tissues
  - E. binding of the drug to plasma proteins
53. The action of norepinephrine is terminated by
- A. re-uptake
  - B. catechol-O-methyltransferase
  - C. monoamine oxidase
  - D. tyrosine hydroxylase
  - E. acetylcholinesterase
54. Which of the following side effects would be seen on a patient treated with atropine?
- A. dry mouth
  - B. tachycardia
  - C. miosis
  - D. gastric and urinary retention
  - E. flushed face
55. Epinephrine may induce
- A. cardiovascular stimulation
  - B. bronchodilation
  - C. CNS stimulation
  - D. bradycardia
  - E. paralysis of accommodation
56. Which of the followings are true about adverse reactions of aspirin
- A. has gastrointestinal reaction
  - B. induce blood coagulation disorder

- C. has on-off response
  - D. has ototoxicity
  - E. has allergic reaction
57. Phenytoin can induce
- A. arrhythmia
  - B. antiepileptic effect
  - C. gingival hyperplasia
  - D. increase in metabolism
  - E. sedative effect
58. In local anesthesia the aim of adding epinephrine to solution of procaine is to
- A. decrease hydrolysis of procaine
  - B. increase duration of blood vessel
  - C. elevate blood pressure
  - D. decrease absorption and prolong duration of action of procaine
  - E. increase excitation
59. Which of the following drugs belong to the first-line drugs therapy for hypertension in current?
- A. A vasodilator such as hydralazine
  - B. A cardiac Glycoside such as digoxin
  - C. A  $\beta$ -receptor blocker such as propranolol
  - D. A thiazide diuretic such as hydrochlorothiazide
  - E. An ACE inhibitor such as captopril
60. Calcium channel blockers can cause
- A. negative inotropic effect
  - B. relaxation of blood vessels
  - C. relaxation of branchial smooth muscle
  - D. diuresis
  - E. antiatherosclerotic effects
61. The adverse reaction of cardiac glucosides include
- A. anorexia, nausea, vomiting, diarrhea
  - B. blurred vision
  - C. tachycardia
  - D. bradycardia
  - E. hyperkalemia
62. Which of the following drugs is (are) useful in treatment of Ventricular tachycardia?
- A. Atropine
  - B. Digitoxin
  - C. Verapamil
  - D. Lidocaine
  - E. Amiodarone
63. Which of the following diseases are the contraindications of glucocorticoids?
- A. fulminant epidemic cerebrospinal meningitis
  - B. psychosis

- C.diabetes mellitus  
D.severe hypertension  
E.chickenpox
64. Which can be used in treatment of acute myocardial infarction?  
A. warfarin  
B. heparin  
C. tissue plasminogen activator  
D. P-aminomethybenzoic acid  
E. nitroglycerin
65. Which of the following statements about dicumarol is (are) true?  
A. Vitamin K is its competitive antagonist  
B. It can inactivate coagulant factor II a, VIIa, IXa, X a  
C. It is effective in vivo, not in vitro  
D. Cimetidine can weaken its anticoagulant effect  
E. It can inhibit the aggregation of platelet
66. Which of the following is (are) the effects of Magnesium sulfate?  
A. Laxative effect  
B. Cholagogic (利胆的) action  
C. Relaxing skeletal muscles  
D. inhibiting secretion of gastric acid  
E. Relax vascular smooth muscle
67. The mechanism of action of penicillin is(are)  
A. interfering with the synthesis of the bacteria cell wall  
B. blocking cross-linking of peptideglycan  
C. inhibiting the transpeptidase  
D. inhibiting the  $\beta$ -lactamase  
E. inhibit the protein synthesis
68. Which of the following drug can inhibit cell wall synthesis  
A. vancomycin  
B. clarithromycin  
C. cefaclor  
D. clavulanic acid  
E. amikacin
69. A young woman with pregnancy should avoid using which of the following drugs to treat urinary tract infection caused by gram-negative rods?  
A. gentamicin  
B. cefalexin  
C. ofloxacin  
D. amoxicillin  
E. SMZ+TMP

70. Quinolones can NOT be used to patients who

- A. have epilepsy history
- B. are in growth and development period
- C. are taking antiacid
- D. are pregnant
- E. are allergic to penicillin

得分	统分人

**三、Answer Questions (30 points)**

**1. Please describe the pharmacological action and clinical uses of morphine. (8分)**

扣分	评卷人

**2. Please describe the mechanisms of  $\beta$  adrenoceptor blocker in the treatment of chronic heart failure. (8 分)**

扣分	评卷人

**3. Please describe the anti-inflammatory action and mechanisms of glucocorticoids. (7 分)**

扣分	评卷人

4. Please describe the common characteristics of aminoglycoside antibiotics. (7分)

扣分	评卷人

## 2004 级英语医学专业、2005 级口腔七年制

### 药理学期末考试试题评分细则 (A 卷)

#### 一、

1. 半衰期 (half life): 血浆药物浓度下降一半所需要的时间。(2 分)
2. 一级动力学消除 (First-order kinetics): 单位时间内体内药物按恒定比率消除, 又叫恒比消除。(2 分)。
3. 生物利用度 (Bioavailability): 经任何给药途径给予一定剂量的药物后到达全身血循环内药物的百分率称生物利用度。(2 分)
4. 耐药性 (Drug resistance): 指病原体或肿瘤细胞对反复应用的化学治疗药物的敏感性降低, 也称抗药性。(2 分)
5. 二重感染 (superinfection) 正常人口腔、咽部存在完整的微生态系统, 长期应用广谱抗生素时, 敏感菌被抑制; 不敏感菌乘机大量繁殖, 由原来的劣势菌群变为优势菌群, 造成新的感染, 称二重感染或菌群交替症。(2 分)

#### 二、选择题答案:

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

#### 三、问答题:

##### 1. 吗啡的药理作用:

- (1) 中枢神经系统: 镇痛作用; 镇静、致欣快作用; 呼吸抑制作用; 镇咳作用; 其他中枢作用: 瞳孔缩小、恶心、呕吐等。(2 分)
- (2) 平滑肌: 提高胃肠道平滑肌张力, 引起止泻、便秘; 引起奥狄氏括约肌收缩, 胆内压升高, 可致上腹部不适甚至胆绞痛。大剂量吗啡诱发或加重哮喘; 尿潴留。(2 分)
- (3) 心血管系统: 扩张动、静脉血管, 降低外周血管阻力, 常见体位性低血压。扩张脑血管, 致颅内压升高。(1 分)

##### 临床应用:

##### (1) 镇痛

适用于明确诊断的各种锐痛, 如严重创伤、战伤、烧伤、骨折、手术后伤口痛、晚期癌症疼痛等。血压正常的心肌梗死引起的心绞痛。癌症疼痛晚期。(1 分)

##### (2) 心源性哮喘 (1 分)

##### (3) 止泻: 急、慢性消化性腹泻。(1 分)

##### 2. (1) 抑制交感神经作用 (2 分)

##### (2) 抑制 RAAS 系统活性 (2 分)

##### (3) 对心脏血流动力学的影响 (2 分)

##### (4) 抗心律失常和抗心肌缺血作用 (2 分)

3. 糖皮质激素有强大抗炎作用, 对炎症各阶段均有明显抑制作用。对抗早期渗出性炎症, 抑制炎症后期毛细血管和纤维母细胞增生, 延缓肉芽组织生成, 防止黏连和瘢痕形成, 减轻后遗症 (3 分)。



机制：①糖皮质激素可通过增加脂皮素的合成，抑制磷脂酶 A<sub>2</sub> (PLA<sub>2</sub>) 活性，使致炎活性物质如白三烯、前列腺素、血小板激活因子的生成减少。(1分)

②抑制炎性细胞因子如 TNF $\alpha$ ，IL-1、IL-2、IL-6、IL-8 等及黏附分子的产生。(1分)

④抑制一氧化氮合酶(NOS)， $\downarrow$ NO 生成。(1分)

⑤促进炎症细胞凋亡。(1分)

4. (1) 水溶液性质稳定，在碱性环境中作用强；(1分)

(2) 对 G-杆菌抗菌作用强大，对厌氧菌无效；(1分)

(3) 抗菌机制—抑制细菌蛋白质合成的多个环节 (1分)

(4) 主要用于敏感的需氧 G-杆菌感染 (1分)

(5) 共同的不良反应：耳、肾毒性、神经肌肉阻断作用及过敏反应 (3分)。