

DENTAL PHARMACOLOGY

Examination 2

February 28, 2008

collected

You have 1 hour and 15 minutes to complete this examination, consisting of 50 questions of equal value. Please print your answers clearly on the answer sheet provided.

Print your name and TUid number on the answer sheet and return it at the end of the examination.

This examination is being administered under the Honor Code of Temple University Dental School.

84%

18

All Questions: Select the single, most appropriate answer.

What is the mechanism of action of disulfiram?

- A
- ☒ A. Inhibits aldehyde dehydrogenase
 - B. Reduces alcohol absorption from the stomach
 - C. Increases urinary excretion of alcohol
 - D. Increases the metabolism of alcohol
 - E. Prevents alcohol from entering the central nervous system

2. A 67-year-old hypertensive patient was started on diuretic therapy and was scheduled for a follow-up visit in 4 weeks. Results of laboratory studies taken on the second visit included hypokalemia, hyperglycemia, hyperuricemia and hypercalcemia. Which of the following drugs is most likely to produce these results?

- hypocalcemia
toxic effects
- 7x
- A. Spironolactone
 - B. Theophylline
 - C. Acetazolamide
 - ☒ D. Hydrochlorothiazide
 - E. Furosemide

3. Which of the following drugs is the most effective carbonic anhydrase inhibitor and is most useful in the treatment of glaucoma?

- C
- A. Bumetanide - ~~osmotic diuretic~~
 - B. Chlorothiazide
 - ☒ C. Acetazolamide
 - D. Amiloride
 - E. Furosemide
- But acetazolamide can cause

4. Therapy with which class of drugs is most likely to result in the development of hypokalemia, hyperglycemia, hyperuricemia and ototoxicity?

- E
- A. A xanthine diuretic
 - B. An osmotic diuretic
 - C. A thiazide diuretic
 - D. A potassium sparing diuretic
 - ☒ E. A loop diuretic

5. Which drug, used in the treatment of asthma, prevents leukotriene synthesis by inhibiting 5-lipoxygenase?

- C
- A. Zafirlukast
 - B. Formoterol
 - ☒ C. Zileuton
 - D. Montelukast
 - E. Aminophylline

6. Which of the following drugs is a centrally-acting antitussive with the **LEAST** analgesic or addictive properties, but stimulates histamine release?

A. Dextromethorphan
B. Codeine
C. Acetylcysteine
D. Isoproterenol
E. Morphine

CHAT

7. The therapeutic effect of cromolyn in a patient with bronchial asthma is primarily due to the drug's action on

A. Muscarinic receptors
B. Beta-2 adrenergic receptors
C. Histamine H₁ receptors
D. Mast cell membranes
E. Beta-1 adrenergic receptors

8. Before beginning folate therapy for megaloblastic anemia, a physician should consider treatment of which of the following conditions to prevent neurological disease?

A. Vitamin B₁₂ deficiency
B. Zinc deficiency
C. Iron deficiency
D. Vitamin B₆ deficiency

9. Which of the following antianginal drugs is most likely to induce gingival inflammation in long-term therapy?

A. Metoprolol
B. Isosorbide dinitrate
C. Propranolol
D. Diltiazem
E. Atenolol

10. A physician is considering therapeutic options for a new patient who presents with hypertension and angina pectoris. In considering adverse effects, it is noted that both nitroglycerin and nifedipine produce - the Ca⁺⁺ channel blocker.

A. Bradycardia
B. Tachycardia
C. Drowsiness
D. Constipation
E. Atrioventricular block

- ✓ 11. Which one of the following drugs is an angiotensin-receptor blocker that will have the same beneficial effects as an ACE inhibitor, but will not produce a cough?

cap
EN. ☐ A. Nifedipine
☒ B. Prazosin
☐ C. Propranolol
☐ D. Hydrochlorothiazide
☒ E. Losartan

12. Prolongation of the P-R interval of the electrocardiogram is most likely to occur with administration of

C ☐ A. Hydralazine
☐ B. Clonidine
☒ C. Digoxin
☐ D. Nitroglycerin
☐ E. Guanethidine

13. Digoxin is **LEAST** likely to produce

D ☐ A. Nausea
☐ B. Increased cardiac efficiency
☒ C. Visual disturbances
☒ D. Hepatotoxicity
☐ E. Increase in cardiac contractility

14. Which of the following drugs is most likely to produce anticholinergic side effects and sedation?

B ☐ A. Ranitidine
☒ B. Diphenhydramine
☐ C. Fexofenadine
☐ D. Loratadine
☐ E. Cimetidine

15. Which of the following statements about lidocaine is most correct?

E ☐ A. Is used against a wide spectrum of cardiac arrhythmias
☒ B. Is orally active
☐ C. Is a calcium channel antagonist
☐ D. Is more cardiotoxic than flecainide
☒ E. Is very selective for abnormal cardiac tissue

16. All of the following antiarrhythmic drugs are correctly matched to their effects or side effects **EXCEPT**:

A. ☒ Propranolol - produces torsade de pointes
B. ☐ Verapamil - calcium-channel blocker effective in treating atrial arrhythmias
C. ☐ Quinidine - produces cinchonism (blurred vision, tinnitus, etc.)
D. ☐ Amiodarone - produces multi-organ toxicity
E. ☐ Phenytoin - produces gingival hyperplasia

17. Which of the following drugs binds bile acids in the intestine preventing their return to the liver?

A. Gemfibrozil
B. Lovastatin
C. Niacin
D. Neomycin
E. ☒ Cholestyramine

18. A major disadvantage to the use of abciximab as an antiplatelet drug is

A. ☒ It can cause bleeding
B. ☐ It interferes with the action of heparin
C. ☐ It must be given intravenously
D. ☐ It causes CNS depression
E. ☐ It needs to be metabolized by the liver to an active form

19. Osteoporosis is most likely to occur with long-term use of

A. ☒ Heparin
B. ☐ Warfarin (Coumadin)
C. ☐ Ticlopidine
D. ☐ Clopidogrel
E. ☐ Argatroban

20. Successful detoxification of heroin addicts is most likely to be accomplished with which one of the following drugs?

A. ☐ Fentanyl
B. ☐ Pentazocine
C. ☐ Butorphanol
D. ☒ Buprenorphine
E. ☐ Diazepam

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21. Which one of the following agents is an endogenous ligand for cannabinoid receptors?

- E
- A. Dynorphin
 - B. Dronabinol
 - C. Beta-endorphin
 - D. Met-enkephalin
 - ☒ E. Anandamide

22. Which one of the following is the cause of death from an acute overdose of an opioid analgesic?

- C
- A. Acute renal failure
 - B. Cardiac arrhythmias
 - ☒ C. Respiratory depression
 - D. Severe hyperthermia
 - E. Status epilepticus

23. Which one of the following drugs is indicated for the treatment of severe pain?

- E
- A. Codeine
 - B. Propoxyphene
 - C. Pentazocine
 - D. Naltrexone
 - ☒ E. Oxycodone

M CRM
C AAA
O

24. Which one of the following drugs is approved by the FDA for the treatment of alcoholism?

- DR
- A. Gamma hydroxybutyrate
 - B. Methadone
 - C. Naloxone
 - ☒ D. Naltrexone
 - E. Tramadol

25. Flumazenil is the most appropriate treatment for an acute overdose of which one of the following drugs?

- A
- ☒ A. Flunitrazepam
 - B. Fentanyl
 - C. Gamma hydroxybutyrate
 - ☒ D. Ketamine
 - E. Methylene-dioxy-methamphetamine

Naloxone?

26. Following a minor dental procedure you recommend aspirin to your patient to reduce the pain and inflammation. However, this patient has already begun taking aspirin daily because she is in a high-risk group for a possible stroke. You should be most concerned about which of the following adverse reactions?

B7

- A. Reduced blood uric acid levels
- ☒ B. Delayed blood clot formation
- C. Heightened sensitivity to painful stimuli
- D. CNS depression
- E. ~~Reye's syndrome in patients over the age of 60~~

27. Celecoxib (Celebrex) is a member of a group of NSAIDs that are used by patients with rheumatoid arthritis. Which of the following are characteristics of celecoxib?

C

- A. Selectively inhibits TNF production by vascular endothelial cells
- B. Is a reversible inhibitor of TNF receptor activity in inflammatory leukocytes
- ☒ C. Is a selective COX-2 inhibitor
- D. Possesses serious renal adverse reactions in approximately 25% of patients
- E. Is an inhibitor of platelet aggregation

28. A commonly prescribed DMARD for the treatment of rheumatoid disease is infliximab. This drug has a well understood mechanism of action, but is known to possess potential adverse reactions. Which of the following statements about infliximab is true?

B.C

- ~~A. Induces adverse dermatologic reactions including dermatitis~~
- B. Because it is a selective inhibitor of DNA synthesis, it can depress lymphocyte function and cause an increase in opportunistic infection
- ☒ C. Causes nausea, headaches, and sinusitis in a small percentage of individuals
- D. ~~Is an inhibitor of CD20 and blocks the activation of B cells~~

- ✓ 29. What is the enzyme system that can be induced by both alcohol and barbiturates?

D

- A. Cyclooxygenase
- ~~B. Alcohol dehydrogenase~~
- ~~C. Aldehyde dehydrogenase~~
- ☒ D. Microsomal ethanol oxidizing system (MEOS)
- E. Aldehyde oxidase

30. An 80-year-old man is brought to the emergency room with severe pulmonary edema. He has a history of heart failure and acute left-ventricular myocardial infarction. Which of the following drugs has a rapid diuretic effect and is most useful in the treatment of acute pulmonary edema?

E

- A. Hydrochlorothiazide
- B. ~~Triamterene~~
- C. ~~Spironolactone~~
- D. ~~Acetazolamide~~
- E. Furosemide

?

31. Therapy with which class of drugs is most likely to cause an increase in the plasma concentration of cholesterol?

C

- A. A xanthine diuretic
- B. ~~An osmotic diuretic~~
- C. A thiazide diuretic
- D. ~~A potassium sparing diuretic~~
- E. ~~A loop diuretic~~

32. You have prescribed acetaminophen to your patient following a dental extraction. This widely used drug has which of the following characteristics?

D

- A. ~~Has anti-inflammatory activity~~
- B. ~~Is a potent inhibitor of blood clot formation~~
- C. ~~Is contraindicated in patients with hypersensitivity to aspirin~~
- D. Exhibits antipyretic and analgesic activity
- E. ~~Is a selective cyclooxygenase-2 inhibitor~~

33. The effects of theophylline would **LEAST** likely include

E

- A. Smooth muscle relaxation - *xanthine bronchodilator*
- B. Tachycardia - *stim heart*
- C. Competitive antagonism of adenosine
- D. Increased gastric acid secretion
- E. CNS depression

34. Which of the following drugs has the greatest beta-2 adrenergic receptor selectivity?

E

- A. Norepinephrine
- B. Epinephrine
- C. Ephedrine
- D. Isoproterenol
- E. Albuterol

35. Which of the following drugs is the first line of treatment for iron deficiency anemia?

- A. Oral ferrous sulfate
B. Parenteral iron dextran
C. Deferoxamine
D. Vitamin B₁₂

A

36. When a patient with a history of angina pectoris is to have a dental procedure, which of the following drugs should be included on the emergency tray?

- A. Verapamil
B. Propranolol
C. Nitroglycerin
D. Nifedipine
E. Metoprolol

C

37. Which of the following antihypertensive drugs is most likely to cause renal damage in the fetus if given during pregnancy?

- A. Captopril
B. Diazoxide
C. Guanethidine
D. Hydralazine
E. Minoxidil

A?

38. The cardiac inotropic effect of digitalis glycosides is due to

- A. Increase in intracellular calcium secondary to inhibition of the sodium-potassium ATPase pump
B. Stimulation of cardiac beta-adrenergic receptors
C. Enhanced glycosidic linkage of sugar on the cardiac beta-adrenergic receptor
D. Prominent vagal stimulation
E. Enhanced release of catecholamines from the CNS

A

39. A 38-year-old bus driver complained of seasonal allergies. Which one of the following drugs is most useful in relieving his symptoms, with minimal sedation?

- A. Cimetidine
B. Chlorpheniramine
C. Promethazine
D. Diphenhydramine
E. Loratadine

E

40. Many antihistamines (H₁ blockers) have additional non-histamine receptor-related effects; these are most likely to include

- A. Constipation and urinary hesitancy
B. Renal impairment
C. ~~Increase in histamine release~~
D. Motion sickness
E. Hepatotoxicity

41. Which of the following statements regarding antiarrhythmic drugs is correct?

- A. Most antiarrhythmic drugs are positive inotropic agents
B. Lidocaine is mainly used to treat atrial arrhythmias
C. Quinidine must be given intravenously
D. Procainamide is associated with a reversible lupus-like effect
E. Propranolol increases the rate of phase 4 depolarization

42. Which of the following drugs inhibits the synthesis of cholesterol by inhibiting HMG-CoA reductase?

- A. Gemfibrozil
B. Lovastatin
C. Niacin
D. Neomycin
E. Cholestyramine

43. Which of the following drugs is most likely to cause cutaneous flushing and itching and decreases VLDL by multiple mechanisms including decreased VLDL secretion

- A. Gemfibrozil
B. Lovastatin
C. Niacin
D. Neomycin
E. Cholestyramine

44. You are treating a patient who is receiving adalimumab (Humira) for advanced rheumatoid arthritis. Which of the following is most characteristic of this drug?

- A. Is a chimeric monoclonal antibody that binds to TNF with high affinity
B. Is a recombinant fusion protein that consists of two soluble TNF p75 receptor moieties linked to the Fc portion of human IgG
C. Is a selective inhibitor of cyclooxygenase-2
D. Is a 100% human monoclonal antibody which binds TNF and has been approved for monotherapy
E. Is an inhibitor of TNF synthesis

45. Acute effects of ethanol are most likely to include

- D
- A. Vasoconstriction
 - B. Reduction in chloride influx
 - C. Elevation of antidiuretic hormone
 - ☒ D. Ataxia and impaired judgment
 - E. Marked hyperthermia

46. In the 1970 Controlled Substances Act, which is the current FDA law, marihuana is included in which of the following Federal Schedules?

- A
- ☒ A. Schedule I
 - B. Schedule II
 - C. Schedule III
 - D. Schedule IV
 - E. Schedule V

✓ 47. Which one of the following is a side-effect that is unique to activation of kappa opioid receptors as compared with activation of mu and delta opioid receptors?

- A
- ☒ A. Dysphoria
 - B. Increased blood pressure
 - C. Seizures
 - D. Urinary retention
 - ☒ E. Weight loss

✓ 48. Which one of the following analgesics would be the best choice for the treatment of pain in a person with respiratory insufficiency?

- A
- ☒ A. Butorphanol
 - B. Hydromorphone
 - C. Meperidine
 - D. Morphine
 - ☒ E. Oxycodone

49. Which one of the following correctly describes the mechanism of action of amphetamine as related to its abuse potential?

- C
- A. Activates 5HT_{2A} receptors
 - B. Antagonizes GABA receptors
 - ☒ C. Facilitates the release of dopamine
 - D. Inhibits the re-uptake of serotonin
 - E. Inhibits voltage-gated sodium channels

50. Which one of the following drugs has been shown to have neurotoxic effects on serotonergic neurons?

- A. Cocaine
B. Ketamine
C. Lysergic acid diethylamine
D. Methylene-dioxy-methamphetamine
E. Nitrous oxide



END OF EXAM