

Pharmacology Questions

1. Lorazepam can be safely used as a preanesthetic medication in a patient undergoing liver transplantation without fear of excessive CNS depression because the drug is

- A. excreted in unchanged form
- B. actively secreted into the GI tract
- C. conjugated extrahepatically
- D. a selective anxiolytic devoid of CNS depressant actions
- E. reversible by naloxone

2. Midazolam is an effective anesthetic because it acts by

- A. increasing functional activity at GABAB receptors
- B. enhancing the actions of dopamine
- C. blocking the NMDA glutamate receptor subtype
- D. acting as a partial agonist at 5HT receptors
- E. facilitating GABA-mediated increases in chloride ion conductance

3. Which one of the following is an established clinical use of morphine?

- A. Management of generalized anxiety disorders
- B. Relief of pain associated with biliary colic
- C. Pulmonary congestion
- D. Treatment of cough associated with use of ACE inhibitors
- E. Suppression of the ethanol withdrawal syndrome

4. A 40-year-old man was given a drug that binds to a subunit of the GABA A receptor. When used at a high dose, the drug can open Cl^- channels independent of GABA. What drug was the man given?

- A. Diazepam
- B. Ethanol
- C. Phenobarbital
- D. Baclofen
- E. Dronabinol

5. Which one of the following is characteristic of both phenytoin and carbamazepine?

- A. Inhibition of hepatic cytochrome P450
- B. First-order elimination at high therapeutic doses
- C. Enhances the effects of oral contraceptives
- D. Safe to use in pregnancy
- E. Prevent sodium influx through fast sodium channels

6. A patient comes to the ER with a painful stab wound. The ER resident administers pentazocine for the pain. Soon after administration the patient experiences sweating, restlessness, and an increase in pain sensations. What is the most likely explanation for his symptoms?

- A. The patient is probably tolerant to pentazocine.
- B. The patient is a heroin addict.
- C. Pentazocine is an ineffective analgesic.
- D. Pentazocine was used at the wrong dose.
- E. Pentazocine doesn't cross the blood-brain barrier.

7. The data shown in the table below concern the effects of drugs on transmitter function in the CNS. Which one of the drugs is most likely to alleviate extrapyramidal dysfunction caused by typical antipsychotics? (The + signs denote intensity of drug actions.)

Drug	Activation of DA Receptors	Activation of GABA Receptors	Block of ACh M Receptors
A.	++++	0	0
B.	++	++	0
C.	0	0	++++
D.	0	+++++	0
E.	+	+	0

8. Tricyclic antidepressants

- A. have anticonvulsant activity
- B. should not be used in patients with glaucoma
- C. may increase oral absorption of levodopa
- D. are sometimes used as antiarrhythmics

9. Which one of the following statements about lithium is accurate?

- A. It causes symptoms of mild hyperthyroidism in up to 25% of patients.

- B. Plasma levels are increased by a high-Na diet.
 - C. Adverse effects include acne, polydipsia, and polyuria.
 - D. Spina bifida is major concern in fetal development.
 - E. Sedative actions calm manic patients within 24 h.
10. Ingestion of methanol in wood spirits would cause which of the following to happen?
- A. The formation of formaldehyde
 - B. Nephrotoxicity
 - C. Hypotension and vomiting
 - D. The production of glycolic acids
 - E. Inhibition of aldehyde dehydrogenase
11. What is the rationale for combining levodopa with carbidopa?
- A. Carbidopa stimulates dopamine receptors
 - B. Carbidopa increases levodopa entry into the CNS by inhibiting peripheral dopa decarboxylase
 - C. Carbidopa enhances levodopa absorption
 - D. Carbidopa enhances the peripheral conversion of levodopa to dopamine
 - E. Carbidopa blocks peripheral COMT
12. A 29-year-old male patient is being treated with an antidepressant drug, and his mood is improving. However, he complains of feeling "jittery" and agitated at times, and if he takes his medication in the afternoon he finds it difficult to get to sleep at night. He seems to have lost weight during the 6 months that he has been taking the drug. He has been warned not to take other drugs without consultation because severe reactions have occurred with opioid analgesics including meperidine. This patient is probably taking
- A. alprazolam
 - B. chlorpromazine
 - C. paroxetine
 - D. amitriptyline
 - E. trazodone

13. The ability of several drugs to inhibit the reuptake of CNS amine neurotransmitters is shown in the table below (number of arrows ↓, indicates the intensity of inhibitory actions). Which one of the drugs is most likely to have therapeutic effectiveness in the management of both obsessive compulsive disorders (OCD) and major depressive disorders?

Drug	DA Reuptake	NE Reuptake	5HT Reuptake	GABA Reuptake
A.	↓↓	0	0	↓↓
B.	0	↓↓↓↓	↓	0
C.	0	0	↓↓↓↓	0
D.	0	0	↓	↓↓↓↓
E.	↓↓↓↓	↓↓	0	0

14. A patient suffering from attention deficit hyperactivity disorder is placed on atomoxetine. A drug that has a similar mechanism of action to atomoxetine is

- A. methylphenidate
- B. botulinum toxin
- C. clonidine
- D. amitriptyline
- E. entacapone

15. A patient suffering from generalized anxiety disorder (GAD) has a history of drug dependence that includes the illicit use of secobarbital ("reds") and a variety of other drugs. Psychotherapy is indicated, but the physician also prescribes a drug that can be helpful in GAD and that has the advantage of no abuse liability. The drug prescribed was most likely to have been

- A. bupropion
- B. buspirone
- C. baclofen
- D. buprenorphine
- E. phenobarbital

16. A patient has been diagnosed as having "long QT syndrome." The patient is experiencing significant pain following a bout with shingles. What would be an appropriate drug for his pain?

- A. Amitriptyline

- B. Fentanyl
- c. Acyclovir
- D. Diazepam
- E. Gabapentin

17. A habitual user of a schedule-controlled drug abruptly stops using it. Within 8h, she becomes anxious, starts to sweat, and gets severe abdominal pain with diarrhea. These symptoms intensify over the next 12h, during which time she has a runny nose, is lacrimating, and has uncontrollable yawning and intensification of muscle cramping and jerking. Assuming that these are withdrawal symptoms in the patient due to her physical dependence, the drug most likely to be involved is

- A. alprazolam
- B. amphetamine
- c. ethanol
- D. meperidine
- E. secobarbital

18. A 57-year-old patient, living at home, has severe pain due to a metastatic carcinoma that is being managed with fentanyl, delivered transdermally from a patch. He should also be taking, or at least have on hand

- A. apomorphine
- B. docusate
- c. loperamide
- D. morphine
- E. naloxone

19. A hospital nurse is taking imipramine for a phobic anxiety disorder, and her patient is being treated with chlorpromazine for a psychotic disorder. Which of the following adverse effects is likely to occur in both of these individuals?

- A. Excessive salivation
- B. Pupillary constriction
- C. Orthostatic hypotension
- D. Seizure threshold
- E. Weight loss

20. Which one of the following pairs of "drug/mechanism of action" is most accurate?

- A. Carbamazepine/facilitation of the actions of GABA
- B. Ethosuximide/blocks Na channels in axonal membranes
- C. Phenelzine/inhibits dopa decarboxylase
- D. Procaine/blocks Ca channels (type T) in thalamic neurons
- E. Lithium/inhibits recycling of inositol

21. A 30-year-old male patient is brought to the ER with the following symptoms attributed to a drug overdose: HR and BP, mydriasis, behavioral excitation, aggressiveness, paranoia, and hallucinations. Of the following drugs, which one is most likely to be responsible for these symptoms?

- A. Amphetamine
- B. Ethanol
- c. Fentanyl
- D. Flunitrazepam
- E. Marijuana

22. Which one of the following CNS receptors is directly coupled to an ion channel so that the effects of its activation do not involve second messenger systems?

- A. N (ACh)
- B. α (NE)
- C. D2A (DA)
- D. μ (beta endorphin)
- E. 5HT₂ (serotonin)

23. Which of the following combinations of antiparkinsonian drugs is appropriate treatment plan?

- A. Amantadine, carbidopa, and entacapone.
- B. Levodopa, carbidopa, and entacapone.
- C. Pramipexole, carbidopa, and entacapone.
- D. Ropinirole, selegiline, and entacapone.
- E. Ropinirole, carbidopa, and selegiline

24. Peripheral adverse effects of levodopa, including nausea, hypotension, and cardiac arrhythmias, can be diminished by including which of the following drugs in the therapy?

- A. Amantadine.
- B. Ropinirole.
- C. Carbidopa.
- D. Tolcapone.
- E. Pramipexole

25. Which of the following antiparkinsonian drugs may cause vasospasm?

- A. Amantadine.
- B. Bromocriptine.
- C. Carbidopa.
- D. Entacapone.
- E. Ropinirole

26. Modest improvement in the memory of patients with Alzheimer's disease may occur with drugs that increase transmission at which of the following receptors?

- A. Adrenergic.
- B. Cholinergic.
- C. Dopaminergic.
- D. GABAergic.
- E. Serotonergic.

27. Which medication is a glutamate receptor antagonist that can be used in combination with an acetylcholinesterase inhibitor to manage the symptoms of Alzheimer's disease?

- A. Rivastigmine.
- B. Ropinirole.
- C. Fluoxetine.
- D. Memantine.
- E. Donepezil

28. Which of the following agents is available as a patch for once-daily use and is likely to provide steady drug levels to treat Alzheimer's disease?

- A. Rivastigmine.

- B. Donepezil.
- C. Memantine.
- D. Galantamine.
- E. Glatiramer

29. Which of the following is the only medication that is approved for the management of amyotrophic lateral sclerosis?

- A. Pramipexole.
- B. Selegiline.
- C. Galantamine.
- D. Riluzole.
- E. Glatiramer

30. Which of the following medications reduces immune system–mediated inflammation via inhibition of pyrimidine synthesis to reduce the number of activated lymphocytes in the CNS?

- A. Riluzole.
- B. Rotigotine.
- C. Teriflunomide.
- D. Dexamethasone.

31. Which of the following agents may cause tremors as a side effect and, thus, should be used with caution in patients with Parkinson’s disease, even though it is also indicated for the treatment of dementia associated with Parkinson’s disease?

- A. Benztropine.
- B. Rotigotine.
- C. Rivastigmine.
- D. Dimethyl fumarate

32. Which of the following agents exerts its therapeutic effect in multiple sclerosis via potassium channel blockade?

- A. Dalfampridine.
- B. Donepezil.

C. Riluzole.

D. Bromocriptine

33. An adolescent male is newly diagnosed with schizophrenia. Which of the following antipsychotic agents may have the best chance to improve his apathy and blunted affect?

A. Chlorpromazine.

B. Fluphenazine.

C. Haloperidol.

D. Risperidone.

E. Thioridazine.

34. Which one of the following antipsychotics has been shown to be a partial agonist at the dopamine D2 receptor?

A. Aripiprazole.

B. Clozapine.

C. Haloperidol.

D. Risperidone.

E. Thioridazine.

35. A 21-year-old male has recently begun pimozide therapy for Tourette disorder. His parents bring him to the emergency department. They describe that he has been having “different-appearing tics” than before, such as prolonged contraction of the facial muscles. While being examined, he experiences opisthotonos (type of extrapyramidal spasm of the body in which the head and heels are bent backward and the body is bowed forward). Which of the following drugs would be beneficial in reducing these symptoms?

A. Benztropine.

B. Bromocriptine.

C. Lithium.

D. Prochlorperazine.

E. Risperidone.

36. A 28-year-old woman with schizoaffective disorder (combination of mood and psychotic symptoms) reports difficulty falling asleep. Which of the following would be most beneficial in this patient?

A. Lithium.

- B. Chlorpromazine.
- C. Haloperidol.
- D. Paliperidone.
- E. Ziprasidone.

37. Which of the following antipsychotic agents is considered to be the most potent and, thus, have the highest risk of extrapyramidal symptoms?

- A. Thioridazine.
- B. Fluphenazine.
- C. Quetiapine.
- D. Chlorpromazine.
- E. Clozapine.

38. Which antipsychotic has the most sedative potential and is sometimes questionably used as a hypnotic agent in certain clinical settings?

- A. Fluphenazine.
- B. Thiothixene.
- C. Quetiapine.
- D. Haloperidol.
- E. Iloperidone.

39. A 30-year-old male patient who is treated with haloperidol for his diagnosis of schizophrenia is considered to be well-managed symptomatically for his psychotic symptoms. However, he is reporting restlessness, the inability to sit still at the dinner table, and his family notices that he is pacing up and down the hallway frequently. Of the following, which is the best medication to treat this antipsychotic-induced akathisia?

- A. Benztropine.
- B. Dantrolene.
- C. Amoxapine.
- D. Bromocriptine.
- E. Propranolol.

40. Which of the following antipsychotic agents is available in a LAI formulation that may be useful for patients with difficulty adhering to therapy?

- A. Asenapine.

- B. Chlorpromazine.
- C. Clozapine.
- D. Quetiapine.
- E. Risperidone.

41. Which of the following antipsychotic agents is most associated with the possibility of a hematological dyscrasia such as agranulocytosis in a patient being treated for schizophrenia?

- A. Chlorpromazine.
- B. Buspirone.
- C. Lithium.
- D. Clozapine.
- E. Asenapine.

42. Which antipsychotic agent has been most associated with significant QT interval prolongation and should be used with caution in patients with preexisting arrhythmias or patients taking other drugs associated with QT prolongation?

- A. Thioridazine.
- B. Risperidone.
- C. Asenapine.
- D. Lurasidone.
- E. Aripiprazole

43. A 9-year-old boy is sent for neurologic evaluation because of episodes of apparent inattention. Over the past year, the child has experienced episodes during which he develops a blank look on his face and his eyes blink for 15 seconds. He immediately resumes his previous activity. Which one the following best describes this patient's seizures?

- A. Simple partial.
- B. Complex partial.
- C. Tonic-clonic.
- D. Absence.
- E. Myoclonic.

44. A child is experiencing absence seizures that interrupt his ability to pay attention during school and activities. Which of the following therapies would be most appropriate for this patient?

- A. Ethosuximide.
- B. Carbamazepine.
- C. Diazepam.
- D. Carbamazepine plus primidone.
- E. Watchful waiting.

45. Which of the following drugs is most useful for the treatment of absence seizures?

- A. Topiramate.
- B. Tiagabine.
- C. Levetiracetam.
- D. Lamotrigine.
- E. Zonisamide.

46. A 25-year-old woman with myoclonic seizures is well controlled on valproate. She indicates that she is interested in becoming pregnant in the next year. With respect to her antiepilepsy medication, which of the following should be considered?

- A. Leave her on her current therapy.
- B. Consider switching to lamotrigine.
- C. Consider adding a second antiepilepsy medication.
- D. Decrease her valproate dose.

47. A woman with myoclonic seizures is well controlled with lamotrigine. She becomes pregnant and begins to have breakthrough seizures. What is most likely happening?

- A. Her epilepsy is getting worse.
- B. Lamotrigine concentrations are increasing.
- C. Lamotrigine concentrations are decreasing.
- D. Lamotrigine is no longer efficacious for this patient.

48. A 42-year-old man undergoes a neurologic evaluation because of episodes of apparent confusion. Over the past year, the man has experienced episodes during which he develops a blank look on his face and fails to respond to questions. Moreover, it

appears to take several minutes before the man recovers from the episodes. Which one of the following best describes this type of seizure?

- A. Focal (simple partial).
- B. Focal (complex partial).
- C. Tonic-clonic.
- D. Absence.
- E. Myoclonic.

49. A 52-year-old man has had several focal complex partial seizures over the last year. Which one of the following therapies would be the most appropriate initial therapy for this patient?

- A. Ethosuximide.
- B. Levetiracetam.
- C. Diazepam.
- D. Carbamazepine plus primidone.
- E. Watchful waiting.

50. A patient with focal complex partial seizures has been treated for 6 months with carbamazepine but, recently, has been experiencing breakthrough seizures on a more frequent basis. You are considering adding a second drug to the antiseizure regimen. Which of the following drugs is least likely to have a pharmacokinetic interaction with carbamazepine?

- A. Topiramate.
- B. Tiagabine.
- C. Levetiracetam.
- D. Lamotrigine.
- E. Zonisamide.

51. Which of the following is a first-line medication for generalized tonic-clonic seizures?

- A. Ethosuximide.
- B. Felbamate.
- C. Vigabatrin.
- D. Ezogabine.

E. Topiramate.

52. A 75-year-old woman had a stroke approximately 1 month ago. She is continuing to have small focal seizures where she fails to respond appropriately while talking. Which of the following is the most appropriate treatment for this individual?

A. Phenytoin.

B. Oxcarbazepine.

C. Levetiracetam.

D. Phenobarbital

ANSWERS

1	C	9	C	17	D	25	B	33	D	41	D	49	B
2	E	10	A	18	B	26	B	34	A	42	A	50	C
3	C	11	B	19	C	27	D	35	A	43	D	51	E
4	C	12	C	20	E	28	A	36	D	44	A	52	C
5	E	13	C	21	A	29	D	37	B	45	D	53	-
6	B	14	D	22	A	30	C	38	C	46	B	54	-
7	C	15	B	23	B	31	C	39	E	47	C	55	-
8	B	16	E	24	C	32	A	40	E	48	B	56	-

DONE BY: ABDULLAH ALANI

