# Written Q

***1. Why L-DOPA is combined with carbidopa in treatment of parkinsonism?***

***2. Mention MOA and 3 side effects of L-DOPA?***

# MCQ

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| ***1. Tolcapone may be of value in patients being treated with levodopa-carbidopa because it:***<br>*(A) Activates COMT*<br>*(B) Decreases the formation of 3-O-methyldopa*<br>*(C) Inhibits monoamine oxidase type A*<br>*(D) Inhibits neuronal reuptake of dopamine*<br>*(E) Releases dopamine from nerve endings* | ***B*** |
| ***2. With respect to pramipexole, which of the following is most accurate?***<br>*(A) Activates brain dopamine D2 receptors*<br>*(B) Effective as monotherapy in mild parkinsonism*<br>*(C) May cause postural hypotension*<br>*(D) Not an ergot derivative*<br>*(E) All of the above* | ***E*** |
| ***3. Which one of the following combinations of antiparkinson drugs is an appropriate therapy?***<br>*A. Amantadine, carbidopa, and entacapone.*<br>*B. Levodopa, carbidopa, and entacapone.*<br>*C. Pramipexole, carbidopa, and entacapone.*<br>*D. Ropinirole, selegiline, and entacapone.*<br>*E. Ropinirole, carbidopa, and selegiline.* | |

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| ***4. Peripheral adverse effects of levodopa, including nausea, hypotension, and cardiac arrhythmias, can be diminished by including which of the following drugs in the therapy?***<br>*A. Amantadine.*<br>*B. Bromocriptine.*<br>*C. Carbidopa.*<br>*D. Entacapone.*<br>*E. Ropinirole.* | ***C*** |
| ***5. Which of the following antiparkinson drugs may cause peripheral vasospasm?***<br>*A. Amantadine.*<br>*B. Bromocriptine.*<br>*C. Carbidopa.*<br>*D. Entacapone.*<br>*E. Ropinirole.* | ***B*** |
| ***6. A 51-year-old patient with parkinsonism is being maintained on levodopa-carbidopa with adjunctive use of low doses of tolcapone but continues to have off-periods of alkinesia. The most appropriate drug to "rescue" the patient but that will only provide temporary relief is***<br>*(A) Apomorphine (B) Benztropine*<br>*(C) Carbidopa (D) Pramipexole*<br>*(E) Selegiline* | ***A*** |
| ***7. Which of the following agents enhance the bioavailability of levodopa in patients with Parkinson's disease?***<br>*a) Amantadine*<br>*b) Ropinirole*<br>*c) Tolcapone*<br>*d) Selegiline*<br>*e) Bromocriptine* | ***C*** |

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| ***8. A 27-year-old patient with Parkinson's disease presents with swollen feet & skin pigmentation. You could clear up these symptoms within few days if you tell the patient to stop taking:***<br>*a) Amantadine*<br>*b) Benzatropine*<br>*c) Bromocriptine*<br>*d) levodopa*<br>*e) Selegiline* | ***A*** |
| ***9. What is the rationale for combining levodopa with carbidopa?***<br>*a) Carbidopa stimulates dopamine receptors*<br>*b) Carbidopa increases levodopa entry into CNS by inhibiting peripheral dopa decarboxylase*<br>*c) Carbidopa enhances levodopa absorption*<br>*d) Carbidopa enhances peripheral conversion of levodopa into dopamine*<br>*e) Carbidopa blocks peripheral COMT* | ***B*** |
| ***10. How does selegiline help in Parkinson's disease?***<br>*a) Increased norepinephrine synthesis*<br>*b) Inhibition of COMT*<br>*c) Inhibition of MAO*<br>*d) Stimulation of acetylcholine release*<br>*e) Increased dopamine synthesis* | ***C*** |
| ***11. One of the following drug types is used to treat parkinsonian syndrome caused by the antipsychotic drug chloropromazine:***<br>*a) Nicotinic receptor antagonists (e.g. hexamethonium)*<br>*b) Muscarinic receptor antagonists (e.g. Benzatropine)*<br>*c) Adrenoceptors antagonists (e.g. Phentolamine)*<br>*d) Anticholinesterases (e.g. Physostigmine)*<br>*e) A precursor of dopamine (e.g. Levodopa)* | ***B*** |

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| ***12. For treatment of Parkinsonism, we use the following drugs except:***<br>*a) Levodopa*<br>*b) Amantadine*<br>*c) Neostigmine*<br>*d) Bromocriptine*<br>*e) Benzatropine* | **C** |
| ***13. Regarding the anticipated actions of levodopa, the patient would not be informed that:***<br>*A. Dizziness may occur, especially when standing*<br>*B. He should take the drug in divided doses to avoid nausea*<br>*C. Livedo reticularis is a possible side effect*<br>*D. The drug will probably improve his symptoms for a period of time but not indefinitely*<br>*E. Uncontrollable muscle jerks may occur* | **C** |
| ***14. A patient with Parkinsonism is being treated with levodopa. He suffers from irregular, involuntary muscle jerks that affect the proximal muscles of the limbs. Which of the following statements about these symptoms is accurate?***<br>*A. Coadministration of muscarinic blockers prevents the occurrence of dyskinesias during treatment with levodopa*<br>*B. Drugs that activate dopamine receptors can exacerbate dyskinesias in a patient taking levodopa*<br>*C. Dyskinesias are less likely to occur if levodopa is administered with carbidopa*<br>*D. Symptoms are alleviated by continued treatment with levodopa*<br>*E. The symptoms are usually reduced if the dose of levodopa is increased* | **B** |

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| ***15. Concerning the drugs used in Parkinsonism, which statement is accurate?***<br>*A. Dopamine receptor agonists should never be used in Parkinson's disease before a trial of levodopa*<br>*B. Levodopa causes mydriasis and may precipitate an acute attack of glaucoma*<br>*C. Selegiline is a selective inhibitor of COMT*<br>*D. The primary benefit of antimuscarinic drugs in Parkinsonism is their ability to relieve bradykinesia*<br>*E. Therapeutic effects of amantadine continue for several years* | ***B*** |
| ***16. Tolcapone may be of value in patients being treated with levodopa-carbidopa because it:***<br>*A. Activates COMT*<br>*B. Decreases the formation of 3-O-methyldopa*<br>*C. Inhibits monoamine oxidase type A*<br>*D. Inhibits neuronal reuptake of dopamine*<br>*E. Releases dopamine from nerve endings* | ***B*** |
| ***17. The most effective drug in Parkinsonism is:***<br>*A. Bromocriptine*<br>*B. Selegiline*<br>*C. Levodopa + carbidopa*<br>*D. Biperiden* | ***C*** |
| ***18. In the treatment of Parkinsonism, bromocriptine differs from levodopa in the following respects except:***<br>*A. It does not need conversion to an active metabolite*<br>*B. It has a longer duration of action*<br>*C. It activates dopamine D2 receptors, with little/antagonistic action on D1 receptors*<br>*D. It does not produce behavioral/psychiatric side effects* | ***D*** |

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| ***19. The antiparkinsonian drug which acts by inhibiting the degradation of dopamine in the brain is:***<br>*A. Carbidopa*<br>*B. Amantadine*<br>*C. Selegiline*<br>*D. Bromocriptine* | **C** |
| ***20. The primary action by which entacapone and tolcapone enhance the therapeutic effect of levodopa-carbidopa in Parkinsonism is:***<br>*A. Inhibition of levodopa methylation in the liver*<br>*B. Inhibition of dopamine methylation in the brain*<br>*C. Inhibition of oxidative deamination of dopamine in the brain*<br>*D. Facilitation of active transport of levodopa across brain capillaries* | **A** |
| ***21. The following drug is effective in chlorpromazine induced Parkinsonism:***<br>*A. Benztropine*<br>*b. Selegiline*<br>*C. Bromocriptine*<br>*d. Levodopa + carbidopa* | **A** |
| ***22. Select the drug that reversibly inhibits the enzyme COMT and is useful as an adjuvant medication in advanced parkinson's disease:***<br>*A. Pramipexole*<br>*B. Entacapone*<br>*C. Pergolide*<br>*D. Piribedil* | **B** |

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| ***23. An 83-year-old woman with Parkinson's disease is currently being treated with carbidopa/levodopa, but her Parkinson's symptoms are worsening. She has normal liver function and no history of liver disease. Selegiline is added to her regimen. How does selegiline help in Parkinson's disease?***<br>*A. Increased norepinephrine synthesis*<br>*B. Inhibition of COMT*<br>*C. Inhibition of MAO*<br>*D. Stimulation of acetylcholine release*<br>*E. Stimulation of norepinephrine release* | **C** |
| ***24. Which one of the following combinations of antiparkinsonian drugs is an appropriate treatment plan?***<br>*A. Amantadine, carbidopa, and entacapone.*<br>*B. Levodopa, carbidopa, and entacapone.*<br>*C. Pramipexole, carbidopa, and entacapone.*<br>*D. Ropinirole, selegiline, and entacapone.*<br>*E. Ropinirole, carbidopa, and selegiline.* | **B** |
| ***25. On-off phenomenon is:***<br>*a) A fluctuation in response to L-Dopa in relation to time of the dose.*<br>*b) A phenomenon associated with dopamine treatment of Parkinsonism*<br>*c) A fluctuation in response to dopamine has no relation to dose time.*<br>*d) A fluctuation in response to L-dopa with non-relation to the dose time.* | **A** |

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| ***26. A 58-year-old man with Parkinson's disease presents to the clinic for follow-up. Recently, he has experienced an increase in his resting tremor and rigidity. He was wondering if there is a medication that could help these symptoms. What anticholinergic is the most appropriate treatment?***<br>*A. Benztropine*<br>*B. Bromocriptine*<br>*C. Ipratropium*<br>*D. Scopolamine*<br>*E. Tropicamide* | ***A*** |
| ***27. Which enzyme does Carbidopa inhibit?***<br>*A) Monoamine oxidase B (MAO-B)*<br>*B) Catechol-O-methyltransferase (COMT)*<br>*C) Dopa decarboxylase*<br>*D) Acetylcholinesterase* | ***C*** |
| ***28. Which of the following is a COMT inhibitor?***<br>*A) Selegiline*<br>*B) Entacapone*<br>*C) Amantadine*<br>*D) Bromocriptine* | ***B*** |
| ***29. Which antiparkinsonian drug is an MAO-B inhibitor?***<br>*A) Amantadine*<br>*B) Trihexyphenidyl*<br>*C) Selegiline*<br>*D) Ropinirole* | ***C*** |
| ***30. What is the mechanism of action of Amantadine in Parkinson's disease?***<br>*A) Blocks central muscarinic receptors*<br>*B) Inhibits dopamine breakdown*<br>*C) Releases dopamine from nerve terminals*<br>*D) Directly stimulates dopamine receptors* | ***C*** |

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| ***31. Which of the following drugs is a dopamine agonist?***<br>*A) Carbidopa*<br>*B) Bromocriptine*<br>*C) Entacapone*<br>*D) Selegiline* | ***B*** |
| ***32. Which of the following drugs can be used to treat drug-induced extrapyramidal symptoms?***<br>*A) Entacapone*<br>*B) Bromocriptine*<br>*C) Benztropine*<br>*D) Selegiline* | ***C*** |
| ***33. What is a unique side effect of Amantadine?***<br>*A) Liver toxicity*<br>*B) Livedo reticularis (skin pigmentation)*<br>*C) Bradycardia*<br>*D) Pulmonary fibrosis* | ***B*** |
| ***34. Which drug is most useful in managing the freezing episodes in advanced Parkinson's disease?***<br>*A) Carbidopa*<br>*B) Amantadine*<br>*C) Apomorphine*<br>*D) Entacapone* | ***C*** |