

Postgraduate Corner

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1. **At rest neuronal membranes are most permeable to which ion?**
 - a. Sodium
 - b. Chloride
 - c. Potassium
 - d. Calcium
2. **Which of the following is the primary inhibitory neurotransmitter of spinal cord?**
 - a. Gamma aminobutyric acid
 - b. Glycine
 - c. Dopamine
 - d. Glutamate
3. **Idiopathic intracranial hypertension may commonly cause which of the following symptoms?**
 - a. Sensorineural hearing loss
 - b. Pulsatile tinnitus
 - c. Palatal myoclonus
 - d. Persistent tinnitus
4. **The neurotoxin psilocybin, which causes euphoria, hallucinations, mydriasis, tachycardia and seizures, can be found in which of the following?**
 - a. Mushrooms
 - b. Puffer fish
 - c. Home-distilled ethanol
 - d. Shellfish
5. **Anosmia is common in all of the following conditions except**
 - a. Alzheimer disease
 - b. Dementia with lewy bodies
 - c. Progressive supranuclear palsy
 - d. Huntington disease
6. **How long after blood flow is cut off to cerebral circulation does it take for electrical activity of the cerebral neurons to stop?**
 - a. 1–5 seconds
 - b. 12–15 seconds
 - c. 2–4 minutes
 - d. 4–6 minutes
7. **What percentages of patients with Parkinson's disease (PD) suffer from depression?**
 - a. Less than 10%
 - b. More than 25%
 - c. Up to 40%
 - d. 70%
8. **A 32-year-old woman with complex partial seizures has been seizure-free for 1 year on antiepileptic drugs (AEDs), but she wants to discontinue the drugs. She has normal**

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intelligence and a normal neurologic examination. Her EEG is normal. Which aspect of her profile does not guarantee successful withdrawal from medication?

- a. Seizure-free for 1 year on AEDs
 - b. Single type of partial or generalized seizure
 - c. Normal neurologic examination
 - d. EEG normalized with treatment
9. **Lesion of the reticular formation of the dorsomedial part of the medulla may cause**
 - a. Central neurogenic hyperventilation
 - b. Apneustic breathing
 - c. Ataxic breathing
 - d. Cluster breathing
 10. **Which statement is FALSE?**
 - a. Sensitivity of RNS for diagnosis is 53–100% in generalized MG and 10–48% in ocular MG.
 - b. Anti striational muscle antibodies are found in 75–85% of thymomatous MG.
 - c. In anti MuSK antibody positive MG thymic changes are common in >50% cases.
 - d. AchR-Ab assay sensitivity is 85% for generalized MG and 50% for ocular MG.

ANSWER: EXPLANATIONS

1. b.

Chloride ions (Cl^-) move freely across the neuronal membrane at rest. The negative charge within the neurons readily pushes Cl^- outside the neuron via electrostatic pressure (similar charges repel). As Cl^- ions accumulate outside the neuron, there is an increased tendency for them to move back into the neuron down the concentration gradient. The point at which the electrostatic pressure pushing Cl^- outside the neuron reaches equilibrium with the concentration gradient drawing Cl^- inside the neuron, is equal to the resting membrane potential of -70 mV.

2. b.

Glycine is the major inhibitory neurotransmitter in the brainstem and spinal cord, where it participates in a variety of motor and sensory functions. Glycine is also present in the forebrain, where it has recently been shown to function as a coagonist at the N-methyl-D-aspartate (NMDA) subtype of glutamate receptor.

3. b.

Pulsatile tinnitus can be due to alterations in blood flow in veins around the head and neck. In IIH, though, its thought transmission of the sound of the flow of the cerebrospinal fluid under high pressure moving around the brain causes the pulse synchronous (pulsatile) tinnitus or intracranial noise.

4. a.

With regard to hallucinogens like psilocybin—an ingredient of so-called “magic mushrooms” (e.g., *Psilocybe cubensis*), have complex pharmacologies with high affinities for multiple neurotransmitter receptors.

5. c.

Anosmia is commonly found in Alzheimer’s disease, DLB, Huntington’s disease.

6. c.

After 2–4 minutes of anoxia, several biochemical mechanisms that result in irreversible neuronal damage may become operative, with stoppage of electrical activities.

7. c.

It is generally accepted that clinically significant depressive disturbances occur in 40–50% of patients with PD. (Reijnders JS, Ehrh U, et al. A systematic review of prevalence studies of depression in Parkinson’s disease. *Mov Disord* 2008;23:183–189.)

8. a.

Most studies have examined patients who were seizure-free for periods of 2 years or 4 years. Recurrence of seizures in these populations seemed to occur relatively soon after AED discontinuation, with about half of recurrences occurring within 6 months. The entire recurrence risk due to discontinuation was seen within the first 2 years. Using data from all the included studies, the authors also identified several variables that suggested a greater chance of AED withdrawal without relapse: a seizure-free period on AEDs of 2–5 years, a single reported seizure type, a normal neurologic exam and IQ, and a normalized EEG with treatment.

9. c.

Ataxic breathing—lesion of the reticular formation of the dorsomedial part of the medulla.

10. c.

Thymic changes are absent or minimal (Lauriola et al., 2005; Leite et al., 2005) and the role of thymectomy in MuSK-MG is not yet clear (Guptill and Sanders, 2010; Sanders et al., 2003).

