

ENGLISH 183 – READING PRACTICE – SEIZURES

Read the following article and **answer** the **questions** that follow. To check your answers, see the **answer key** below.

Seizures are brief malfunctions of the brain's electrical system resulting from cortical neuronal discharge. The manifestations of seizures are determined by the site of origin and may include unconsciousness or altered consciousness, involuntary movements, and changes in perception, behaviors, sensations, and posture. Seizures are the most frequently observed neurological dysfunction in children and can occur with a wide variety of conditions involving the central nervous system. Once it is determined that the child has a seizure, it is important to distinguish whether the episode was an epileptic or a nonepileptic seizure. Seizures are the **indispensable** characteristic of epilepsy; however, not every seizure is epileptic.

Epilepsy is a chronic seizure disorder marked by recurrent and unprovoked seizures. Up to 20% of children have been misdiagnosed as having epilepsy. It is, therefore, extremely important to differentiate between an epileptic seizure and a nonepileptic seizure as the therapeutic implications and methods of treatment vastly differ between the two cases.

A simple seizure event should not be classified as epilepsy and is generally not treated with long-term antiepileptic drugs. Some seizures may result from an acute medical or neurological illness and cease once the illness is treated. In other cases, children may have a single seizure without the cause ever being known.

Seizures in children have many different causes and histories. However, most seizures occur due to idiopathic epilepsy. Although the word idiopathic refers to unknown causes, it may indicate genetic factors that in some way alter the seizure threshold to influence normal neuronal discharge. Congenital defects and some genetic disorders, like *tuberous sclerosis*, also have seizures as a manifestation. Febrile and breath-holding seizures are related to a lowered seizure threshold and this tends to have a higher incidence in certain families. Hereditary abnormalities have been detected in some families and there is a higher incidence of seizures among relatives of children with idiopathic seizure disorders.

A seizure disorder can also be acquired as a result of brain injury during prenatal, perinatal, or postnatal periods. This may be caused by trauma, hypoxia, infections, as well as a variety of other factors. Furthermore, biochemical events, like hypoglycemia, can also produce seizure activity.

The incidence of causative factors associated with childhood seizures is frequently related to the age of the child. Seizures are more common during the first 2 years of life than during any other period of childhood. In very young infants the most

frequent causes are birth injuries. Acute infections are a frequent cause of seizures in late infancy and early childhood, but become an infrequent cause in middle childhood. In children older than 3 years, the most common cause is idiopathic epilepsy.

Regardless of the type of seizure, the basic causative mechanism is the same. Electrical discharges that may arise from central areas in the brain affect the consciousness immediately. These electrical charges may be restricted to one area of the cerebral cortex, or they may begin in a localized area of the cortex and spread to other portions of the brain, which, if sufficiently extensive, produce generalized neurological manifestations. Seizure activity is believed to be caused by a spontaneous electrical discharge initiated by a group of hyperexcitable cells referred to as the epileptogenic focus. They usually display increased electrical excitability, but may remain **quiescent** over a period of time, reacting only once in a while. Normally, these reactions are restrained from spreading beyond the focal area by normal inhibitory mechanisms.

The objective of treatment of seizure disorders is to control the seizures or to reduce their frequency and severity, discover and correct the cause when possible, and help the child who has recurrent seizures to live as normal a life as possible. Seizures of a recurrent nature are treated as soon as the diagnosis is established. If the seizure activity is a manifestation of an infectious, traumatic, or metabolic process, then seizure therapy is instituted as part of the general therapeutic regimen. Seizure control is also considered to prevent secondary brain cell injury from the neuronal discharge and hypoxia.

1. Seizures are identified according to _____.
 - a. their severity
 - b. the location of their occurrence
 - c. involuntary movements
 - d. the behavior of sufferers

2. Idiopathic epilepsy is caused by _____.
 - a. unknown causes
 - b. idiopathic seizures
 - c. congenital defects
 - d. none of the above

3. *Tuberous sclerosis* is an example of _____.
 - a. a seizure
 - b. a congenital defect
 - c. a genetic disorder
 - d. idiopathic epilepsy

4. During a seizure, neurological activity in the brain _____.
 - a. alters consciousness
 - b. spreads all over the brain
 - c. produces an electrical discharge
 - d. initiates hyperexcitable cells

5. Treatment of seizures is mostly related to _____.
 - a. controlling seizures
 - b. giving medication
 - c. maximizing the frequency and severity of seizures
 - d. both a. and c.

6. Age determines the cause of childhood seizures.
 - a. True
 - b. False

7. A majority of children are misdiagnosed as having epilepsy.
 - a. True
 - b. False

8. The cause of seizures is not always identifiable.
 - a. True
 - b. False

9. 'this' (para. 5, line 2) refers to _____.
 - a. a period
 - b. seizure disorder
 - c. trauma
 - d. brain injury

10. 'they' (para. 7, line 8) refers to _____.
- a. reactions
 - b. electrical discharges
 - c. hyperexcitable cells
 - d. inhibitory mechanisms
11. 'indispensable' (para. 1, line 8) means _____.
- a. unnecessary
 - b. trivial
 - c. essential
 - d. none of the above
12. 'quiescent' (para. 7, line 8) means _____.
- a. normal
 - b. balanced
 - c. excited
 - d. motionless

ANSWER KEY

1. b 2. c 3. c 4. a 5. a 6. b 7. b 8. a 9. d 10. c 11. c 12. d