

Week 8 CNS: Brain Disorders & Dermatological Conditions

Brain Disorders

- Convulsions
- Headache Syndromes
- Cranial Nerve Disorders
- CNS Inflammation
- CNS Ischemia

Dermatological Conditions

- Psoriasis
- Rosacea
- Acne
- Skin cancer

Weekly Objectives

1. WO8.1-Analyze pathophysiological mechanisms associated with brain disorders and integumentary processes. (CO1)
2. WO8.3- Differentiate between normal and abnormal brain and integumentary processes. (CO1)
3. WO8.2- Describe outcomes of disruptive or alteration in brain disorders and integumentary processes. (CO2)

Convulsions

Epilepsy is a disorder that is due to one or more chronic conditions in the body. It is characterized by disturbed nerve cell activity in the brain. This leads to recurrent seizures. Seizures may occur due to brain trauma that leads to disturbed and uncontrolled nerve activity in the brain. It is important to differentiate between epilepsy and seizure.

Seizure is a condition that occurs due to excessive and uncontrolled neuronal activity in the brain. The uncontrolled neuron activity can be generalized or localized to one area of the brain. For example, it can be localized just to the area that perceives the touch sensation. Whether it is generalized or localized, the excessive neuronal activity lead to the seizure. The type of seizure will depend on the area of the brain affected.

Mechanisms of Seizure Development

Normally there exists a balance between the excitation and inhibition of neurons in the CNS. Neuronal activity is regulated by acetylcholine (ACH) and gamma-Aminobutyric acid (GABA). Neurons are synchronously active at the same time when they are not supposed to be. The term active denotes neuron firing where they are sending electrical signals from neuron to neuron. A microscope view of a neuron will demonstrate that each electrical signal that passes through it are just ions floating in and out through protein channels (see diagram below). The ion flow is controlled through neurotransmitters.

Neurotransmitters bind to the receptors to tell the cell to either open the ion channels to relay the