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Editorial

Neuroplasticity and Relation to Aging

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Abstract

This deals with the adaptive abilities of the brain and functional changes of the brain according to the structural changes .It occurs due to traumatic changes in brain.

Keywords: Synaptic Plasticity; Neuro Plasticity; Supportive Cells; Cortex

Introduction

Neuroplasticity is defined as the ability of nervous system to change its activity in response to intrinsic and extrinsic stimuli by reorganizing its structure and function. It changes after traumatic brain injury [1].

Mechanisms of Neuroplasticity

Neuroplasticity can be broken down into two major mechanisms

- Neuronal regeneration/collateral sprouting: This includes concepts such as synaptic plasticity and neurogenesis.
- Functional reorganization: This includes concepts such as equipotentiality, vicariation, and diaschisis [2].
- Plasticity after injury: Neuroplasticity is a complicated process that is still being elucidated; however, the concept can be applied in the setting of injury to the brain. Neuroplasticity is traditionally thought of as occurring in 3 phases or epochs.
- First 48 hours: Depending on the mechanism of the injury (such as stroke or TBI), there is initial damage that cumulates as cell death with the loss of certain cortical pathways associated with the lost neurons. The brain attempts to [3] use secondary neuronal networks to maintain function.

Memory and neuroplasticity

Memory Retrieval Circuit

- **Step 1:** Memory Stored in The Various Cortex Travel Through Psychical Cortex
- **Step 2:** In Psychical Cortex Memory Is Converted into Visual Memory
- **Step 3:** Memory Travel in Hippocampus and Converted into The Recent Memory
- **Step 4:** Recent Memory Is Comprehended in Speech Area Werneck Area
- **Step 5:** Memory Get Retrieved

Photo visual memory process

- **Step 1:** Memory Received from Retina
- **Step 2:** Passes Through Psychical Cortex That Is Anterior Lobe of Temporal Lobe
- **Step 3:** Memory Travel Through Hippocampus
- **Step 4:** Recent Memory Is Comprehended in Wernicke Area
- **Step 5:** Memory Is Visualized for Seconds When Eyes Are Closed.

Auditory Memory

- **Step 1:** Memory Received from A Pattern
- **Step 2:** If Same Pattern Is Stuck or Visualize in Brain
- **Step 3:** The Memory Stored in Auditory Cortex
- **Step 4:** Travel Through Psychical Cortex and Get Comprehend
- **Step 5:** Memory Is Retrieved

Olfactory memory

- **Step 1:** Memory Received from An Olfaction
- **Step 2:** If Same Type of Olfaction Is Received in Brain Through Olfactory Nerve
- **Step 3:** Memory Stored in Olfactory Cortex
- **Step 4:** Travel Through Psychical Cortex and Get Comprehend
- **Step 5:** Memory Get Retrieved Mechanisms of synaptic Neuroplasticity

Spike-timing-dependent plasticity (STDP): This incorporates the timing of action potentials generated by presynaptic and postsynaptic neurons to explain how some synapses are strengthened and others are weakened.

- **Metaplasticity:** This broadens the concept to include networks and involves the activity-dependent changes in synapses and how they respond.
- **Homeostatic plasticity:** Mechanisms that maintain homeostasis of the synaptic network over time.[5]

Stemcell therapy cure of neuroplasticity

Pluripotent cells with neurogrowth hormone lead to growth of stem cells into the neuron and can lead to cure of dementia and neurodevelopmental cure.

Discussion

We discussed about the neuronal plasticity and adaptive ability of the brain and cure of the traumatic neuronal injury.

Conclusion

Neuronal plasticity is brain natural ability in response to traumatic brain injury and stem cell therapy can cure traumatic brain injury.

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