Stem Cell, Neurogenesis, and Restructuring the Rehabilitation Medicine

Takuji Shirasawa, MD
Aging Control Medicine
Juntendo University

Abstract:
Brain diseases such as Alzheimer’s Disease, Parkinson’s disease, and injury such as stroke have been considered to result in permanent loss of neurons with no possibility of cellular regeneration. This widely held belief has been challenged by evidence that certain brain areas retain the capability to generate new neurons in rodents and humans. The neuronal stem cells are found in hippocampus and cerebral cortex in human brains, suggesting the regenerative capacities in those areas of human brains. Recent studies also indicate that exposure to an enriched environment produces a significant increase in hippocampal neurogenesis in rodents. These regenerative capabilities of adult brains can be applied for the prevention of neurodegenerative diseases such as Alzheimer’s disease, or the rehabilitation after the brain injuries such as cerebral stroke. In this lecture, I will talk on the biology, physiology, pathology of neuronal stem cells in the contest with the clinical applications.