Journal of Vessels and Circulation



12th Iranian Congress of Stroke December 2020

The Post Stroke Neuroplasticity Effects on Rehabilitation

Fatemeh Fekar Gharamaleki* ¹, Mina Ahmadi Kahjoogh ²

¹ PhD student of Speech Therapy, Department of Speech Therapy, University of Social Welfare and Rehabilitation Sciences, Tehran, Iran General Practitioner, Legal Medicine Research Center, Legal Medicine Organization, Tehran, Iran

² PhD in Occupatioal Therapy, professor, Department of Occupatioal Therapy, Faculty of Rehabilitation, Tabriz University of Medical Science, Tabriz, Iran

Article Info	ABSTRACT
<i>Article type:</i> Original article	Background and Aim: The recent studies aimed at reviewing the literature on the effects of neuroplasticity and factors affecting language recovery of patients with aphasia. Materials and Methods: An electronic search was performed in PMC, Web of Science,
<i>Article History:</i> Received: 20 January 2020 Revised: 04 March 2020 Accepted: 14 May 2020	 PubMed, Scopus, Ovid databases. The present information is available reviewing the Medline, SID, Google Scholar and articles from 1996 to 2020 through the search of the resources. Results: Aphasia is an acquired language injury as the result of stroke in the left hemisphere that may result in the loss of cerebral function. However, the brain can use neuroplasticity to adjust itself functionally, by reorganizing the cortical maps, which contributes to the stroke recovery. Neuroplasticity is the capacity of a brain to change or be modified at cellular or behavioral levels. The changes in the cortex organization include an increase in the number and density of dendrites, synapses and neurotrophic factors synthesis and establishing of new neuronal circuits. Recent advances in functional imaging reveal that cortical hemisphere contralateral to the infarction lesion plays an important role in this recovery process. There is also clinical evidence showing that the contralesional intact hemisphere plays an important role for compensation for impaired functions. This brain plasticity can lead to degree of spontaneous recovery and rehabilitative training may modify and boost the neuronal plasticity processes. Conclusion: The central nervous system is plastic, in that the number and strength of synaptic connections changes over time. The growing understanding of the nature of brain plasticity raises optimism that this knowledge can be capitalized upon to improve rehabilitation efforts and to optimize functional outcome. The therapists focus on maximizing the functional benefits of post stroke motor rehabilitation by developing interventions to promote motor learning-related neuroplasticity.
<i>Keywords:</i> neuroplasticity, spontaneous, rehabilitation, stroke	