



Review

Neurogenesis in the epileptic brain: a brief overview from temporal lobe epilepsy

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Abstract:

Dentate granule cell neurogenesis persists throughout life in the hippocampus of mammals. Alterations in this process occur in many neurological diseases, including epilepsy. Among the different types of epilepsy, the most frequent is temporal lobe epilepsy (TLE). Therefore, a number of laboratory studies use animal models of TLE to observe the fate of neuronal cells after seizures. Hippocampal neurogenesis is very sensitive to physiological and pathological stimuli. Seizures, as pathological stimuli, alter both the extent and the pattern of neurogenesis, which is associated with cognitive function. Various alterations in neurogenesis are observed depending on the amount of time that has elapsed after the seizures. In acute seizures, neurogenesis generally increases, whereas in chronic epilepsy, neurogenesis decreases. Moreover, several methods currently used for the treatment of brain disorders such as TLE can also have significant impacts on cognitive functions. This review is focused on the recent findings regarding neurogenesis in animal models of TLE.

Key words:

dentate gyrus, seizures, pilocarpine, kainic acid, antiepileptic drugs
