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Poster Presentation

Endocannabinoid System as a Novel Therapeutic Target in Epilepsy

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Abstract

Endocannabinoid (ECB) system plays a vital role in responses to stress. Moreover, ECB and its receptors cause anti-inflammatory, anti-oxidative and neuroprotective effects by modulating neuronal, glial and endothelial cell functions. A number of studies have demonstrated ECB system notably defects in neurotraumatic and neurodegenerative diseases like epilepsy, TBI, Alzheimer's disease and Parkinson's disease. ECB system comprise of various compartments, including 2 G-protein-coupled receptors (GPCRs), named CB1 and CB2 receptors, which create two pathways. Most cannabinoid-based drugs used in treating neurodegenerative disorders affect CB1 pathway. Activating CB2 moderate inflammatory response and stimulate the secretion of anti-inflammatory mediators in microglial cells and astrocytes. CB2 function increased in inflammatory condition in neuronal and endothelial cells, which limit neuroinflammation and blood-brain barrier disruption. In conclusion, involvements of ECB system in neurological disorders make it a suitable therapeutic target. In this review, we discussed the role of CB1 and CB2 receptors in neurodegenerative diseases. CB2 pathway is believed involved in inflammation response, but its relationship with epilepsy remains unclear. Therefore, we suggest surveying the expression of CB2 receptor in an animal model of epilepsy.

Keywords: Endocannabinoid (ECB), Neurodegenerative diseases, Epilepsy, Neuroinflammation

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