ABSTRACT

EFFECT OF ANDROGRAPHOLIDE ON MELANOCORTIN-4 (MC4R) mRNA RECEPTORS EXPRESSION IN MICE WITH ISCHEMIC BRAIN STROKE

Eka Suci Lestari

Ischemic stroke is a blood circular disorder in brain causing death and cell damage that can lead to impair cognitive, motoric, and sensory function. Ischemic stroke can increase the production of ROS in tissues and causes oxidative damage. MC4R is a part of G-protein coupled receptor, which is mostly expressed in the central nervous system, takes an important role on nerve protection in brain ischemia through inhibition of caspase-3's activation so that prevents apoptosis and inhibits Nf-κB translocation and thus prevents inflammation. Andrographolide is an antioxidant and neuroprotective agent that assumed to prevent the spread of ischemic injury via melanocortin activation. Therefore, it is necessary to analyze the alteration of MC4R expression in the brain of mice induced ischemic stroke that are given andrographolide. In this study, mice were divided into the sham group and ischemic stroke group, and then treated with andrographolide in dose of 0,5mg/kg, 1mg/kg, and 2mg/kg i.p for 7 days. MC4R expression in hippocampus and dorsal striatum analyzed using PCR. The result showed that MC4R mRNA expression was decreased in the hippocampus and dorsal striatum area of stroke group. MC4R mRNA expression was increased proportionally to andrographolide dose given both in hippocampus and dorsal striatum of stroke group mice. Thus, administration of andrographolide is thought to repair tissue damage due to ischemic stroke via melanocortin activation by increasing MC4R expression.

Keywords: Ischemic Stroke, Andrographolide, MC4R, hippocampus, dorsal striatum, PCR