ABSTRACT

BIOMOLECULAR ANALYSIS IN THE ALTERATION OF MELANOCORTIN-4 RECEPTOR (MC4R) EXPRESSION WITH QUERSETIN FOR MICE BRAIN WHICH INDUCED BY ISCHEMIC STROKE

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Ischemic stroke is occur when a cerebral vessel occludes then obstructing blood flow to a portion of the brain and can caused decrease in cognitive and motor function. The melanocortin-4 receptor (MC4R) is a member of the G-protein coupled receptors which are mostly expressed in the central nervous system. Physiologically, MC4R has an important role in nerve protection for cerebral ischemia including prevention of oxidative stress through inhibit of caspase-3 activation so as to prevent the occurrence of apoptosis. Oxidative stress is an increase in the production of reactive oxygen species (ROS) in tissues that cause oxidative damage. Quercetin is a group of antioxidants that play an important role in preventing the development of ischemic brain injury through a mechanism to inhibit the formation of free radicals. The groups divided to the sham group and the ischemic stroke group which treatment by 100 mg/kgBB of quercetin intraperitoneally for 7 days. Then, mice were sacrifice for taking the dorsal striatum. Furthermore, the alteration of MC4R expression in dorsal striatum analyzed using polymerase chain reaction (PCR). This research showed that MC4R mRNA expression was decrease in the dorsal striatum of mice brain with ischemic stroke and upregulated after injection of 100 mg/kgBB. Thus, MC4R in the dorsal striatum is suggested to play a role in the protective effect of quercetin toward ischemic stroke condition.

Keywords : Ischemic Stroke, Quercetin, Dorsal Striatum, MC4R, PCR