ABSTRACT

Ischemic stroke is insufficient or interrupted of blood flow to an area of the brain, typically caused by blockaged of an artery and can result in brain damage. This research was designed to investigated the efficacy of rHuEPO as a neuroprotectant (antiapoptotic agent) on rat with ischemic stroke induced by right common carotid artery occlusion. Animals were divided into five group: sham group, ischemic stroke group and treatment group of rHuEPO. rHuEPO was administered intravenously once a day for 7 days at dose 1000, 5000, 10000 IU/Kg a week after induced by right common carotid artery occlusion surgery. The repair of brain damage was evaluated by Y maze for cognitive repair, ladder rung walking and forlimb use asymmetry test for motor repair, measured on day 0, 1, 3 and 7. Animal then sacrificed and stained to evaluate histological damage and imunohistochemistry for caspase 3 expression. The result showed that treatment with rHuEPO significantly enhanced spatial memory at 5000 and 10000 IU/Kg in day 7 compare to ischemic group (p = 0.0260, p = 0.0286 respectively) and improved motorik function in day 7 compare to ischemic group (p = 0.0064, p = 0.0102 respectively). rHuEPO significantly reduce area infarct at 1000 IU 5000 IU and 10000 IU/Kg compare to ischemic group (p = 0.0265, p = 0.0016 p = 0.0024 respectively). Histology staining indicated that administration of rHuEPO could protect cell body neuron from ischemic induced cell damaged. Furthermore there were significant difference on caspase 3 expression in each groups.

Keyword: Ischemic Stroke, rHu Erythropoietin, Anti Apoptotic, Caspase 3