ABSTRACT

THE EFFECT OF ERYTHROPOIETIN ON COGNITIVE FUNCTIONS ON ANIMAL ISCHEMIC STROKE MODELS

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In ischemic stroke, apoptotic cell death can occur. Neuronal apoptosis is found in hippocampus area that regulates cognitive function. Erythropoietin is thought to be a neuroprotectant that improves cognitive function. Previous research reported that erythropietin can improve cognitive function in experiments with ischemic induction animal models using Y Maze without cues. Y Maze without cues only assesses spontaneous alternation. Research that measures cognitive memory learning functions did not exist. This study was aimed to determine the potency of erythropoietin on cognitive function of the learning memory of experimental models of ischemic stroke with the Y Maze. Animal model was induced by left unilateral common carotid artery occlusion (lUCCAO) for 2 hours. The parameter of the stroke model was indicated by decreasing cognitive function as % correct choice. Animals were randomly divided into 4 groups: non stroke, stroke model, stroke model with rHuEPO 5.000 IU/kg and 10.000 IU/kg. rHuEPO was administrated intraperitoneally once after 2 hours post lUCCAO. Cognitive function was evaluated by Y Maze after lUCCAO. The result showed a decrease in cognitive function in non-stroke + saline and stroke + saline groups on day 1 ($p = 0.0185$). The effect of rHuEPO dose 5.000 IU/kg and 10.000 IU/kg on improving cognitive function in experimental animal models showed a significant difference on days 2 to 14 ($p<0,0001$; $p<0,0001$ vs stroke + saline). We conclude that rHuEPO 5.000 IU/kg and 10.000 IU/kg improved cognitive learnig memory function in mice with ischemic stroke model.

Keywords: cognitive, ischemic, rHu erytrhropoietin, stroke