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Effectiveness of Citicoline on the Neurocognitive Improving in the Treatment of Acute Ischemic Stroke

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Abstract

Introduction: Stroke is a disease that affects the arteries leading to and within the brain. A stroke occurs when the blood supply to part of the brain is suddenly interrupted or when a blood vessel in the brain bursts, spilling blood into the spaces surrounding brain cells. Brain cells die when they no longer receive oxygen and nutrients from the blood or there is sudden bleeding into or around the brain. It is the main cause of death and a leading cause of disability all over the world. Nowadays, the strategies of stroke therapy are to address in decreasing the progressivity of neuron damaged and to attenuate the mortality of the disease. Neuroprotectant is one of therapeutic agent that intensively used to reduce the occurrence of neuronal damage due to impaired blood flow to brain. The major of neuroprotectant that use for acute ischemic stroke for inpatients in Dr. Soetomo Teaching Hospital Surabaya is citicoline. There are available either for intravenous injection or oral tablet with recommended dosage range from 500 to 2000 mg per day. However, the effectiveness of citicoline for acute ischemic stroke at recent time as to enhance the improvement of neurological function is still controversial and debatable.

Objectives: The aim of this study is to evaluate the effectiveness of citicoline on the neurocognitive improving in the treatment of acute ischemic stroke for inpatients in Department of Neurology Dr. Soetomo Teaching Hospital Surabaya.

Methods: The study was designed with retrospective method and data are obtained from document of patient medical records from the period of 1st November 2013 until 28th February 2014. The clinical outcome related with neurocognitive behavioral of acute ischemic stroke patients were measured by National Institute of Health Stroke Scale (NIHSS).

Results: During research carry out, we obtained 61 acute ischemic stroke patients. 25 patients (41%) received the standard therapy combined with citicoline and 36 patients (59%) received standard therapy only. Citicoline is given through intravena in dosage between 500 mg-2000 mg, twice to three times daily. There are differences in the NIHSS improvement between the NIHSS initial and final NIHSS of the group who were given standard therapy and the group who were given standard therapy combined with citicoline ($p < 0.001$). Furthermore, there are differences in delta NIHSS comparisons between group who were given standard therapy and the group who were given standard therapy combined with citicoline, statistically significant ($p = 0.004$).

Conclusions: There are differences in effectiveness of neurocognitive behavioral improvement between the using of standard therapy combined with citicoline and that with only standard therapy towards patients in acute ischemic stroke when measured from clinic outcome using NIHS Scale.
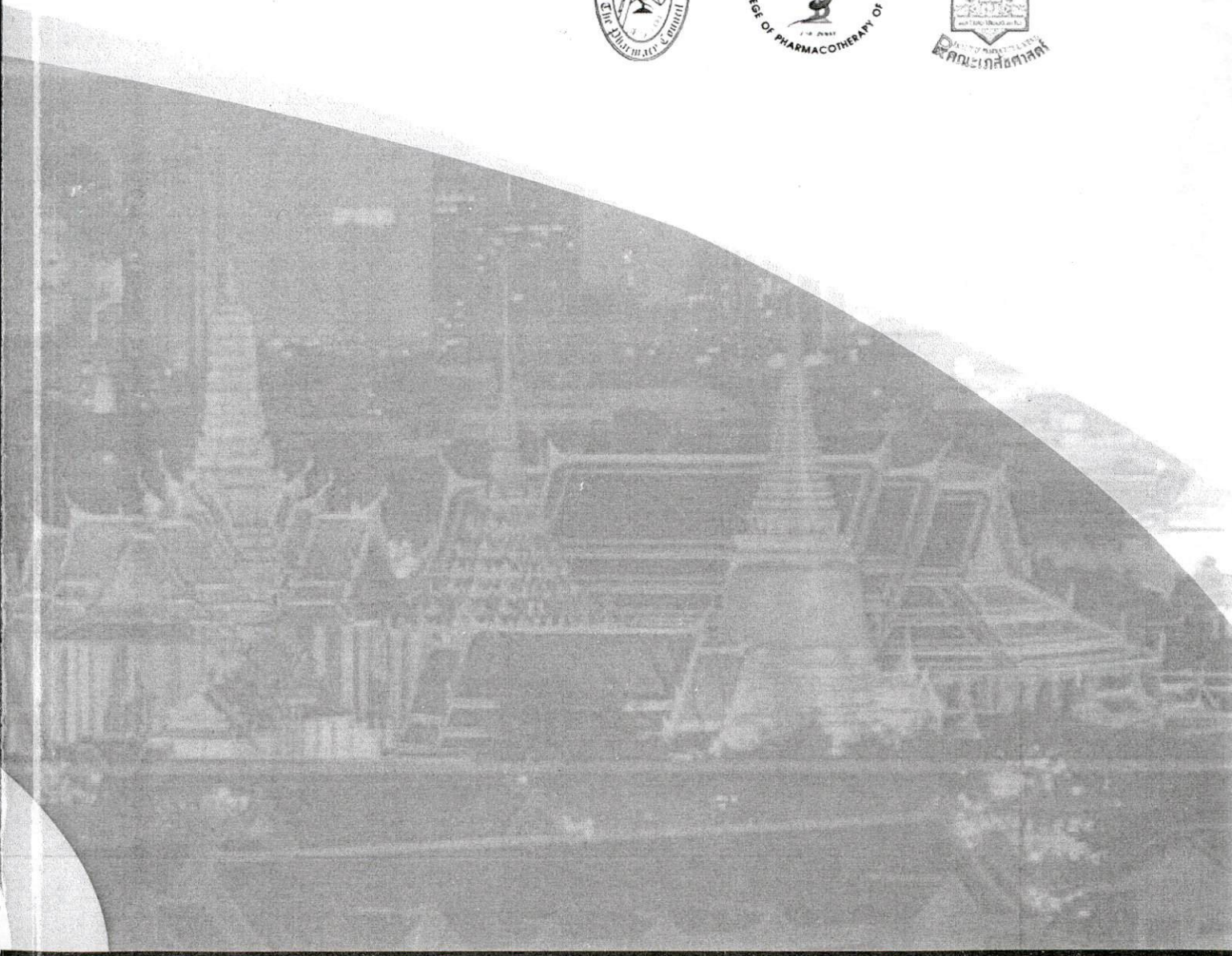
Keywords: acute ischemic stroke, citicoline, NIHSS.

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