

## ABSTRACT

### ANALYSIS INFLUENCE OF SIMVASTATIN ON SERUM HMGB1 LEVELS IN ACUTE ISCHEMIC STROKE PATIENTS

(Study at Neurology Departement, Dr. Soetomo General Hospital and Universitas Airlangga Hospital Surabaya)

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**Background :** In ischemic stroke, cerebral artery occlusion leads to nutrient and oxygen depletion, as well as necrosis and subsequent inflammation in neural tissue. The injured brain cells release danger-associated molecular patterns (DAMPs) that induce or escalate inflammation. These DAMPs include high-mobility group box-1 (HMGB1). Pleiotropic effect of simvastatin as antiinflammatory is one of HMGB1 target drug. There are few studies showing the clinical associations between HMGB1 and simvastatin as antiinflammatory in ischemic stroke. Here, we determined the clinical significance of simvastatin with serum HMGB1 levels in patients with acute ischemic stroke.

**Objective :** The aim of this prospective observational study is to analyze the effect of simvastatin 20 mg on serum HMGB1 levels in acute ischemic stroke patients as antiinflammatory process.

**Method :** We enrolled 44 patients (28 men; 16 women; mean age: 60.0 years) over 3 months. Sample were collected by simple random sampling from August – November 2017. The serum HMGB1 levels were measured on acute ischemic stroke patients whom given simvastatin 20 mg or placebo for 5 days in inpatient ward. Blood collected on admission day 1 (pre intervention) and day 5 (post intervention). After centrifugation, serum samples were stored at -80°C before measurement. We used an ELISA Kit (IBL International) to determine HMGB1 concentrations. Protocol of this study had been reviewed by Ethical Committee Dr. Soetomo General Hospital and Universitas Airlangga Hospital Surabaya.

**Result :** Serum HMGB1 levels in ischemic stroke patients were increased in placebo group and reduced in simvastatin group after intervention for 5 days, not significantly both ( $p=0.861$  and  $0.267$ ). HMGB1 levels did not significantly differ between two groups after interventions for 5 days ( $p=0.222$ ).

**Conclusion :** Simvastatin 20 mg reduced HMGB1 levels not significantly in acute ischemic stroke patients after given for 5 days admission and not significantly differ between two group after interventions.

**Keywords :** Ischemic stroke, Simvastatin, HMGB1, Inflammatory marker, DAMPs