

ABSTRACT**INFLUENCE OF SIMVASTATIN ON SERUM INTERLEUKIN-1 BETA (IL-1 β)
LEVEL IN PATIENTS WITH ACUTE ISCHEMIC STROKE
(Study at Neurology Department of Dr. Soetomo Teaching Hospital Surabaya and
Airlangga University Hospital Surabaya)**

Background : Ischemic stroke is a focal neurological disorder that occurs as a result of insufficient or disconnected blood flow to the area of the brain, usually caused by clogged arteries. The sudden blockage of blood flow to the brain causes tissue hypoxia and triggers an inflammatory cascade leading to impairment of ion homeostasis, neuronal excitotoxicity, intracellular calcium overload, free radical generation, and lipid peroxidation which will cause neuronal injury. IL-1 β is one of the crucial inflammatory mediators in the excitotoxicity of vascular ischemic processes and it has important role in cell damage and death in ischemic stroke. In the previous studies, Simvastatin, when administered within 24 hours of the acute ischemic stroke onset, can inhibit the increase in IL-1 β serum levels.

Objectives : To analyze the difference of IL-1 β serum levels between the group of acute ischemic stroke patients treated with Simvastatin 20 mg and the ischemic stroke patients in placebo group.

Method : This study is randomized controlled trial. Data were collected between August and November 2017. Venous blood sample were obtained to extract IL-1 β serum level before and after 5 days of intervention. Ethical Committee of Dr Soetomo Teaching Hospital Surabaya and Airlangga University Hospital Surabaya approved protocol of this study. The informed consents must be signed as a proof of participation in this study. The measured data of IL-1 β serum level were analyzed using Mann Whitney test to compare non parametric data between Simvastatin and placebo group and using Wilcoxon test to compare non parametric data within group.

Result : Total 44 participants were include in this study, divided into 22 patients in placebo group and 22 patients in Simvastatin group. Patient characteristics between two groups were not significantly different ($p > 0.05$). The mean of IL-1 β serum levels before intervention between placebo group (60.909 ± 20.288 pg/mL) and Simvastatin group (41.846 ± 24.875 pg/mL) were not significantly different ($p > 0.05$). The mean of IL-1 β serum levels after intervention between placebo group (40.821 ± 11.903 pg/mL) and Simvastatin group (30.748 ± 22.303 pg/mL) were not significantly different ($p > 0.05$). The mean of IL-1 β serum level in placebo group decrease with $p > 0.05$, while in Simvastatin group the mean of IL-1 β serum decrease with $p > 0.05$

Conclusion : Five days administration of Simvastatin 20 mg could not decrease the IL-1 β serum level in acute ischemic stroke compared with placebo group.

Keyword : Acute Ischemic Stroke, IL-1 β , Simvastatin