

Tesis

**HUBUNGAN KADAR SERUM BRAIN-DERIVED NEUROTROPHIC
FACTOR DENGAN DEPRESI PASCA STROKE ISKEMIK**



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ABSTRAK

HUBUNGAN KADAR SERUM BRAIN DERIVED NEUROTROPHIC FACTOR DENGAN DEPRESI PASCA STROKE ISKEMIK

Brain Derived Neurotrophic Factor (BDNF) merupakan salah satu dari empat neurotrophin yang termasuk golongan *neurotropic factor*. Kadar BDNF serum dan penurunan volume hippocampus berkorelasi erat dengan gangguan memori dan gangguan neuropsikiatri. Kadar BDNF serum sangat berkorelasi dengan gangguan emosional dan gangguan kognitif lainnya seperti depresi dan ansietas. Tujuan penelitian ini untuk melihat hubungan kadar serum BDNF pada onset akut stroke iskemik dengan terjadinya depresi pasca stroke.

Penelitian ini adalah penelitian analitik dengan desain *Case control* yang dilakukan di Instalasi Gawat Darurat, bangsal saraf, dan Poliklinik Saraf RS DR. M. Djamil pada pasien stroke iskemik yang di rawat sesuai kriteria inklusi dan eksklusi. Sampel dipilih secara *simple random sampling*. Depresi Pasca Stroke dinilai menggunakan Instrumen Hamilton *Depression Rating Scale*. Kadar serum BDNF dianalisis dengan teknik *Enzyme-linked Immunosorbent Assay* (ELISA). Analisis data menggunakan uji Pearson dan Spearman dengan derajat kemaknaan $p < 0,05$. Faktor-faktor yang lebih berpengaruh dianalisis dengan regresi logistik.

Rerata kadar BDNF pasien stroke iskemik adalah $6904,98 \pm 1820,48$. Terdapat hubungan antara kadar BDNF dan depresi pasca stroke dimana pasien stroke iskemik dengan kadar BDNF $\leq 7235,6$ secara signifikan 3,846 kali berisiko mengalami depresi pasca stroke dibandingkan pasien stroke iskemik dengan kadar BDNF $> 7235,6$ (OR = 3,846 (CI95% 1,467 – 10,085); $p = 0,011$).

Kesimpulan Penelitian ini terdapat terdapat hubungan antara kadar BDNF dan depresi pasca stroke. Kadar BDNF yang rendah pada saat onset akut stroke dapat menjadi prediktor terjadinya depresi pasca stroke 1 bulan setelah onset stroke

Kata kunci: BDNF, depresi pasca stroke, stroke iskemik

ABSTRACT

ASSOCIATION BETWEEN SERUM BRAIN DERIVED NEUROTROPHIC FACTOR LEVELS AND DEPRESSION OF POST ISCHEMIC STROKE

Brain-Derived Neurotrophic Factor (BDNF) is one of four neurotrophins that belong to the group neurotrophic factor. Serum BDNF levels and decreased hippocampal volume correlate closely with memory disorders and neuropsychiatric disorders. Serum BDNF levels are highly correlated with emotional disorders and other cognitive disorders such as depression and anxiety. The purpose of this study was to see the relationship between serum BDNF levels in the acute onset of ischemic stroke and post-stroke stroke.

This study was an analytical study with a *Case control* design conducted at the Emergency Department (IGD), nerve ward, and the Neurology clinic of the DR. M. Djamil Hospital for all ischemic stroke patients who were treated according to inclusion and exclusion criteria. The sample was selected by simple random sampling. Post Stroke Depression was assessed by examination using the Hamilton Depression Rating Scale Instrument. BDNF serum levels were analyzed by enzyme-linked immunosorbent assay (ELISA). Data analysis using Pearson and Spearman correlation test with a significance level of $p < 0.05$.

The mean levels of BDNF for ischemic stroke patients were 6904.98 ± 1820.48 . There was a relationship between the levels of BDNF and post-stroke depression, where ischemic stroke patients with BDNF levels ≤ 7235.6 were significantly 3.846 times greater to have a risk to experience depression after stroke compared to the ischemic stroke patients with BDNF levels > 7235.6 (OR = 3.846 (CI95% 1.467 - 10.085); $p = 0.011$).

It can be concluded that there is a association between BDNF levels and post-stroke depression. Low BDNF levels during acute onset of stroke can be a predictor of post-stroke depression occurrence in 1 month after onset of stroke.

Keywords: BDNF, post-stroke depression, stroke