

RELATIONSHIP BETWEEN INCREASING OF PROCALCITONIN LEVELS WITH COGNITIVE IMPAIRMENT IN ACUTE ISCHEMIC STROKE PATIENTS

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ABSTRACT

Stroke is a disease which prevalence is increasing. In addition to cause motor and sensory disorders, strokes can also cause cognitive dysfunction that can progress to dementia if not properly treated. Procalcitonin biomarker is expected to be a marker of the possibility of cognitive impairment in ischemic stroke patients through an inflammatory process that occurs in brain tissue damage.

This study is a prospective cohort study. Subjects were acute ischemic stroke patients who were treated in the stroke unit of RSUP Dr. Sardjito and RSPAU Hardjolukito Yogyakarta, as well as meeting eligibility criteria and taken by consecutive sampling during the study period. The subjects were then checked for procalcitonin levels at admission (<72 hours of onset) and MoCA-Ina assessment on days 5-9 of treatment. The results are said to be significant if $p < 0.05$.

In this study, 32 subjects met eligibility criteria. Subjects who experienced cognitive impairment were 17 (53.1%) subjects. The results of bivariate analysis with chi-square test showed significant differences between leukocyte number variables and procalcitonin levels with cognitive impairments with $p = 0.008$ ($r = -0.536$) and $p = 0.007$ (RR = 2.47; 95% CI 1.37 -4.46). In the multivariate logistic regression test with the backward method, the variables that influence cognitive impairment in ischemic stroke patients are procalcitonin levels with $p = 0.012$ (OR = 19.080; 95% CI 1.890-192.620).

The conclusion of the study is that there is a relationship between procalcitonin levels and cognitive impairment in patients with acute ischemic stroke.

Keywords: procalcitonin, leukocytes, MoCA-Ina, acute ischemic stroke

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HUBUNGAN ANTARA PENINGKATAN KADAR *PROCALCITONIN* DENGAN TERJADINYA GANGGUAN KOGNITIF PADA PASIEN STROKE ISKEMIK AKUT

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ABSTRAK

Stroke merupakan salah satu penyakit yang prevalensinya semakin banyak terjadi. Selain dapat menimbulkan gangguan motorik maupun gangguan sensorik, stroke juga dapat menimbulkan gangguan fungsi kognitif yang dapat berlanjut menjadi demensia bila tidak mendapat penanganan yang baik. Biomarker *procalcitonin* diharapkan dapat menjadi penanda kemungkinan terjadinya gangguan kognitif pada pasien stroke iskemik melalui proses inflamasi yang terjadi pada kerusakan jaringan otak.

Penelitian ini merupakan penelitian kohort prospektif. Subjek penelitian adalah pasien stroke iskemik akut yang dirawat di unit stroke RSUP Dr. Sardjito dan RSPAU Hardjolukito Yogyakarta, serta memenuhi kriteria eligibilitas dan diambil secara *consecutive sampling* selama periode penelitian. Subjek penelitian kemudian dilakukan pengecekan kadar *procalcitonin* pada saat admisi (<72 jam onset) dan penilaian MoCA-Ina pada hari ke 5-9 perawatan. Hasil dikatakan signifikan jika $p < 0,05$.

Pada penelitian ini didapatkan 32 subjek yang memenuhi kriteria eligibilitas. Subjek yang mengalami gangguan kognitif sebanyak 17 (53,1%) subjek. Hasil analisis bivariat dengan uji *chi-square* menunjukkan perbedaan yang signifikan antara variabel angka leukosit dan kadar *procalcitonin* dengan gangguan kognitif dengan $p = 0,008$ ($r = -0,536$) dan $p = 0,007$ (RR = 2,47; IK 95% 1,37-4,46). Pada uji multivariat regresi logistik dengan metode *backward*, variabel yang berpengaruh terhadap terjadinya gangguan kognitif pada pasien stroke iskemik adalah kadar *procalcitonin* dengan nilai $p = 0,012$ (OR = 19,080; IK 95% 1,890-192,620).

Kesimpulan penelitian adalah terdapat hubungan antara kadar *procalcitonin* dengan terjadinya gangguan kognitif pada pasien stroke iskemik akut.

Kata kunci: *procalcitonin*, leukosit, MoCA-Ina, stroke iskemik akut

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