

## Hubungan Kadar Neuroglobin Serum dengan Luaran Jangka Pendek Stroke Iskemik Akut = Association between Serum Neuroglobin Concentrations and Short-Term Outcomes of Acute Ischemic Stroke

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### Abstrak

Latar Belakang: Penanda prognostik dapat menunjang tata laksana stroke iskemik (SI) akut. Protein neuroglobin (Ngb), yang berperan dalam transpor oksigen intrasel neuron dan mengurangi dampak hipoksia, adalah salah satu penanda potensial memenuhi fungsi tersebut.

Metode: Studi potong lintang dilakukan pada pasien SI akut yang dirawat di RSUPN dr. Cipto Mangunkusumo pada Maret-April 2023. Sampel serum untuk pemeriksaan Ngb diambil pada tiga hari pasca awitan stroke, sedangkan modified Rankin scale (mRS), National Institutes of Health Stroke Scale (NIHSS), indeks Barthel (BI) dan Montreal Cognitive Assessment (MoCA-Ina) diperiksa pada hari ketujuh. Analisis kemaknaan dan kurva receiver operating characteristic (ROC) digunakan untuk mengetahui hubungan Ngb dengan luaran stroke iskemik akut.

Hasil: Sebanyak 42 subjek menjalani analisis. Kadar Ngb serum lebih tinggi pada kelompok dengan skor mRS 3-6 dibandingkan 0-2 (12,42 ng/mL [3,57-50,43] vs 4,79ng/mL [2,25-37,32], p=0,005), dengan skor area di bawah kurva ROC sebesar 0,75. Kadar Ngb juga lebih tinggi pada kelompok dengan NIHSS pulang lebih tinggi (p=0,03), serta BI dan MoCA-Ina yang lebih rendah (p=0,01 dan p=0,002).

Kesimpulan: Kadar Ngb serum pada SI akut yang lebih tinggi berkaitan dengan luaran fungsional jangka pendek yang lebih buruk. Penelitian lebih lanjut dibutuhkan sebelum terapan klinis.

.....Background: Prognostic markers can optimize the management of acute ischemic stroke (AIS). The neuroglobin (Ngb), which plays a role in intraneuronal oxygen transport and reduces the effects of hypoxia, is a marker that may perform this function.

Methods: A cross-sectional study was conducted on AIS patients who were treated at RSUPN dr. Cipto Mangunkusumo in March-April 2023. Serum samples for Ngb examination were taken three days after the onset of stroke, while modified Rankin scale (mRS), National Institutes of Health Stroke Scale (NIHSS), Barthel index (BI) and Montreal Cognitive Assessment (MoCA-Ina) were examined on the seventh day. Significance analysis and receiver operating characteristic (ROC) curve were used to determine the relationship between Ngb and AIS outcomes.

Results: A total of 42 subjects underwent analysis. Serum Ngb levels were higher in subjects with mRS score of 3-6 than 0-2 (12.42 ng/mL [3.57-50.43] vs 4.79 ng/mL [2.25-37.32], p=0.005). The area under the ROC curve score was 0.75. Ngb levels were also higher in the group with higher NIHSS at discharge (p=0.03), lower BI (p=0.01) and lower MoCA-Ina score (p=0.002).

Conclusion: Higher serum Ngb levels in AIS are associated with poorer short-term functional outcomes. Further research is needed before clinical application.