

# Hubungan antara Kadar Neuron-Specific Enolase dalam Serum (S-NSE) dengan Keluaran Penderita Cedera Kranio-serebral di RSUPN Cipto Mangunkusumo

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## Abstrak

Latar belakang. Cedera kranio-serebral (CK) masih menjadi masalah kesehatan dan sosial yang besar karena akibatnya menyangkut kerugian sumber daya manusia dan materi yang besar. Oleh sebab itu penatalaksanaan penderita CK haruslah menjadi perhatian kita untuk mencegah terjadinya kematian dan kecacatan. Disamping pemeriksaan penunjang yang ada seperti CT-scan saat ini juga disebutkan pemeriksaan kadar enzim NSE yang diketahui merupakan enzim glikolitik yang predominan terdapat dalam sitoplasma neuron dan akan lepas ke dalam cairan tubuh (darah dan LSS) apabila terjadi kerusakan sel neuron, sehingga oleh beberapa peneliti NSE ini dijadikan pemeriksaan yang bertujuan untuk mengetahui tingkat kerusakan neuron. Metodologi. Diteliti 60 penderita CK tertutup derajat sedang dan berat (GCS 12-3) di RSUPN Ciptomangunkusumo Jakarta sejak Agustus 1997-Januari 1998, umur 17-45 tahun, dengan gambaran kontusio pada CT-scan serta tidak mendapatkan tindakan operasi dan tanpa komplikasi sistemik. Penilaian GCS: 6 jam pasca tindakan resusitasi, pengambilan sampel darah vena: 10 jam pasca trauma. Pemeriksaan NSE dilakukan di laboratorium Prodia dengan metode NSE Enzyme Immuno Assay. Kadar normal NSE orang dewasa sehat 13,2 ng/ml. Keluaran adalah: hidup / mati selama 2 minggu pasca trauma. Hasil. Dari 60 penderita, terdapat 50 pria dan 10 wanita, tidak ada perbedaan bermakna terhadap proporsi kematian antara pria dan wanita ( $p > 0,05$ ). Terdapat perbedaan bermakna terhadap kejadian kematian pada kelompok penderita dengan  $NSE > 13,2$  ng/ml dan kejadian kematian 2,5 kali lebih besar (RR 2,5). Secara keseluruhan didapatkan risiko kematian semakin besar dengan semakin tinggi usia, semakin rendah GCS dan semakin tinggi kadar NSE. Kesimpulan. Pemeriksaan kadar NSE serum pada penderita CK fase akut dapat merupakan indikator kerusakan jaringan otak yang terjadi. Semakin tinggi kadar NSE serum, maka semakin besar kerusakan yang terjadi dan semakin buruk keluaran.

.....Bllecgrollnd. Head injury ( HI) constitutes major health and social problems since its consequences are loss in human resources and material. Therefore management of HI patients should be the focus of our attention to prevent mortality and disability. In addition to the supporting examination, such as CT -scan, currently there is also an examination of NSE enzyme content, which is known as glycolitic enzyme, predominantly found in neurone cytoplasm and will be released into body fluid ( blood and Cerebro spinal fluid/CSF ) when neuronal damage occurred. Consequently some researchers use NSE as a means for examining the extent of neuronal damage. Methodology. Research was conducted on 60 moderate and severe HI patients ( GCS : 12 - 3 ) at Cipto Mangunkusumo Hospital-Jakarta from August 1997 until January 1998, age: 17 - 45 years, with contusion image at CT -scan and not subject to surgery, without systemic complication. GCS evaluation: was done 6 hours after resuscitation, sample of venous blood was taken: 10 hours after trauma. NSE examination was conducted at Prodia laboratory with NSE enzyme immuno assay method. The NSE content for healthy adults is ::; 13,2 nglml. The outcome is : alive I dead during the first two weeks after trauma. Results. The material consisted of 60 patients (50 males and 10 females ); no significant difference was found in the proportion of mortality between male and female (

$p > 0,05$  ). There was a significant difference in mortality among the patients in the group with NSE  $> 13,2$  ng/ml and the mortality incidence in the group with NSE  $> 13,2$  ng/ml was 2,5 times higher than the group with normal NSE concentration ( RR = 2,5 ). This sample showed mortality rate was higher in the older patients, in the group with lower GCS score and those with higher serum NSE. Conclusion. The examination of NSE serum ( S-NSE ) in the acute stage of HI patients can be used as an indicator of the severity of brain damage. The higher of NSE serum, the more extensive the damage and the worse outcome will be encountered.