

## Jumlah Sel Piramidal CA3 Hipokampus Tikus Putih Jantan pada Berbagai Model Stres Kerja Kronik

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| <b>Title</b>          | Jumlah Sel Piramidal CA3 Hipokampus Tikus Putih Jantan pada Berbagai Model Stres Kerja Kronik                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>Author Order</b>   | 1 of 4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <b>Accreditation</b>  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <b>Abstract</b>       | <p>Paparan stres kronik dan berkepanjangan mengakibatkan hilangnya neuron di regio CA3 (cornu ammonis) hipokampus dan penurunan kognitif. Tujuan penelitian mengetahui perbedaan jumlah sel piramidal CA3 hipokampus tikus putih jantan pada model stres kerja meliputi paradoxical sleep deprivation (PSD), imobilisasi, dan footshock kronik. Metode penelitian adalah post-test only with control group design experimental dengan rancangan acak lengkap menggunakan 24 ekor tikus putih jantan galur Wistar usia 3-4 bulan yang dibagi 4 kelompok: KI kontrol tanpa perlakuan, KII (stres PSD), KIII (stres imobilisasi), dan KIV (stres footshock) dan sel piramidal CA3 hipokampus diwarnai dengan toluidine-blue. Jumlah sel dihitung menggunakan perangkat lunak Image raster v2.1, perbesaran 400x tiap 10 lapangan pandang. Penelitian dilakukan 6 bulan (April-September 2012) di Laboratorium Hewan Coba, Fakultas Kedokteran dan Ilmu Kesehatan Universitas Jenderal Soedirman. Analisis data menggunakan analysis of variance (ANOVA) dengan Post-Hoc least significant difference (LSD) menunjukkan perbedaan jumlah sel piramidal CA3 hipokampus signifikan (<math>p=0,037</math>) pada minimal dua kelompok perlakuan. Uji statistik dengan Post-Hoc LSD menunjukkan perbedaan signifikan jumlah sel piramidal CA3 hipokampus antara kelompok kontrol (<math>12,9 \pm 2,47</math>) dan kelompok imobilisasi (<math>9,00 \pm 1,53</math>) (<math>p&lt;0,05</math>). Simpulan, kelompok imobilisasi kronik memiliki jumlah sel piramidal CA3 hipokampus terendah dibandingkan dengan ketiga kelompok lainnya. Kata kunci: Model stres kerja kronik, sel piramidal CA3 hipokampus, tikus putih jantan</p> <p>Number of CA3 Pyramidal Cell in Male Albino Rat Hippocampus Exposed to Various Chronic Work Stress Models Abstract Prolonged and chronic exposure to stress leads to the loss of neurons at the CA3 (cornu ammonis) hippocampus region and spatial memory deficits. The aim of this study was to study the number of CA3 pyramidal cells in albino rats that were exposed to chronic stress of works model consisting of paradoxical sleep deprivation (PSD), immobilization, and foot shock stresses. The method applied was the post-test only method with control group experimental design using completed randomized design (CRD on 24 3-4 month old male Wistar rats . The rats were divided into 4 groups: group I (control), group II (PSD stress), group III (immobilization stress), and group IV (footshock stress). The CA3 pyramidal cell hippocampus was stained with toluidine-blue. The number of CA3 pyramidal cell of hippocampus was counted using Image raster v2.1 software at 400x magnification in 10 duplicates for each sample. The study was conducted in six months (April-September 2012) at the Animal Laboratory, Faculty of Medical and Health Sciences, Jenderal Soedirman University. Analysis for the differences in the number of CA3 pyramidal cells was conducted using analysis of variance (ANOVA) with Post-Hoc LSD. The results of the ANOVA showed a <math>p</math> value=0.037, meaning that there was significant difference in at least two groups of treatment. Further statistical test using Post-Hoc LSD showed a significant difference between the control group (<math>12.9 \pm 2.47</math>) and the chronic immobilization group (<math>9.00 \pm 1.53</math>) (<math>p&lt;0.05</math>). In conclusion, the chronic immobilization stress group has the lowest average number of hippocampus CA3 pyramidal cells compared to other groups Key words: CA3 pyramidal cell in hippocampus, chronic works stress model, male albino rats DOI: 10.15395/mkb.v46n4.337</p> |
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