Number of CA3 Pyramidal Cell in Male Albino Rat Hippocampus Exposed to Various Chronic Work Stress Models

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Title	Number of CA3 Pyramidal Cell in Male Albino Rat Hippocampus Exposed to Various Chronic Work Stress Models
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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 p value=0.037, meaning that there was significant difference in at least two groupsof treatment. Further statistical test using Post-Hoc LSD showed a significant difference between the control group (12.9 +/- 2.47) and the chronic immobillization group (9,00 +/- 1,53) (p<0.05). In conclusion, the chronic immobillization stress group has the lowest average number of hippocampus CA3 pyramidal cells compared to other groups.
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