

PERBEDAAN MORFOLOGI DAN FRAGMENTASI DNA PADA SPERMATOZOA TIKUS PUTIH (Rattus norvegicus) GALUR WISTAR PASCA INDUKSI BERBAGAI MODEL STRES SLEEP DEPRIVATION

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Abstract	<p>Background: A stress, sleep deprivation, can cause imbalance of reactive oxygen species (ROS) that can damage DNA, lipids and proteins of spermatozoa, consequently leading to infertility. Objective: The aim of this study is to investigate differences of morphology and DNA fragmentation with some models of sleep deprivation in spermatozoa of white male Wistar rat strain (Rattus norvegicus). Methods: This study was an experimental study with post-test-only with control group design. There were 30 male Wistar rats which were randomly divided into 5 groups: control group, paradoxical sleep deprivation (PSD) group, total sleep deprivation (TSD) group, sleep recovery (SR) group, PSD group + SR group, and TSD group + SR group. Stress induction was conducted for 5 days. Morphological abnormality of spermatozoa was observed by creating sperm removal tinged by eosin and nigrosine. DNA fragmentation was performed by determining DNA fragmentation index (DFI). Morphological data of spermatozoa were analysed by One-Way Anova and Post-Hoc Turkey test, and DNA fragmentation of spermatozoa was analysed by Kruskal Wallis and Mann Whitney test to determine differences among the groups. Results: The highest mean of the abnormal morphology was in PSD Group (89.5 %, p=0.004). The normal mean of DNA fragmentation was found in control group, PSD+SR group and TSD+SR group, PSD and TSD groups. Bad DNA fragmentation index was found in PSD and TSD groups (30.16% and 31.4%, p=0.023). Conclusion: There were differences of morphology and DNA fragmentation of the spermatozoa in the male Wistar rat strain induced by various models of sleep deprivation.</p>
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