PENGARUH BERBAGAI MODEL *SLEEP DEPRIVATION* METODE *SINGLE PLATFORM* TERHADAP KADAR MALONDIALDEHID (MDA) TIKUS PUTIH (*Rattus norvegicus)* JANTAN

ABSTRAK

Latar Belakang – *Sleep deprivation* adalah kondisi kurang tidur yang memicu stres oksidatif sehingga terjadi peroksidasi lipid dan meningkatkan kadar Malondialdehid (MDA). Metode *single platform* sering digunakan dalam penelitian ini untuk mempelajari efek *sleep deprivation* pada tikus putih (*Rattus norvegicus*) jantan.
Tujuan – Mengetahui pengaruh berbagai model *sleep deprivation* metode *single platform* terhadap kadar Malondialdehid (MDA) tikus putih (*Rattus norvegicus*) jantan.
Metode Penelitian – Penelitian ini merupakan penelitian eksperimental dengan pendekatan *posttest-only with control group design* menggunakan 30 tikus putih jantan. Tikus dibagi menjadi lima kelompok: kontrol, PSD (*paradoxical sleep deprivation*), TSD (*total sleep deprivation*), PSD+SR (dengan *sleep recovery*), dan TSD+SR (dengan *sleep recovery*). Perlakuan dilakukan selama 5 hari dan kadar MDA diukur menggunakan metode ELISA. Analisis kadar MDA dilakukan dengan uji *One Way ANOVA* dan uji *post hoc* untuk analisis perbedaan antar kelompok.
Hasil – Hasil analisis *One Way ANOVA* adalah terdapat perbedaan kadar MDA yang signifikan antar kelompok dengan nilai $p = 0,045$ ($p<0,05$). Kelompok PSD+SR memiliki kadar MDA tertinggi ($1,969 \pm 0,79$ nmol/mL), diikuti oleh kelompok PSD, TSD+SR, TSD, dan kontrol. Analisis *post hoc* menunjukkan perbedaan signifikan antara kelompok kontrol dengan kelompok PSD+SR dan PSD, serta kelompok PSD+SR dengan kelompok TSD.
Kesimpulan – Terdapat pengaruh berbagai model *sleep deprivation* metode *single platform* yang signifikan terhadap kadar Malondialdehid (MDA) tikus putih (*Rattus norvegicus*) jantan.

Kata Kunci: malondialdehid, *single platform, sleep deprivation,* stres oksidatif, tikus putih jantan.

THE EFFECT OF VARIOUS SLEEP DEPRIVATION MODELS USING THE SINGLE PLATFORM METHOD ON MALONDIALDEHYDE (MDA) LEVELS IN MALE WHITE RATS (Rattus norvegicus)

ABSTRACT

Background *– Sleep deprivation is a condition of sleep deficiency that triggers oxidative stress, leading to lipid peroxidation and increased levels of malondialdehyde (MDA). The single platform method is commonly used to study the effects of sleep deprivation in male white rats (Rattus norvegicus).*
Objective *– This study aimed to determine the effects of various sleep deprivation models using the single platform method on malondialdehyde (MDA) levels in male white rats (Rattus norvegicus).*
Methods *– This study was an experimental study with posttest-only with control group design that used 30 male white rats. The rats were divided into five groups: control, PSD (paradoxical sleep deprivation), TSD (total sleep deprivation), PSD+SR (with sleep recovery), and TSD+SR (with sleep recovery). Treatments were conducted for 5 days, and MDA levels were measured using the ELISA method. MDA analysis was performed using One Way ANOVA followed by a post hoc test to evaluate differences among groups.*
Results *– The One Way ANOVA analysis reveals significant differences in MDA levels among groups with $p = 0.045$ ($p<0.05$). The PSD+SR group exhibits the highest MDA levels (1.969 ± 0.79 nmol/mL), followed by PSD, TSD+SR, TSD, and the control group. Post hoc analysis indicates significant differences between the control group and both the PSD+SR and PSD groups, as well as between the PSD+SR and TSD groups.*
Conclusion *– Various sleep deprivation models using the single platform method significantly affect the malondialdehyde (MDA) levels in male white rats (Rattus norvegicus).*

Keywords*: male white rats, malondialdehyde, oxidative stress, single platform, sleep deprivation.*