PENGARUH RENANG BERBAGAI INTENSITAS TERHADAP KADAR MALONDIALDEHIDA (MDA) PADA TIKUS (*Rattus norvegicus*) MODEL OBESITAS

ABSTRAK

Latar Belakang – Obesitas menimbulkan kondisi stres oksidatif yang kemudian menyebabkan peroksidasi lipid sehingga terjadi peningkatan kadar MDA. Renang merupakan latihan aerobik yang dapat menurunkan berat badan, kadar lemak tubuh, sitokin inflamasi. Aktivitas stres oksidatif akibat renang pada intensitas ringan, sedang, dan berat penting untuk diteliti lebih lanjut.
Tujuan - Mengetahui pengaruh renang berbagai intensitas (ringan, sedang, dan berat) terhadap kadar MDA pada tikus (*Rattus norvegicus*) model obesitas.
Desain Penelitian – Penelitian ini menggunakan metode *true experimental* dengan desain *post-test only with control group*. Sebanyak 25 ekor tikus putih jantan galur Wistar terbagi ke dalam 5 kelompok, yaitu Kelompok 1, Kelompok 2, Kelompok A, Kelompok B, dan Kelompok C. Kelompok 1 sebagai kelompok kontrol sehat sedangkan kelompok 2, A, B, dan C diberikan HFD selama 11 minggu untuk induksi obesitas. Selanjutnya kelompok A, B, dan C diberikan perlakuan renang intensitas ringan, sedang, atau berat selama 14 hari setelah induksi. Sampel serum darah diambil pada hari ke-3 setelah perlakuan renang terakhir dan kadar MDA diukur menggunakan metode TBARS. Data dianalisis dengan uji *One Way Anova* dan uji *post-hoc* LSD.
Hasil – Nilai rata-rata kadar MDA kelompok 1=1,0300 µmol/L; kelompok 2 = 3,2900 µmol/L; kelompok 3 = 2,1125 µmol/L; kelompok 4 = 1,1175 µmol/L; kelompok 5 = 2,1375 µmol/L. Pada uji *One Way Anova* didapatkan p=0,000 (p<0,05).
Kesimpulan – Renang berbagai intensitas dapat menurunkan kadar MDA pada tikus (*Rattus norvegicus*) model obesitas dengan intensitas paling baik untuk menurunkan kadar MDA adalah intensitas sedang.

Kata kunci: MDA, Obesitas, Renang Intensitas Ringan, Renang Intensitas Sedang, Renang Intensitas Berat

EFFECT OF SWIMMING OF VARIOUS INTENSITIES ON MALONDIALDEHYDE (MDA) LEVELS IN RATS (Rattus norvegicus) OBESITY MODEL

ABSTRACT

Background *– Obesity causes oxidative stress which then causes lipid peroxidation resulting in an increase in MDA levels. Swimming is an aerobic exercise that can reduce body weight, body fat levels, and inflammatory cytokines. Oxidative stress activity due to swimming at light, moderate, and strenuous intensity is important for further investigation.*

Objective *– To determine the effect of swimming of various intensities (light, moderate, and strenuous) on MDA levels in rats (Rattus norvegicus) model of obesity.*

Research Design *– This research uses a true experimental method with a post-test only with control group design. A total of 25 male white rats of the Wistar strain were divided into 5 groups, namely Group 1, Group 2, Group A, Group B, and Group C. Group 1 was the healthy control group while groups 2, A, B, and C were given HFD for 11 weeks for obesity induction. Groups A, B, and C were given light, moderate, or strenuous intensity swimming treatment for 14 days after induction. Blood serum samples were taken on the third day after the last swimming treatment and MDA levels were measured using the TBARS method. Data were analyzed using the One Way Anova test and the LSD post-hoc test.*

Results *– The average value of MDA levels in group 1 = 1,0300 µmol/L; group 2 = 3,2900 µmol/L; group 3 = 2,1125 µmol/L; group 4 = 1,1175 µmol/L; group 5 = 2,1375 µmol/L. In the One Way Anova test, p = 0,000 (p<0,05).*

Conclusion *– Swimming of various intensities can reduce MDA levels in obese rat (Rattus norvegicus).*

Keywords*: Light Intensity Swimming, MDA, Moderate Intensity Swimming, Obesity, Strenuous Intensity Swimming*