

EFEKTIVITAS PEMBERIAN SUPLEMEN OMEGA-3 TERHADAP KADAR KOLESTEROL TOTAL PADA TIKUS GALUR WISTAR (*Rattus norvegicus*) YANG DIINDUKSI ALOKSAN

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Abstrak

Diabetes melitus (DM) salah satu faktor risiko terjadinya hiperkolesterolemia yang memicu penyakit jantung koroner (PJK) sebagai penyebab kematian tertinggi kedua setelah stoke di Indonesia. Penelitian ini bertujuan untuk mengetahui efektivitas suplemen omega-3 terhadap kadar kolesterol total pada tikus galur Wistar yang diinduksi aloksan. Metode penelitian ini adalah *posttest with control group design*. Sampel sebanyak 30 ekor tikus putih jantan galur Wistar, berumur 2-3 bulan, berat 150-200 gram. Tikus dikelompokkan menjadi 6 kelompok: (K1) kelompok normal, (K2) kelompok diet tinggi lemak dan induksi aloksan, (K3) kelompok diet tinggi lemak, induksi aloksan dan simvastatin, (P1) kelompok diet tinggi lemak, induksi aloksan dan suplemen omega-3 dosis 36 mg/kgBB, (P2) kelompok diet tinggi lemak, induksi aloksan dan suplemen omega-3 dosis 72 mg/kgBB, dan (P3) kelompok diet tinggi lemak, induksi aloksan dan suplemen omega-3 dosis 144 mg/kgBB. Pemberian suplemen omega-3 diberikan selama 7 hari secara oral, kemudian dari ekor tikus diukur kadar kolesterol total darah dengan menggunakan spektrofotometer. Uji One Way Anova menunjukkan terdapat efektivitas suplemen omega-3 terhadap kadar kolesterol total ($p= 0,003$). Hasil uji Post-Hoc *Least Significance Different* (LSD) menunjukkan tidak ada perbedaan antara kontrol positif dengan kelompok perlakuan satu (P1) dikarenakan memiliki pengaruh yang sama ($p= 0,798$), sehingga dapat disimpulkan bahwa pemberian suplemen omega-3 dengan dosis 36 mg/kgBB paling baik dalam menurunkan kadar kolesterol darah karena omega-3 dapat mempengaruhi mekanisme produksi lipoprotein dalam hati yang disekresikan dalam darah.

Kata Kunci : Aloksan, diabetes melitus, kolesterol total, suplemen omega-3.

THE EFFECTIVENESS OF GIVING OMEGA-3 SUPPLEMENTS TO THE LEVEL OF TOTAL CHOLESTEROL ON WHITE RATS (*Rattus norvegicus*) IN ALLOXAN INDUCED

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Abstract

Diabetes mellitus (DM) as a risk factor for hypercholesterolemia which triggers coronary heart disease (CHD) as the second highest cause of death after stroke in Indonesia. This study aims to determine the effectiveness of omega-3 supplement in reducing total cholesterol levels in alloxan-induced Wistar rats. This research method is posttest with control group design. Samples were 30 male rats, aged 2-3 month, weight 150-200 grams. Rats were grouped into 6 groups with (K1) normal control, (K2) high-fat diet and alloxan-induced group, (K3) high-fat diet group, alloxan and simvastatin induction, (P1) high-fat diet group, alloxan induction and omega-3 supplements at a dose 36 mg/kg, (P2) high-fat diet group, alloxan induction and omega-3 supplements at a dose 72 mg/kg, and (P3) high-fat diet group, alloxan induction and omega-3 supplements at a dose 144 mg/kg. Giving omega-3 supplements were given for 7 days orally, then the total blood cholesterol levels were measured using a spectrophotometer from the rats. One Way Anova test showed that there was an effectiveness of omega-3 supplements to reduce total cholesterol levels ($p= 0,003$). Post-Hoc Least Significance Different (LSD) test results that there was no difference between the positive group and treatment group one (P1) because it had the same effect ($p= 0.798$), so it could be concluded that the provision of omega-3 supplements at a dose of 36 mg / kgBB is best in reducing total cholesterol levels because omega-3 can affect the mechanism of lipoprotein production in the liver which is secreted in the blood.

Keywords : Alloxan, diabetes mellitus, total cholesterol, omega-3 supplements.