

**PENGARUH DURASI DIET TINGGI LEMAK TERHADAP KADAR
UREUM DAN KREATININ SERUM PADA TIKUS JANTAN GALUR
WISTAR (*RATTUS NORVEGICUS*)**

ABSTRAK

Latar Belakang: Paparan diet tinggi lemak diketahui memengaruhi fungsi ginjal, namun pengaruh durasi induksi diet tinggi lemak terhadap perubahan biomarker fungsi ginjal seperti ureum dan kreatinin serum masih belum banyak diteliti, terutama pada durasi yang singkat.

Tujuan: Mengetahui pengaruh durasi induksi diet tinggi lemak terhadap kadar ureum dan kreatinin serum pada tikus jantan galur wistar (*Rattus norvegicus*).

Metodologi: Desain penelitian ini adalah kuantitatif observasional analitik dengan pendekatan *ex post facto*. Data berasal dari dua kelompok perlakuan, yaitu NFD dan HFD dengan durasi 4, 6 dan 8 minggu. Kadar Ureum diukur dengan metode reaksi enzimatis *UV test Urease-Glutamat Dehidrogenase* dan kadar kreatinin diukur dengan metode *Jaffe*. Analisis data menggunakan metode *Kruskal-Wallis* dan *post hoc Mann-Whitney U* dengan koreksi *bonferroni*.

Hasil: Rerata kadar ureum serum meningkat seiring durasi diet tinggi lemak, yaitu $23,46 \pm 2,86$ mg/dL (HFD 4 minggu), $41,75 \pm 12,89$ mg/dL (HFD 6 minggu), dan $42,81 \pm 13,56$ mg/dL (HFD 8 minggu). Uji lanjut menunjukkan perbedaan bermakna antar kelompok kontrol dengan HFD 6 dan 8 minggu ($p=0,000$). Rerata kadar kreatinin serum meningkat pada durasi diet tinggi lemak yang lebih panjang, dari $0,28 \pm 0,09$ mg/dL (HFD 4 minggu) menjadi $0,36 \pm 0,03$ mg/dL (HFD 8 minggu), dengan perbedaan bermakna antara kelompok kontrol dengan HFD 8 minggu ($p=0,000$).

Kesimpulan: Durasi diet tinggi lemak berpengaruh terhadap peningkatan kadar ureum dan kreatinin serum pada tikus jantan galur Wistar. Kadar tersebut meningkat seiring bertambahnya durasi diet tinggi lemak. Kadar ureum meningkat mulai minggu ke 6, sedangkan kadar kreatinin meningkat-pada minggu ke 8.

Kata Kunci : durasi diet tinggi lemak, kreatinin, tikus jantan galur wistar, ureum

THE EFFECT OF HIGH-FAT DIET DURATION ON SERUM UREUM AND CREATININE LEVELS IN MALE WISTAR RATS (*RATTUS NORVEGICUS*)

ABSTRACT

Background: Exposure to a high-fat diet is known to affect kidney function, but the effect of the duration of high-fat diet induction on changes in kidney function biomarkers such as serum urea and creatinine has not been widely studied, especially over short durations.

Objective: To determine the effect of high-fat diet induction duration on serum urea and creatinine levels in male Wistar rats (*Rattus norvegicus*).

Methodology: This study used a quantitative, observational, and analytical design with an ex post facto approach. Data were obtained from two treatment groups: NFD and HFD, with durations of 4, 6, and 8 weeks. Urea levels were measured using the UV test Urease-Glutamate Dehydrogenase enzymatic reaction method and creatinine levels were measured using the Jaffe method. Data were analyzed using the non-parametric Kruskal-Wallis method followed by post hoc Mann-Whitney U with Bonferroni correction.

Results: Mean serum urea levels increased with the duration of the high-fat diet, namely 23.46 ± 2.86 mg/dL (4-week HFD), 41.75 ± 12.89 mg/dL (6-week HFD), and 42.81 ± 13.56 mg/dL (8-week HFD). Further testing showed a significant difference between the control group and the 6- and 8-week HFD ($p=0,000$). Mean serum creatinine levels increased with the longer duration of the high-fat diet, from 0.28 ± 0.09 mg/dL (4-week HFD) to 0.36 ± 0.03 mg/dL (8-week HFD), with a significant difference between the control group and the 8-week HFD ($p=0.000$).

Conclusion: The duration of high-fat diet exposure influences serum urea and creatinine levels in male Wistar rats, with longer exposure associated with higher concentrations of both biomarkers. Urea levels increase starting from week 6 and creatinine levels increase at week 8.

Keywords: creatinine, duration of high-fat diet , male wistar rats, urea