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Pengaruh Puasa terhadap Kadar Glutation (GSH) pada Plasma dan Jaringan Hati Kelinci New Zealand White = The Impact of Fasting Toward Glutathione (GSH) in the Plasma and Liver of New Zealand White Rabbit

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Abstrak

Stres oksidatif merupakan kondisi ketidakseimbangan oksidan dan antioksidan yang dapat memicu timbulnya berbagai penyakit. Peran puasa sebagai upaya pencegahan stres oksidatif telah terbukti, tetapi tidak dengan durasi yang optimal. Penelitian ini bertujuan untuk menemukan pengaruh puasa dan durasi puasa optimal dalam meningkatkan kadar glutation (GSH), antioksidan endogen nonprotein terbanyak tubuh. Penelitian dilakukan pada jaringan hati dan plasma kelinci new Zealand white. Subjek dibagi ke dalam tiga kelompok perlakuan, yakni (1) kelompok kontrol dengan asupan makanan normal, (2) kelompok puasa intermittent, yakni siklus puasa 16 jam dan makan delapan jam, serta (3) kelompok puasa berkepanjangan, yakni siklus puasa 40 jam dan makan delapan jam, selama satu minggu. Setelah itu, dilakukan pengukuran kadar GSH plasma serta jaringan hati dengan metode Ellman. Data kemudian dianalisis dengan uji Anova untuk jaringan hati serta uji Kruskal-Wallis untuk sampel plasma. Pada jaringan hati didapati rerata kadar GSH kelompok kontrol 0,73 ± 0,026 µmol/mg, kelompok puasa intermittent 1,03 ± 0,023 µmol/mg, dan kelompok puasa berkepanjangan 0,91 ± 0,059 µmol/mg yang memperlihatkan perbedaan signifikan (p<0,05). Sedangkan, pada plasma didapati median kadar GSH kelompok kontrol 2,08 ± 0,056 µmol/mL, kelompok puasa intermittent2,35 ± 0,158 µmol/mL, dan kelompok puasa berkepanjangan 2,15 ± 0,060 µmol/mL yang memperlihatkan perbedaan tidak signifikan (p>0,05). Didapatkan hasil dan kesimpulan puasa intermittent dan berkepanjangan meningkatkan kadar GSH jaringan hati secara signifikan, tetapi tidak berpengaruh secara signifikan pada plasma kelinci New Zealand white

.....Oxidative stress is a condition of imbalance between oxidants and antioxidants that may trigger various diseases. The role of fasting to prevent oxidative stress has been proven, but the optimal fasting duration remains unknown. This study aims to find the impact of fasting and optimal fasting duration in increasing glutathione (GSH) concentration, the body's most abundant non-protein endogen antioxidant. This study observed GSH concentration on liver tissue and plasma of New Zealand white rabbits. Subjects were divided into three treatment groups, a control group with usual food intake, an intermittent fasting group with 16-hour of fasting and eight hours of eating, and a prolonged fasting group with 40-hour of fasting and eight hours of eating, for one week. After that, GSH levels were measured in plasma and liver tissue using Ellman’s method. In liver tissue, the mean GSH level in the control group is 0.73 ± 0.026 mol/mg, in the intermittent fasting group is 1.03 ± 0.023 mol/mg, and in the prolonged fasting group is 0.91 ± 0.059 mol/mg with significant differences (p<0, 05). Meanwhile, in plasma, the median GSH level in the control group is 2.08 ± 0.056 mol/mL, in the intermittent fasting group is 2.35 ± 0.158 mol/mL, and in the prolonged fasting group is 2.15 ± 0.060 mol/mL, which means the difference is not significant (p > 0.05). In conclusion, Intermittent and prolonged fasting significantly increase liver GSH concentration. However, fasting has an insignificant impact on the plasma of New Zealand white rabbits.