Pengaruh Puasa Intermiten terhadap Kadar Karbonil Plasma dan Hati Kelinci New Zealand White = Effects of Intermittent Fasting on Carbonyl Levels in New Zealand White Rabbit's Plasma and Liver Tissue

Stephanie Gosal, author

Abstrak

Pendahuluan: Karbonil merupakan hasil akhir dari kerusakan ireversibel oksidatif pada protein. Akumulasi karbonil pada jaringan tubuh baik secara lokal maupun sistemik, dapat memicu berkembangnya penyakit terpaut usia. Meskipun demikian, puasa intermiten telah terbukti dapat mengurangi stres oksidatif mitokondria pada jaringan tubuh. Dengan demikian penelitian ini bertujuan untuk mengetahui pengaruh siklus puasa time-restricted feeding (TRF) dan puasa berkepanjangan (PB) pada jaringan hati dan plasma secara spesifik. Metode: Penelitian ini menggunakan sampel jaringan hati dan plasma 16 kelinci New Zealand White yang sudah diberi perlakuan kontrol (tanpa puasa), puasa TRF (16 jam berpuasa), atau puasa berkepanjangan (40 jam berpuasa) satu minggu sebelumnya. Perhitungan kadar karbonil dilakukan dengan menggunakan spektrofotometer dengan panjang gelombang 390 nm dan kadar protein pada panjang gelombang 280 nm. Hasil Penelitian: Berdasarkan hasil penelitian, TRF dapat menurunkan kadar karbonil pada plasma dibandingkan kontrol (p=0,916) dan PB (p=0,026), serta meningkatkan kadar karbonil pada jaringan hati (p=0,162). Di sisi lain, PB dapat meningkatkan kadar karbonil pada plasma dibandingkan kontrol (p=0,055) dan TRF (p=0,026), serta meningkatkan kadar karbonil pada jaringan hati (p=0,162). Kesimpulan: Meskipun tidak bermakna, puasa intermiten time-restricted feeding secara tujuh hari lebih optimal dalam menurunkan kadar karbonil plasma, serta lebih kurang meningkatkan kadar karbonil hati dibandingkan puasa berkepanjangan.

.....Introduction: Carbonyl is the end product of irreversible oxidative damage on protein. Both local or sysmtemic accumulation of carbonyls could lead to the progression of age-related diseases. On the other hand, intermittent fasting has been proven could decrease mitochondrial oxidative damage on the tissues. Therefore, this study aimed to investigate the effects of intermittent fasting cycles, such as time-restricted feeding (TRF) and prolonged fasting (PF), on carbonyl levels in New Zealand White Rabbit's plasma and liver tissue. Methods: 16 New Zealand White Rabbits were previously treated as control group (no fasting), TRF group (16 hours fasting), or PF group (40 hours fasting) for one week. Levels of carbonyl and protein were assessed with spectrophotometry at 390 nm and 280 nm wavelength respectively. Results: According to the findings of the study, TRF could decrease the carbonyl levels in plasma compared to control group (p=0.916) and PF group (p=0.026), and increase the carbonyl levels in liver tissue (p=0.162). Nevertheless, PF could increase the carbonyl levels in plasma compared to control group (p=0.055) and TRF group (p=0.026), and increase the carbonyl levels in liver tissue (p=0.162). Conclusion: Time-restricted feeding as intermittent fasting for one week is more optimal in decreasing carbonyl levels in plasma and less likely increase the carbonyl levels in liver tissue compared to prolonged fasting, even though it is not significant.