

Pengaruh penurunan berat badan dengan diet rendah kalori seimbang dan olah raga aerobik terhadap kadar asam urat plasma dan urin perempuan dengan berat badan lebih

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Abstrak

Tujuan: Mengetahui pengaruh penurunan berat badan terhadap kadar asam urat plasma dan urin subjek dengan berat badan lebih.

Tempat: Sebuah pusat kebugaran di Kelapa Gading, Jakarta Utara

Metodologi: Dilakukan penelitian pada 26 perempuan peserta program penurunan berat badan (BB) yang bersedia mengikuti penelitian ini. Penelitian ini merupakan eksperimen kuasi pra dan pasca perlakuan tanpa pembandingan. Tiap subjek mendapat diet rendah kalori seimbang dan olahraga aerobik selama 12 minggu. Diet rendah kalori seimbang diberikan berdasarkan pengurangan kalori sebesar 1000 kkal/hari.

Dengan perhitungan keluaran energi selama olahraga aerobik yang diprogramkan berkisar antara 200-400 kkal/hari, diet yang diberikan kira-kira 800-1100 kkal/hari. Sebelum diberikan olahraga aerobik dilakukan tes Cooper untuk menilai kemampuan maksimal tiap subjek dalam berolahraga. Olahraga aerobik diberikan dengan intensitas 60-80% kemampuan maksimal, lama latihan 60 menit; dan frekuensi 5 kali seminggu. Pemeriksaan antropometri dan kadar asam urat dilakukan pada awal, minggu ke 2, dan akhir perlakuan.

Hasil Terjadi penurunan BB secara signifikan ($p < 0,05$; uji t berpasangan) dan $74,30 \pm 10,48$ kg menjadi $65,31 \pm 8,56$ kg (penurunan 12,10%); penurunan indeks massa tubuh (IMT) secara signifikan ($p < 0,05$) dari $29,79 \pm 4,28$ menjadi $26,19 \pm 3,41$ kg/m² (penurunan 12,08%); dan penurunan massa lemak (ML) secara signifikan ($p < 0,05$) dari $36,21 \pm 2,80$ menjadi $25,97 \pm 2,94$ (penurunan 28,28%). Pada minggu ke 2 terjadi peningkatan kadar asam urat plasma dan urin, masing-masing dari $5,40 \pm 1,29$ menjadi $5,96 \pm 1,44$ mg/dL (peningkatan 10,37%) dan dari $542,23 \pm 179,39$ menjadi $583,15 \pm 202,35$ mg/dL (peningkatan 7,55%). Setelah perlakuan 12 minggu terjadi penurunan kadar asam urat plasma dan urin yang signifikan ($p < 0,05$) masing-masing dari $5,40 \pm 1,29$ menjadi $4,39 \pm 1,21$ mg/dL (penurunan 18,70%) dan dari $542,23 \pm 179,39$ menjadi $479,06 \pm 134,73$ mg/dL (penurunan 11,60%). Penurunan berat badan mempunyai korelasi lemah dengan penurunan kadar asam urat plasma ($r = 0,32$) dan penurunan kadar asam urat urin ($r = 0,33$) namun tidak signifikan ($p > 0,05$). Dengan uji multivariat didapat korelasi positif atas peningkatan kadar asam urat plasma minggu ke 2 dengan BB awal. Penurunan kadar asam urat plasma pada akhir penelitian mempunyai korelasi positif dengan person ML akhir perlakuan. Penurunan kadar asam urat urin akhir perlakuan berkorelasi positif dengan asupan protein awal, serta berkorelasi negatif dengan clearance asam urat urin.

Kesimpulan: Pada proses penurunan berat badan dengan diet rendah kalori seimbang dan olahraga aerobik, kadar asam urat plasma dan urin mula-mula akan meningkat, kemudian menurun mencapai kadar yang lebih rendah daripada kadar awal.

Effects of Weight Reduction by Balanced Low-Calorie Diet (LCD) and Aerobic Exercise on Plasma and Urinary Uric Acid Levels of Overweight Women
Objective: To investigate the effects of weight reduction on plasma and urinary uric acid levels of overweight subjects

Place: One fitness centre at Ketapa Gading, North Jakarta

Methods: Twenty six overweight women were studied in a pre and posttest, using control group as the same subjects as the treatment group. Subjects received a balanced LCD and aerobic exercise for 12 weeks. Balanced LCD was given based on energy deficit 1000 kcal/day. Energy expenditure from aerobic exercise was 200 to 400 kcal and the subject were given diet of 800-1100 kcal/day. All subjects had to undergo Cooper test for designing the aerobic exercise program. The intensity of the aerobic exercise was 60-80% of maximum capacity with duration of 60 minutes 5 days a week Anthropometric measurements and plasma and urinary uric acid were examined at the beginning, second week and after the treatment

Results: Balanced LCD and aerobic exercise given for 12 week significantly ($p < 0.05$; paired t test) decreased body weight (BW), body mass index (BM), and fat mass from 74.30 ± 10.48 kg to 65.31 ± 8.56 kg (decreased 12.10%), from 29.79 ± 4.28 to 26.19 ± 3.41 kg/m² (12.08%), and from 36.21 ± 2.80 to 25.97 ± 2.94 (28.28%) respectively. In the second week, plasma and urinary uric acid levels increased from 5.40 ± 1.29 to 5.96 ± 1.44 mg/dL (10.7%) and from 542.23 ± 179.39 to 583.15 ± 202.35 mg/dL (7.55%). After 12 weeks of treatment, plasma and urinary uric acid levels decreased significantly ($p < 0.05$) from 5.40 ± 1.29 to 4.39 ± 1.21 mg/dL (18.70%), and from 542.23 ± 179.39 to 479.06 ± 134.73 mg/dL (11.60%) respectively. There was a weak correlation between weight reduction and plasma ($r = 0.32$) and urinary uric acid levels ($r = 0.33$), but not significant ($p > 0.05$). With multivariate analysis, there was a positive correlation between increased plasma uric acid level with BW before treatment There was a positive correlation between decreased of plasma uric acid after treatment with fat mass after treatment (%). There was a positive correlation between decreased after treatment urinary uric acid level and before treatment protein intake, and had a negative correlation with before treatment uric acid clearance.

Conclusions: In the process of weight reduction with balance LCD and aerobic exercise, plasma and urinary uric acid levels increased in the second week, and decreased to the levels lower than the base line at the end of treatment.