

ABSTRAK

PENGARUH KOMBINASI VITAMIN C DAN VITAMIN E TERHADAP KADAR MALONDIALDEHID PLASMA PASIEN DIABETES MELLITUS TIPE 2

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Latar Belakang: Kadar malondialdehid (MDA) sebagai hasil dari stres oksidatif akibat hiperglikemia, pada pasien diabetes mellitus tipe 2 (DMT2) lebih tinggi dibandingkan dengan pasien tanpa diabetes. Vitamin C dan vitamin E dapat menghambat reaksi stres oksidatif dan produksi MDA. Tujuan penelitian ini adalah membuktikan pengaruh kombinasi vitamin C dan vitamin E terhadap kadar MDA plasma pasien DMT2.

Metode: Penelitian dengan rancangan *double blind randomized pre post test control group* ini dilakukan pada 35 pasien diabetes tanpa komplikasi, umur 40-60 tahun di Makassar. Kelompok perlakuan (n=18) mendapatkan vitamin C 250 mg/hari dan vitamin E 400 IU/hari selama 6 minggu. Kelompok kontrol (n=17) mendapatkan plasebo yang berisi bubuk rumput laut 250 mg. Vitamin C dikonsumsi sebelum makan dan vitamin E setelah makan. Kadar MDA diukur sebelum dan setelah suplementasi menggunakan metode TBARs. Asupan makanan dan aktivitas fisik diperoleh dari *recall* 24 jam.

Hasil: Tidak ada perbedaan rerata kadar MDA sebelum suplementasi antara kedua kelompok ($p=0,151$). Setelah suplementasi, rerata kadar MDA meningkat pada kelompok kontrol ($5,8\pm 2,74$ menjadi $7,2\pm 3,00$ nmol/ml; $p=0,044$) sedangkan kelompok perlakuan tidak ($7,2\pm 2,88$ menjadi $7,7\pm 2,02$ nmol/ml; $p=0,490$). Tidak ada perbedaan perubahan kadar MDA setelah suplementasi ($p=0,316$) antara kedua kelompok. Tidak ada perbedaan kadar MDA di akhir suplementasi ($p=0,610$) serta sebelum dan setelah ($p=0,809$) dikontrol variabel perancu (asupan vitamin E dan glukosa darah puasa) antara kedua kelompok.

Simpulan: Kombinasi vitamin C 250 mg dan vitamin E 400 IU selama 6 minggu tidak menurunkan, namun menghambat peningkatan kadar MDA plasma pasien DMT2.

Kata kunci: Malondialdehid, Vitamin C, Vitamin E, Diabetes Mellitus Tipe 2

ABSTRACT

EFFECTS OF COMBINED VITAMIN C AND VITAMIN E ON MALONDIALDEHYDE PLASMA LEVELS IN PATIENTS WITH TYPE 2 DIABETES MELLITUS

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Background: Malondialdehyde (MDA) levels produced by oxidative stress in type 2 diabetes mellitus (T2DM) is higher than in non diabetes patients. Vitamin C and E inhibit oxidative stress and MDA production. The purpose of this study was to prove the effects of combined vitamin C and vitamin E on MDA plasma levels in T2DM patients.

Methods: This double blind randomized pre post test control group design was carried out on 35 patients with T2DM without complication (age 40-60 yr) in Makassar. The treatment group (n=18) received vitamin C 250 mg/day plus vitamin E 400 IU/day and the control group (n=17) received placebo (seaweed powder 250 mg), for six weeks. Vitamin C was consumed before meal and vitamin E after meal. MDA levels were measured before and after supplementation by using TBARs method. Food intake and activity were derived from 24-hour recall method.

Results: There was no different on MDA levels at baseline ($p=0.151$). At the end of the study, MDA levels increased in control group (5.8 ± 2.74 to 7.2 ± 3.00 nmol/ml; $p=0.044$) but not in the treatment group (7.2 ± 2.88 to 7.7 ± 2.02 nmol/ml; $p=0.490$). There was no difference in MDA alteration between the groups ($p=0.316$). There was no different in MDA levels at the end of the study ($p=0.061$) and confirmed after controlling the confounding variables: vitamin E intake and fasting blood glucose ($p=0.809$).

Conclusion: Combined vitamin C 250 mg and vitamin E 400 IU for 6 weeks did not reduce MDA levels, but inhibit MDA production in T2DM patients.

Keywords: Malondialdehyde, Vitamin C, Vitamin E, Type 2 Diabetes Mellitus