

# Pengaruh suplementasi astaxantin terhadap kadar malondialdehida plasma dan skor national institute of health stroke scale pada penderita stroke iskemik = Effects of astaxantin supplementation on malondialdehyde plasma level and National Institute of Health Stroke Scale (NIHSS) score of ischemic stroke patients

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## Abstrak

Pengaruh suplementasi Astaxamin terhadap kadar Malondialdehida plasma dan skor National Institute of health Stroke Scale (NIHSS) pada penderita stroke iskemik. Mengetahui efek pemberian suplementasi Astaxantin selama tujuh hari terhadap kadar malondialdehida plasma dan skor NIHSS pada penderita stroke iskemik Penelitian ini merupakan uji klinis paralel, acak, terdistribusi ganda antara kelompok yang mendapat suplementasi astaxantin (P) dengan kelompok yang mendapat plasebo (K), Sebanyak 24 orang pasien stroke iskemik akut dengan onset < 48 jam di RSUPNCM Jakarta memenuhi kriteria dan diikutkan dalam penelitian, dilakukan alokasi random menggunakan randomisasi blok untuk menemukan kelompok perlakuan dan kontrol. Kelompok perlakuan mendapatkan suplementasi Astaxantin 2 x 8mg/hari selama tujuh hari, sementara kelompok kontrol mendapat plasebo. Data yang dikumpulkan meliputi data demografi (usia, jenis kelamin, tingkat pendidikan, tingkat penghasilan), onset serangan, faktor risiko, IMT, analisis asupan zat gizi, kadar malondialdehida plasma, serta skor NIHSS. Analisis data menggunakan uji t tidak berpasangan atau uji Man Whitney dengan batas kemaknaan  $p < 0,05$ . Rerata usia subjek penelitian ini adalah 56,01 ± 6,44 tahun. Sebagian besar subjek berjenis kelamin laki-laki, berpendidikan rendah dan tingkat penghasilan di bawah garis kemiskinan. Faktor risiko stroke yang paling banyak dimiliki subjek penelitian adalah hipertensi, diikuti kebiasaan merokok, dislipidemia, obesitas, diabetes mellitus, dan penyakit jantung. Selama perlakuan, asupan energi dan protein subjek penelitian tergolong cukup, asupan lemak tergolong lebih, asupan vitamin C tergolong cukup, sedangkan asupan vitamin E dan asam lemak tak jenuh tergolong kurang pada kedua kelompok. Terdapat penurunan kadar MDA plasma dan skor NIHSS pada kedua kelompok selama perlakuan. Rerata penurunan kadar MDA plasma pada kelompok perlakuan adalah  $-0,316 \pm 0,18$  normal dan secara bermakna lebih besar dibandingkan kelompok kontrol yaitu  $-0,124 \pm 0,108$  nmol/mL ( $p < 0,05$ ). Penurunan skor NIHSS pada kelompok perlakuan sebesar  $-5,67 \pm 1,37$  secara bermakna lebih besar dibandingkan kelompok kontrol yaitu  $-3,25 \pm 0,87$  ( $p < 0,05$ ). Suplementasi astaxantin sebanyak 2 x 8 mg selama 7 hari secara bermakna dapat menurunkan kadar MDA plasma dan skor NIHSS penderita stroke iskemik. Astaxantin, antioksidan, malondialdehida plasma, skor NIHSS, stroke iskemik. ....

Effects of Astaxantin supplementation on malondialdehyde plasma level and National Institute of health Stroke Scale (NIHSS) score of ischemic stroke patients To investigate the effects of Astaxantin supplementation during seven days on Malondialdehyde plasma level and NIHSS score of ischemic stroke patients. This is a parallel randomized double-blind clinical study between interventional group which has astaxantin supplementation (P) and control group which has placebo (K). Twenty-four acute ischemic stroke patients with onset < 48 hours in RSUPNCM Jakarta had fulfilled the criteria and recruited in the research. Subjects were random allocated by block randomization into intervention and control group. Intervention group treated by Astaxantin 2 x 8mg/day supplementation orally during 7 days, while control group treated

by placebo. Data collection includes demographic characteristic (age, sex, educational level, income level), stroke onset, risk factors, body mass index (BMI), daily nutrient analysis, malondialdehyde plasma level, and NIH-ISS score. Statistical analysis is using unpaired t test or Mann Whitney test with significant level at  $p < 0,05$ . The mean age of subjects were 56,01±6,44 years old. Majorities of subjects were male, low educational level and below poverty level income. The most frequent stroke risk factors in subjects were hypertension, followed by smoking habit, dyslipidemia, obesity, diabetes mellitus, and heart diseases. During intervention, energy and proteins intake were adequate, fat intake tends to be excess, vitamin C intake was adequate, while vitamin E and beta carotene tends to be low in both two groups. There was decreasing in MDA plasma level and NIH-ISS score in both two groups during intervention. The mean decreasing of MDA plasma in interventional group was  $-0,31 \pm 0,18$  nmol/mL which significantly greater than control group  $-0,12 \pm 0,108$  nmol/mL ( $p < 0,05$ ). The mean decreasing of NIHSS score in interventional group was  $-5,67 \pm 1,37$  which significantly greater than control group  $-3,25 \pm 0,87$  ( $p < 0,05$ ). Astaxanthin supplementation 2 x 8 mg during 14 days is significant on decreasing MDA plasma level and NIH-ISS score in ischemic stroke patients. Astaxanthin, antioxidant, malondialdehyde plasma, NIHSS score, ischemic stroke.