Relations of lipid peroxides to food habits, selected coronary heart disease risk factors and vitamin E supplementation in the elderly

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Abstrak

ABSTRACT
Coronary Heart Disease (CHD) morbidity and mortality rate is increasing dramatically in the last 15 years in Indonesia. Available data show that among the contribution factor changes in life style and demographic transition are prominent.
A hypothetical risk factor for CHD is lipid peroxidation, a reaction between oxygen free radical and lipid parts of cell membranes and low density lipoprotein (LDL). Food habit is following a pattern of nutrient and non-nutrient intakes, including fatty acids and antioxidants. Fatty acid intakes determine the susceptibility of the lipid parts of eell membranes and LDL to peroxidation by free radicals. Theoretically, antioxidants will protect against oxidative damage caused by oxygen free radicals. Commercially available and advertised antioxidants such as vitamin E are widely used inspite of limited information on the interrelation between lipid peroxide levels in the Indonesian elderly with CHD risk factors such as food habits, dyslipidemia and obesity.
A two-phase study on the elderly (55-85 years.) guided by the health centers was undertaken in Jakarta. Data for both phases were collected through interviews, anthropometric measurements, blood analysis and blood pressure measurements. Univariate, bivariate and multivariate analysis were done using SPSS and WorldFood 2 programs.
The first phase was a cross-sectional study to see the association between lipid peroxides and fatty acids, vegetables, fruits, tempe intakes, obesity, smoking, dyslipidemia and hypertension. The samples were 394 elderly. The variables

found correlated with lipid peroxides were LDL, intake of mono and poly-unsaturated fatty acids, tempe, and vitamin E. The study showed an increase level of lipid peroxides with age and ethnic differences with the highest level of lipid peroxides among the Minangkabau.
The second phase is a randomized double-blind trial giving 600 mg/day vitamin E supplementation or placebo for 12 weeks to 152 elderly with the high level of lipid peroxides found in the cross-sectional study. The objective was to see if there was a change of lipid peroxide levels after the intervention. The results showed a significant decrease of lipid peroxides level in the vitamin E group compared to placebo after being adjusted with age, waist-hip ratio (WHR), plasma cholesterol, and saturated fatty acids (SAFA) intake. The high density lipoprotein (HDL) was also increased significantly in the vitamin E group compared to placebo group.
Randomized controlled trial taking into account the confounding variables such as age, sex, ethnic, waist-hip ratio, saturated fat intake, carbohydrate intake and plasma cholesterol might be able to elucidate the specific beneficial effect of vitamin E supplementation. Health education and information concerning foods that have effect on lipid peroxidation, such as tempe should be endorsed. More studies should be undertaken to

find other food or beverage that have protecting effects against lipid peroxides.