

Editorial note

It is well known that oxidative stress is closely related with pathologic conditions, degenerative diseases and aging process. This relationship is very well demonstrated by numerous *in vitro*, as well as experimental animal studies, and administration of drugs or substances with antioxidant properties have been widely shown to prevent those pathologic conditions. Oxidative stress is also considered to play an important role in the initiation of atherosclerotic process, whereby low-density lipoprotein (LDL) that has undergone oxidative damage is considerably more atherogenic than native LDL. A key point is that oxidized LDL particles (and certain other modified forms of LDL) are ligands for the "scavenger" receptors on macrophages and can therefore convert them to the cholesterol-loaded foam cells characteristic of the earliest atherosclerotic lesions, the fatty streaks. Atherosclerosis represents the principal pathophysiology in cardiovascular events including coronary artery disease and ischemic stroke.

Apart from degenerative process in the vessel walls, oxidative stress has also been proved to participate in the degenerative process typical observed in aging process such inflammation of the joint in rheumatic diseases, Alzheimer's disease, dementia, etc. Dietary supplement rich in antioxidant substances, including herbal origin or some antioxidant vitamins are hypothesized to be beneficial to prevent or at least to delay these degenerative processes. Degenerative process constitutes a wide range of pathology involving almost all of body system: cardiovascular, musculoskeletal, nervous system, skin and soft tissues, etc. Many antioxidants products are promoted as anti aging, and as preventive treatment of atherosclerotic process, while valid evidence from a well design clinical trial are still lacking.

In this issue of Medical Journal of Indonesia, Tani et al. reported an interesting results of their study concerning the association of antioxidant and aging process. The study evaluated the effect of vitamin A, C and E supplement on cognitive function of elderly people residing in nursing homes in Jakarta. The quantity

of antioxidants vitamins consumption was assessed by using *semi-quantitative food frequency questionnaire* (SFFQ) and cognitive function was measured by *Mini Mental State Examination* (MMSE) method. High vitamin A and C intake was associated with lower incidence of cognitive impairment, while high intake of vitamin E have no influence.

The limitation of this study were observed in the method of assessment of vitamin intake, small subject number and possible confounding by level of education and capacity in recalling food consumption. The vitamin A, C, and E intake in this study was measured by dietary anamnesis during one week prior to assessment. The cross sectional design of the study make it impossible to see a causal relationship between antioxidant vitamin consumption with cognitive function. In addition, the low participant number (36 subjects) and short duration of dietary analysis might render the statistical inference more difficult. However, this study is worth of a great appreciation since the first author of this study is an undergraduate student of Medical School, University of Indonesia, and this study has been done with a well and adequate method of data analysis. The results of this study suggests the importance of regular intake of antioxidant vitamins in order to preserve the cognitive function.

Antioxidant effect can also be exhibited by various nutrition originated from natural products, and some reduction of the risk of cardiovascular events have been attributed to the consumption of nutrition rich in antioxidant compounds. This is in accordance with what has been clearly stated by National Cholesterol Education Program (NCEP) that dietary regulation has fundamental role in reducing lipid level, especially LDL-cholesterol.

In this issue of MJI, Sulchan and Rukmi tried to show the changes in serum lipid concentration of rats fed with *tempe gembus* (soybean) at various proportion. Serum total cholesterol, HDL and LDL-cholesterol, as well as triglyceride (TG) level was measured before

and after a 6 weeks of *tempe* consumption with 4, 8, and 12% of total food intake. This study showed a significant decrease of total cholesterol and LDL-cholesterol in groups receiving high dose (8% and 12%) of *tempe gambus*. Unfortunately, the decrease in HDL was also observed in control group and high dose group. There was a tendency of triglyceride increase in almost all groups, although statistically was not significant. These results were somewhat unexpected, since for a nutrition to have a protective effect on CV disease, the decrease of TG and increased of HDL ought to be obtained, rather than the opposite.

One of active component in soybean is phytosterol which is known to have cholesterol lowering effect. It works by reducing cholesterol absorption from the intestines. Phytosterols occurs naturally in small quantities in vegetable oils. Whatever the results of the study conducted by Sulchan and Rukmi, soybean is a native foodstuff of Indonesian people, and many of its benefits are already well known.

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