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FILE: ▪ Artichoke (*Cynara scolymus*)
▪ Hypercholesterolemia
▪ Cardiovascular Disease

HC 090181-361

Date: September 30, 2008

RE: Efficacy of Artichoke Leaf Extract in Reducing Plasma Cholesterol Concentrations

Bundy R, Walker AF, Middleton RW, Wallis C, Simpson HCR. Artichoke leaf extract (*Cynara scolymus*) reduces plasma cholesterol in otherwise healthy hypercholesterolemic adults: A randomized, double blind placebo controlled trial. *Phytomed.* 2008;15:668-675.

High plasma levels of total cholesterol are associated with cardiovascular disease—the primary cause of death in the United Kingdom. The World Health Report estimates that approximately 8% of disease in developed countries is caused by elevated cholesterol levels and that greater than 60% of coronary heart disease (CHD) is due to total blood cholesterol levels greater than 3.8 mmol/L. More than 10 years ago, the Department of Health in the United Kingdom reported an inverse association between CHD and dietary intakes of antioxidants. Since then, the intakes of several fruits and vegetables, tea, red wine, and cocoa have been shown to reduce the risk of CHD. Extracts from the leaves of one such vegetable, the globe artichoke (*Cynara scolymus*), have traditionally been used in Europe as a digestive aid and to improve the health of the urinary tract. Pharmacological research has shown that artichoke leaf extracts (ALEs) have hypocholesterolemic and antioxidant properties. The proposed mechanisms for these properties are a reduction in cholesterol synthesis via the inhibition of HMG CoA reductase, an increase in cholesterol excretion, and the inhibition of LDL oxidation. The primary objective of the present study was to evaluate the effect of ALE consumption on lipid levels in hypercholesterolemic but otherwise healthy adults. The secondary objective was to evaluate well-being.

Seventy-five adults with a plasma total cholesterol level of 6.8 to 8.0 mmol/L were enrolled in this randomized, double-blind, placebo-controlled study, which was conducted at the Hugh Sinclair Unit of Human Nutrition (Reading, United Kingdom). The subjects were randomly assigned to take either 1280 mg of ALE (Cynara Artichoke, Lichtwer Pharma Ltd., Marlow, United Kingdom) or a matched placebo, daily for 12 weeks. At baseline and at the end of the study, the patients completed a well-being questionnaire (Psychological

General Well-Being Index), had blood samples drawn, and had weight, height, and blood pressure measured. Concentrations of triglycerides and total, high-density-lipoprotein (HDL), and low-density-lipoprotein (LDL) cholesterol were measured in plasma. The data were analyzed on an intention-to-treat basis, and any adverse events experienced by the subjects were recorded.

Plasma total cholesterol decreased from baseline in the ALE group by approximately 4.2% (from a mean ± SD of 7.16 ± 0.62 to 6.86 ± 0.68 mmol/L) but increased in the placebo group by approximately 1.9% (from a mean ± SD of 6.90 ± 0.49 to 7.03 ± 0.61 mmol/L), after 12 weeks. An analysis of variance indicated a 6.1% difference in plasma total cholesterol between the groups at 12 weeks ($P = 0.025$). No significant differences in triglyceride, HDL, or LDL cholesterol concentrations were observed between groups. Two adverse events were reported in each group, which were deemed to be unrelated to the study treatment. No significant differences in well-being were observed between groups; however, well-being improved significantly in the ALE group (by 9.9%) and in the placebo group (by 11.0%) over the course of the study ($P < 0.001$). The mean ± SD scores were 92.1 ± 14.9 and 91.7 ± 12.3 for the ALE and placebo groups, respectively; both scores were within the range indicating a positive well-being.

The results indicate that consumption of 1280 mg ALE daily for 12 weeks had a modest but favorable statistically significant effect on plasma total cholesterol levels in hypercholesterolemic adults, although the effect was not as strong as observed in a previous similar study. Differences in the quantity and type of extract used and in the lifestyle characteristics of the subjects – which contribute to "the apparent positive health status of the study population" – are likely explanations for the differences in the magnitude of the response observed between the 2 studies. The authors conclude that "this study provides further evidence that ALE may help reduce plasma total cholesterol in adults with mild to moderate hypercholesterolemia."

—Brenda Milot, ELS

Enclosure: Referenced article reprinted with permission from Elsevier GmbH.