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**File: ■Garlic (*Allium sativum*)
■Cholesterol**

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RE: Review of garlic meta-analysis for lowering cholesterol

Olson KL. Can garlic be used as a cholesterol-lowering agent? Perhaps it's better used for warding off evil. *Journal of Informed Pharmacotherapy* 2000; 3:209-211.

This is a review of a meta-analysis (Stevenson C, Pittler MH, Ernst E. Garlic for treating hypercholesterolemia, a meta-analysis of randomized clinical trials. *Ann Intern Med* 2000; 133: 420-429.) which provides excellent scientific evidence on the effectiveness of garlic. This review appears prejudiced, however, with an apparent aim of placing a black mark over gold knowledge.

The author, a pharmacist, affirms in the review, that the study addressed a focused clinical question, used appropriate inclusion criteria for article selection, was unlikely to have missed any important, relevant studies, appraised the validity of the included studies, and found that assessments of studies were reproducible.

Thirteen studies met the inclusion criteria; randomized, double blind, and placebo-controlled design using a single entity garlic preparation on patients with elevated total cholesterol levels of at least 5.17 mmol/L. In a total of 792 participants, the meta-analysis revealed that garlic significantly ($p < 0.01$) reduced total cholesterol levels. Treatment with garlic, from eight weeks to twenty-four weeks, resulted in a 5.8% reduction in total cholesterol levels.

The author of this review asserts that the results of this meta-analysis, however, cannot be applied to patient care. Why? "Numerous unanswered questions," she states. Besides, she says "the results seen with garlic are less than those seen with HMG-CoA reductase inhibitors," i.e., conventional statin cholesterol-lowering drugs. This view, however, does not address the patient population uninterested in taking HMG-CoA reductase inhibitors.

Other clinically important outcomes, such as total mortality and coronary heart disease incidence, should be considered in future studies, as should the effects of garlic on specific lipoproteins, Olson continues. This could be worthwhile, but should not dismiss what was measured in the meta-analysis. Few, if any, studies address all clinical outcome measures at one time. The studies assessed in this meta-analysis were all "gold standard" as recognized by the medical model. Specific mechanisms of actions and lipoproteins targeted by the constituents of garlic have been examined in other published in vivo and in vitro research.

Olson does not believe that the benefits of garlic are worth the costs. Although few adverse effects were reported in trials and limited to mild gastrointestinal symptoms and garlic breath, she argues that lipid-

lowering diets are more cost effective than garlic. No data is provided on the cost effectiveness of garlic compared to HMG-CoA reductase inhibitors.

Pertinent information missing from this review were dosage and type of garlic extract used in the studies.

—Carolyn Williams Orlando, MA

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