Review: Cholesterol lowering reduces mortality in high-risk, middle-aged men

Garber AM, Browner WS, Hulley SB. ***Cholesterol screening in asymptomatic adults, revisited.*** *Ann Intern Med. 1996 Mar 1;124:518-31.*

American College of Physicians. ***Guidelines for using serum cholesterol, high-density lipoprotein cholesterol, and triglyceride levels as screening tests for preventing coronary heart disease in adults.*** *Ann Intern Med. 1996 Mar 1;124:515-7.*

Objective

To determine the benefit of screening for cholesterol levels and lowering serum cholesterol levels in adults with varying coronary risk factors.

Data sources

8 English-language meta-analyses were identified from MEDLINE (1986 to 1995), using the search terms cholesterol and meta-analysis, and from other sources. Randomized controlled trials and economic analyses of cholesterol reduction were also identified. Data from the 30-year follow-up of the Framingham Heart Study were used to model the effectiveness of therapy.

Study selection

Studies were selected if they provided formal estimates of the effect of lowering cholesterol on the end points of coronary heart disease (CHD) incidence (fatal and nonfatal myocardial infarction and sudden death) and total mortality.

Data extraction

Data were extracted on interventions to reduce cholesterol levels and the risk for CHD and total mortality. Patients were classified according to type (diet, drug, or other) and goal (primary or secondary prevention) of therapy.

Main results

Most trials included only middle-aged men. None of the 4 meta-analyses showed that primary prevention reduced total or CHD mortality. In a more recent randomized, controlled, primary prevention trial, pravastatin decreased total and CHD mortality in men. Meta-analysis and more recent trials suggest that secondary prevention can lower total mortality and CHD. Based on a meta-analysis that stratified patients by baseline CHD mortality risk, cholesterol-lowering may prolong life in patient groups whose annual rate of death from CHD is > 5%. Meta-analysis of diet interventions alone (n = 3) did not show any reduction in mortality. The Framingham data model showed that cholesterol levels are significantly related to total mortality only for men who are < 55 years of age. The presence of cardiac disease (secondary prevention), however, elevates the risk for mortality enough to make the cholesterol reduction highly cost-effective. The benefit and harm of lowering cholesterol in elderly persons are unknown.

Conclusion

Cholesterol-lowering and, therefore, measurement of cholesterol levels are most effective in secondary prevention (patients who have had a myocardial infarction) and in middle-aged men with multiple cardiac risk factors.

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Commentary

How should physicians address cholesterol screening in clinical practice? Garber and colleagues provide a review of the evidence and an analysis that support the latest recommendations for cholesterol screening from the American College of Physicians (ACP). The ACP and the U.S. Preventive Services Task Force (USPSTF) (1) have called for a more limited role for cholesterol screening than has the National Cholesterol Education Program (NCEP) (2). Despite their differences, each group seems convinced that persons with clinically evident CHD are likely to derive net benefit from reducing elevated cholesterol levels, at least among persons with sufficient life expectancy to realize these benefits. Among persons without overt CHD, it is agreed that treatment provides a net benefit for middle-aged men with very high blood-cholesterol levels whose other risk factors put them at high risk for developing CHD. What about men who are younger or older who have mildly elevated cholesterol levels or do not have multiple risk factors? What about women?

By improving the understanding of the benefits and risks of cholesterol reduction, the careful analysis and summary of the evidence provided by Garber and colleagues gives an improved basis for physicians' judgment, a factor identified by NCEP as justifying a modification of its recommendations. For clinicians with values close to those that underlie the approach to cholesterol screening taken by ACP and USPSTF, I believe that this review of evidence will strengthen screening decisions. Specifically, we can avoid screening for many persons for whom the magnitude of the potential benefit of cholesterol reduction is too small to justify treatment.

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