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Low Cholesterol Levels Associated with Increased Mortality

Am Fam Physician. 2005;72(9):1859-1860

Even though high levels of cholesterol and low-density lipoprotein (LDL) are associated with increased cardiovascular and all-cause mortality in middle-age persons, this association is less clear in older patients. Lower cholesterol levels may be a marker for other illnesses. Studies have shown that even after adjusting for frailty, comorbidity, and cardiovascular risk factors, low LDL cholesterol levels remain associated with increased mortality. Schupf and colleagues account for dementia status in addition to other comorbid factors in examining the relationship betweer cholesterol and mortality in older patients.

This prospective study of aging and dementia involved 4,309 patients 65 years and older who were receiving Medicare. Of these patients, 2,277 met inclusion criteria of sufficient baseline information, such as plasma lipid levels and body mass index (BMI), and remained free of dementia for the duration of the study. Patients with dementia were excluded from the study.

All study participants received a complete physical and functional assessment at baseline; were screened for stroke, diabetes, hypertension, and coronary artery disease; had lipid measurements and apolipoprotein E genotyping; and had their BMI calculated. It also was determined whether patients were receiving cholesterol-lowering treatment.

The mean age of participants was 76.1 years and the mean duration of follow-up was three years. Low levels of total cholesterol, non–high-density lipoprotein cholesterol, and LDL cholesterol were associated with a greater mortality risk. After adjustment for demographic factors such as sex, age, ethnic group, and education level, the authors found that patients with cholesterol levels less than or equal to 175 mg per dL (4.53 mmol per L) were twice as likely to die as those with cholesterol levels greater than 226 mg per dL (5.84 mmol per L). Additional adjustment for illness factors, such as diabetes or smoking status, did not alter these findings.

Lipid-lowering treatment reduced the risk of death, although it did not eliminate the association between low cholesterol levels and mortality risk. The strength of the association was attenuated when study participants followed for more than one year were included. Low cholesterol levels predicted a slightly higher mortality risk in younger patients compared with older patients.

The authors conclude that low cholesterol levels are associated with greater risk of all-cause mortality in older patients without dementia. These results were not affected by comorbid illnesses, but were attenuated by lipid-lowering treatment and longer follow up. The reasons lower cholesterol levels might be associated with a greater risk of death are not known. This study confirms findings of other studies with similar results, but by excluding patients with dementia, indicates that dementiarelated confounding factors, such as nutritional or physical decline, are not the cause.

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Reference(s)

1. Schupf N, et al. Relationship between plasma lipids and all-cause mortality in nondemented elderly.. *J Am Geriatr Soc.* 2005;53:219-26.