

Cholesterol and all-cause mortality in elderly people from the Honolulu Heart Program: a cohort study

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FROM ABSTRACT

Background

A generally held belief is that cholesterol concentrations should be kept low to lessen the risk of cardiovascular disease. However, studies of the relation between serum cholesterol and all-cause mortality in elderly people have shown contrasting results. To investigate these discrepancies, we did a longitudinal assessment of changes in both lipid and serum cholesterol concentrations over 20 years, and compared them with mortality.

Methods

Lipid and serum cholesterol concentrations were measured in 3,572 Japanese/American men (aged 71–93 years) as part of the Honolulu Heart Program. We compared changes in these concentrations over 20 years with all-cause mortality using three different Cox proportional hazards models.

Findings

Mean cholesterol fell significantly with increasing age.

Only the group with low cholesterol concentration at both examinations [20 years apart] had a significant association with mortality [an increased risk of mortality by 64%].

Interpretation

We have been unable to explain our results.

These data cast doubt on the scientific justification for lowering cholesterol to very low concentrations in elderly people.

THESE AUTHORS ALSO NOTE:

Researchers have been unable to conclusively show high concentrations of total serum cholesterol to be directly related to mortality in people older than age 65.

“Results of several studies have shown an inverse relation, or no relation, between total cholesterol concentration and risk of death in elderly people.”

These authors assessed changes in lipid concentrations over 20 years, from 1972 to 1992, and correlated them with all-cause mortality in a large cohort of Japanese/American men who were followed up in the Honolulu Heart Program.

RESULTS

Higher cholesterol concentrations were associated with:

- 1) Higher body mass index [they were less frail]
- 2) Higher HDL [good] cholesterol
- 3) Higher hemoglobin
- 4) Better hand-grip strength

"Kaplan-Meier survival curves showed lowest survival rates for those with the lowest serum cholesterol concentrations."

DISCUSSION

"Our data accord with previous findings of increased mortality in elderly people with low serum cholesterol, and show that long-term persistence of low cholesterol concentration actually increases risk of death."

"Thus, the earlier that patients start to have lower cholesterol concentrations, the greater the risk of death."

"Our results lend support to previous findings that low serum cholesterol imparts a poor outlook when compared with higher concentrations of cholesterol in elderly people, our data also suggest that those individuals with a low serum cholesterol maintained over a 20-year period will have the worst outlook for all-cause mortality."

"Is this low/low effect unique to individuals of Japanese ethnic extraction? There is no evidence to support such a contention. Risk factors for atherosclerosis in Japanese are much the same as those for whites."

These authors believe that there is no scientific justification to lower cholesterol to concentrations below 4.65 mmol/L (180 mg/dL) in elderly people.

KEY POINTS FROM DAN MURPHY:

- 1) These authors note that the relationship between cholesterol levels and mortality in elderly people (aged >65) have not been adequately assessed in studies. Consequently, they measured serum cholesterol concentrations in 3,572 Japanese/American men (aged 71–93 years) over 20 years and compared them with all-cause mortality.
- 2) "Only the group with low cholesterol concentration at both examinations [20 years apart] had a significant association with mortality," which was an increased risk of mortality by 64%.

- 3) These authors state:
- A)) "We have been unable to explain our results."
- B)) "These data cast doubt on the scientific justification for lowering cholesterol to very low concentrations in elderly people."
- 4) "Results of several studies have shown an inverse relation, or no relation, between total cholesterol concentration and risk of death in elderly people."
- 5) This study "showed lowest survival rates for those with the lowest serum cholesterol concentrations." [Again, these patients were elderly, between 71-93 years of age].
- 6) "Our data accord with previous findings of increased mortality in elderly people with low serum cholesterol, and show that long-term persistence of low cholesterol concentration actually increases risk of death."
- 7) "The earlier that patients start to have lower cholesterol concentrations, the greater the risk of death."
- 8) "Low serum cholesterol imparts a poor outlook when compared with higher concentrations of cholesterol in elderly people, our data also suggest that those individuals with a low serum cholesterol maintained over a 20-year period will have the worst outlook for all-cause mortality."
- 9) These authors believe that there is no scientific justification to lower cholesterol to concentrations below 4.65 mmol/L (180 mg/dL) in elderly people.

NOTE:

Canada and the UK measure cholesterol in mmol/L, which is millimoles per liter. Americans use mg/dL, which is milligrams per deciliter. The conversion from mmo/L to mg/dL is X38.6596.