Inverse association between alcohol intake and risk for ischemic heart disease depended on the LDL cholesterol level


Objective
To examine the association between alcohol consumption, low-density lipoprotein (LDL) cholesterol levels, and risk for ischemic heart disease (IHD).

Design
Cohort analytic study with 6-year follow-up of participants in the Copenhagen male study.

Setting
Copenhagen, Denmark.

Participants
2826 men aged 53 to 74 years without a history of acute myocardial infarction, angina, stroke, or intermittent claudication.

Assessment of risk factors
Between 1985 and 1986, a baseline questionnaire and examination were done that included measurements of height, weight, and blood pressure; the recording of an electrocardiogram; and information on tobacco use, physical activity, and social class. Venous blood was taken after 12 hours of fasting for measurement of serum lipid levels. Weekly alcohol consumption was calculated from questionnaire items about average intake, with beer, wine, and spirits recorded separately.

Main outcome measure
Incidence of IHD.

Main results
172 men (6%) had a first ischemic event during follow-up; 42 were fatal. A strong inverse association existed between alcohol consumption and risk for IHD in the highest fifth of LDL cholesterol level. In men with a high LDL cholesterol level (≥ 5.25 mmol/L), the cumulative incidence rates of IHD were 16.4% for abstainers, 8.7% for those who drank 1 to 21 beverages/wk, and 4.4% for those who drank ≥ 22 beverages/wk. Compared with abstainers, men who drank ≥ 22 alcoholic beverages/wk had a relative risk (RR) for IHD of 0.2 (95% CI 0.1 to 0.8, P < 0.01) and men who drank 1 to 21 alcoholic beverages/wk had a RR of 0.4 (CI 0.2 to 1.0, P < 0.05). In the distributions of LDL cholesterol levels < 5.25 mmol/L, the inverse association between alcohol intake and IHD was not significant. All-cause mortality was independent of alcohol use.

Conclusions
In middle-aged and elderly men, a strong association existed between alcohol use, low-density lipoprotein cholesterol levels, and risk for ischemic heart disease. The inverse association between alcohol consumption and the risk for ischemic heart disease depended on low-density lipoprotein cholesterol levels.

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LDL cholesterol levels are not considered to be an important factor in the decrease in mortality from moderate alcohol consumption.

Hein and colleagues followed nearly 3000 Danish men for 6 years. They found that the association between alcohol consumption and risk for CHD depended highly on LDL cholesterol levels. In multivariate analysis, an association between alcohol consumption and the rate of CHD was only present with higher LDL cholesterol levels (≥ 5.25 mmol/L). Hein and colleagues do not imply that alcohol intake decreases LDL cholesterol levels; rather, they conclude that the association between moderate alcohol consumption and decreased risk for ischemic heart disease occurs only among persons with higher LDL cholesterol levels. This is an important clinical distinction because it implies that persons with low LDL cholesterol levels will not benefit from moderate alcohol consumption. This needs to be confirmed in additional studies, particularly in different populations.

So, what can we tell our patients? We can advise them that moderate alcohol consumption (up to 1 to 2 drinks/d) lowers the rate of CHD and overall mortality and that the type of alcohol consumed does not matter. For each patient, we need to weigh his or her risk for heart disease with the risk for alcohol abuse. For women, we must also consider the risk for developing breast cancer, which increases with increased alcohol consumption (2).