

Expected Versus Observed Survival in 3 Large Population Studies With HMG-CoA Reductase Inhibitors

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ABSTRACT

Objective.—HMG-CoA reductase inhibitors (statins) can lower low-density lipoprotein (LDL). We examined how they were used in three large recent population studies, shedding new light on the relationship between cholesterol levels and survival.

Methods.—Mortality observed in the placebo and treated groups of these primary and secondary prevention studies using statins was compared with the expected mortality given in existing life tables.

Results.—In the West of Scotland Coronary Prevention Study (WOSCOPS), 6595 men with no proven coronary disease but with high baseline cholesterol were given pravastatin or placebo for 5 years. The mortality ratio (MR) was 125% when the placebo group was compared with the Canadian Insurance Association (CIA) 1986–92 ultimate mortality table. Pravastatin abolished the increased risk associated with LDL cholesterol. In the Scandinavian Simvastatin Study (4S), 4444 patients with coronary disease and high baseline cholesterol were given simvastatin or placebo for 5 years. The placebo group had a MR of 200%, compared with CIA life tables. Simvastatin decreased this increased mortality to 153%. In the Cholesterol and Recurrent Events study (CARE), 4159 patients with previous myocardial infarction and near-normal cholesterol levels were given pravastatin or placebo for 5 years. In the placebo group, the MR was 200%, compared with the CIA life tables. In patients given pravastatin, mortality was only marginally reduced to 192%.

Conclusions.—In primary prevention, reducing serum cholesterol abolished the increased mortality associated with high cholesterol. In secondary prevention, lipid-lowering agents improved survival in the treated group, mainly if baseline cholesterol was high.

Keywords: HMG-CoA reductase inhibitors, hyperlipidemia, mortality, life expectancy.