

Are Statins Cost-effective in Elderly Patients with Previous Myocardial Infarction?

Ganz DA, Kuntz KM, Jacobson GA, Avorn J. Cost-effectiveness of 3-hydroxy-3-methylglutaryl coenzyme A reductase inhibitor therapy in older patients with myocardial infarction. *Ann Intern Med* 2000;132:780-7.

Objective. To estimate the incremental cost-effectiveness of statin therapy compared with usual care in older patients with previous myocardial infarction.

Design. Cost-effectiveness analysis using data from published randomized controlled trials and epidemiologic data from cohort studies.

Setting and participants. Hypothetical patients aged 75 to 84 years with a history of myocardial infarction.

Main outcome measures. Life expectancy, quality-adjusted life expectancy, and incremental cost-effectiveness.

Main results. Average patients would gain 4.41 quality-adjusted life years (QALYs) if they received usual care and 4.66 QALYs if they received statin therapy. The incremental cost-effectiveness of statin therapy compared with usual care was \$18,800/QALY. On the basis of a probabilistic sensitivity analysis, there was a 75% chance that statin therapy costs less than \$39,800/QALY compared with usual care. When the cost of statin therapy and efficacy of statin therapy at reducing myocardial infarction were set to their most favorable values, statin therapy cost \$5400/QALY; when cost and efficacy were set to their least favorable values, statin therapy cost \$97,800/QALY.

Conclusion

Pending results of randomized, controlled trials of secondary prevention in patients in this age-group, statin therapy in older patients with previous myocardial infarction seems to be as cost-effective as many routinely accepted medical interventions.

Commentary

Large randomized controlled trials [1,2] have shown that statins reduce cardiovascular events, strokes, morbidity, and mortality among selected patients. However, these trials did not include patients older than 75 years. If we were to apply the selection criteria from the 4S study [1] and the West of

Scotland study [2] to the general population, 20% to 40% of the population would be on a statin; the percentage would be even higher in patients older than 75 years. In the current study, Ganz et al assess whether these drugs represent a good value for the money. They found a wide range of cost-effectiveness ratios (\$5400 per QALY to \$97,000 per QALY) that depended on the rate of reinfarction in patients receiving statins, with statins achieving a 55% reduction in the best scenario but only 4% in the worst scenario. Nonetheless, statin therapy compares relatively well with other therapies, such as hemodialysis (\$40,000 per year of life gained) and treating hypertension in patients aged 35 to 65 years (\$15,000 to \$96,000 per year of life gained).

This study is cruder than the Prosser study. Ganz et al did not take into account any risk factors (eg, diabetes or smoking) other than a history of infarction. Also, they based their estimates of the risk reductions expected from statin therapy on a younger population and extrapolated these risks to patients older than 75 years. Using estimates rather than actual data diminishes the quality of the study.

Application for Clinical Practice

We can expect an average gain of 4 months for each patient treated with a statin, but this gain is meaningful only if the patient's life expectancy is at least 5 years. Individual decisions should be made concerning patients with serious comorbidities, since such patients were not included in Ganz et al's analysis. Further randomized trial studies should be done to confirm the potential benefits found in this study.

References

1. Randomized trial of cholesterol lowering in 4444 patients with coronary heart disease: the Scandinavian Simvastatin Survival Study (4S). *Lancet* 1994;344:1383-9.
2. Shepherd J, Cobbe SM, Ford I, Isles CG, Lorimer AR, MacFarlane PW, et al. Prevention of coronary heart disease with pravastatin in men with hypercholesterolemia. West of Scotland Coronary Prevention Study Group. *N Engl J Med* 1995;333:1301-7.