

Eptifibatide was cost-effective in patients with unstable angina or non-Q-wave myocardial infarction

Mark DB, Harrington RA, Lincoff AM, et al. Cost-effectiveness of platelet glycoprotein IIb/IIIa inhibition with eptifibatide in patients with non-ST-elevation acute coronary syndromes. *Circulation*. 2000 Feb;101:366-71.

QUESTION

In patients with unstable angina or non-Q-wave myocardial infarction (MI), how cost-effective is eptifibatide therapy for inhibition of platelet aggregation?

DESIGN

Prospective economic substudy of the Platelet Glycoprotein IIb/IIIa in Unstable Angina: Receptor Suppression Using Integrilin Therapy (PURSUIT) trial, an international, multicenter, randomized [allocation concealed]*†, [blinded [investigator, patient, outcome assessors]],*† controlled trial with 6-month follow-up.

SETTING

Study centers in the United States.

PATIENTS

3522 patients from the United States (mean age 62 y, 65% men) who had ischemic chest discomfort lasting \geq 10 minutes within 24 hours and transient ST-segment elevation $>$ 0.5 mm, ST-segment depression $>$ 0.5 mm, T-wave inversion $>$ 1 mm within 12 hours of chest pain, or an elevated creatine kinase-MB fraction. Exclusion criteria were persistent ST-segment elevation $>$ 1 mm, contraindications to anticoagulation, hypertension,

or renal failure. Hospital costs were imputed for 1055 patients (30%) who did not have hospital billing data. 3 patients were excluded from the economic analysis because of incomplete economic data.

INTERVENTION

1754 patients were allocated to eptifibatide [bolus dose of 180 μ g/kg of body weight plus an infusion of 2.0 μ g/kg per minute]‡, and 1765 were allocated to placebo [for 72 hours or until discharge. All patients received aspirin, 80 to 325 mg/d, and heparin, 5000-U bolus plus infusion of 1000 U/hr]‡.

MAIN COSTS AND OUTCOME MEASURES

Life expectancy, medical cost (including hospital and physician costs and excluding the cost of eptifibatide) at initial hospitalization and cumulative cost to 6 months, and lifetime cost-effectiveness of eptifibatide. Costs were in 1996 U.S. dollars and used a 3% discount rate. Study outcome was a combined end point of death and nonfatal MI.

MAIN RESULTS

The 6-month rate of the combined end point of death or nonfatal MI was lower for

eptifibatide than for placebo (15.2% vs 18.9%, $P = 0.004$). Total medical costs per patient for eptifibatide and placebo did not differ either at initial hospitalization (\$14 729 vs \$14 957, $P = 0.78$) or for the cumulative 6-month cost (\$18 456 vs \$18 828, $P = 0.78$). The estimated undiscounted life expectancy per patient was 15.96 years for eptifibatide and 15.85 years for placebo, which gave an incremental difference of 0.111 years. The estimated total cost per patient for eptifibatide was \$1217 (based on the mean wholesale price), which resulted in an incremental cost-effectiveness ratio for eptifibatide compared with placebo of \$16 491 per year of life saved.

CONCLUSION

Eptifibatide was cost-effective in patients with unstable angina or non-Q-wave myocardial infarction.

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*See Glossary.

†Information provided by author.

‡The PURSUIT Investigators. *N Engl J Med*. 1998;339:436-43.

COMMENTARY

Cardiovascular therapies that undergo economic analyses are often reported to be cost-effective; however, their associated medical costs continue to escalate. The PURSUIT trial showed a modest benefit of eptifibatide over placebo in high-risk patients with acute coronary syndrome. The drug's efficacy was mostly attributable to the patients from the United States, who were aggressively managed with 85% undergoing angiography. Therefore, this economic analysis is applicable only to patients with aggressively managed acute coronary syndrome.

The authors concluded that the only difference in cost between the placebo and eptifibatide groups was the cost of the drug itself. The effectiveness portion of the ratio was more difficult to estimate because there was no 6-month mortality advantage to eptifibatide. The benefit was derived from a reduction in nonfatal MIs, which translated into a lifelong survival advantage (an additional 40 d). The hazard associated with a nonfatal MI was based on information drawn from a database of patients who were managed up to 30 years ago. Should this hazard be applied to a different cohort, and should survival then be extrapolated over 16 years? Many potential differences exist between these 2 cohorts, differences that

cannot be corrected by modeling. For example, in the past, many patients who had MIs were left with occluded coronary arteries, left ventricular remodeling, congestive heart failure, or arrhythmias. Many of the patients with recurrent MIs in PURSUIT had postcoronary intervention elevations in creatine kinase level, which were associated with a less adverse prognosis. A recent study suggested that postprocedural elevations of creatine kinase are markers of patients with more aggressive atherosclerosis but that these elevations do not independently affect prognosis (1). The findings of this study can be summarized in a more pragmatic way: Approximately \$38 000 worth of eptifibatide will prevent 1 "PURSUIT-like" MI in aggressively managed patients with high-risk acute coronary syndrome.

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Reference

1. Kini A, Marmur JD, Kini S, et al. Creatine kinase-MB elevation after coronary intervention correlates with diffuse atherosclerosis, and low-to-medium level elevation has a benign clinical course: implications for early discharge after coronary intervention. *J Am Coll Cardiol*. 1999;34:663-71.