difference in gender responses are not clear. Patients recruited in this study were \( \leq 75 \) years of age.

It is of concern that in patients with acute coronary syndromes presenting with ST depression on admission ECG and who are managed by a non-invasive strategy, approximately half have left main or three-vessel disease which remains undetected in the absence of coronary arteriography. Based on the results of this study, an early invasive assessment of patients with acute coronary syndromes and ST depression on the admission ECG should be supported. Coexistent morbidity, however, should be assessed in each patient prior to percutaneous coronary intervention or CABG.

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Pricing a year of life: a necessary exercise in modern health care

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Should we treat each patient with a new drug, which has proven efficacy in a large-scale randomized trial? The obvious answer in an ideal world would be yes. But can we afford to do so?

Results of large multicentre trials are frequently presented with a view to ‘risk reduction’. However, the absolute reduction of events often seems low, and as a consequence, the number of patients that have to be treated in order to prevent one event may be quite high. It mainly depends on the budget of the health care organization, sometimes on the individual attitude of the physician, whether the treatment is provided to all patients with a view to give the best possible therapy, or if a risk stratification is employed that reduces the total number of treated patients.

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Especially for new and expensive therapies, health care providers are under enormous economic pressure for the provision of funding. Faced with this dilemma, cost effectiveness studies were initiated in large randomized trials to give an estimate of the efficiency of the additional investment. But how do we measure efficiency? When is a treatment cost effective — what is the cost of a year of life? Can we afford treatments that ‘only’ reduce event rates and not considerably prolong life? As cardiologists we have to become familiar with new measures of efficiency, provided by health economists. The economic study in this issue\(^1\) calculates years of life saved (YOLS) as the major parameter of cost-effectiveness of eptifibatide in acute coronary syndromes. YOLS, however, does not tell us about the quality of the prolonged life. YOLS does not include symptoms. However, it provides an objective measure of cost-effectiveness that can be compared to other therapies. Together with clinical data on therapeutic efficiency e.g. reduction of events, prolongation of life and symptomatic improvements, the economic data help select the kind of therapy we are willing to provide in our health care system.

The advent of the glycoprotein IIb/IIIa inhibitors contributes a new dimension to the treatment of acute coronary syndromes and percutaneous coronary interventions. Significant benefits have been proven in multiple randomized trials\(^2\)-\(^4\). However, implementation of this therapy into routine practice is hampered by the incremental cost of the treatment.

Thus, the economic analysis of the PURSUIT trial presented by Brown and colleagues is of great importance. PURSUIT, the largest of the GPIIb/IIIa antagonist trials, enrolled 10 948 patients between November 1995 and January 1997\(^5\). These patients were randomized to receive eptifibatide or placebo for unstable angina or non-ST-elevation myocardial infarction. Eptifibatide was given in addition to the standard treatment in the individual hospitals. Protocol-imposed strategies were kept to a minimum. The absolute reduction in the incidence of the primary end-point (death, MI at 30 days) was 1.5%\(^6\). At 6 months the treatment effect was sustained.

The present analysis looks at the subgroup of patients enrolled in Western European countries. It has to be noted that the medical resource consumption was prospectively documented in anticipation of the need for cost effectiveness analyses of the use of platelet inhibitors in acute coronary syndromes. Details on the number and type of in-hospital revascularization procedures, diagnostic tests, cardiovascular-related drugs and length of stay for the initial hospitalization were collected for each patient. Information about readmissions, length of hospital stay, diagnostic angiograms and revascularization were collected at the 6 months follow-up. The outcome measure was YOLS. The survival model was based on the 6 months end-points (death/MI), obtaining life expectancy for every PURSUIT trial patient surviving at 6 months. As a result, we learn that treatment with eptifibatide resulted in a projected 2.9 additional years of life per 100 patients. In order to save one year of life, between 9603 to 18 115 Euros have to be invested. Interestingly, there is a wide variation in the cost per year of life saved between countries with a low as compared to a high coronary angiography rate.

These data add to the existing evidence on the cost-effectiveness of abciximab and tirofiban\(^5,6\) and they match the cost effectiveness analysis performed in the U.S. patients enrolled in PURSUIT\(^1\). Overall, the cost effectiveness of eptifibatide for patients with non-ST-segment elevation acute coronary syndromes compares favourably with other widely accepted therapies in industrialized countries. Examples of similar analyses are given in the paper. The cornerstones are pacemaker implantation (1860 Euros/YOLS), CABG in triple vessel disease vs medical therapy (13 700 Euros/YOLS) and tPA vs streptokinase for acute MI at 1 year (37 000 Euros/YOLS). The present analysis puts the economic aspect of the global use of eptifibatide in perspective. It tells us that giving eptifibatide to patients with acute coronary syndromes is economically attractive. It gives us arguments with which to convince hospital administrators and health care providers.

But it does not answer all the questions. The mere fact that it may be economically attractive to give eptifibatide to all patients presenting with unstable angina does not mean that it is the right thing to do in clinical practice. We know from recent trials that we should expect a marked clinical benefit in patients undergoing early invasive procedures and subsequent revascularizations\(^8,9\). However, in the current study a higher use of angiography resulted only in higher resource consumption and reduced cost efficiency. This shows a limitation of the economic analysis. It does not provide data on patient subgroups, which might have either extensive or only limited benefit from the GPIIb/IIIa therapy. PURSUIT enrolled a high-risk study population. Troponin measurements are not available. Therefore the original results probably lack the data for an in-depth analysis with a view to currently applied strategies\(^10,11\). Recent algorithms based on clinical data identify certain patient subsets and advise us to adjust our treatment modalities. Therefore, more detailed economic analyses are required to support a clinically and economically sound selection of patients who should
receive treatment according to the standards of the individual health care system.

Clinical results of multicentre trials like PURSUIT help us to guide decisions on whether to institute a new treatment. Economic analysis, like the one presented in this issue, will help us to implement new therapies into our practice. Given the nature of multicentre trials, however, they will never match the real life scenario completely. The final decision on which patient to treat always remains a decision of the physician, based on his knowledge of the evidence, weighed against the specific details of the case, and with some consideration of the economic background.

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The value of diuretics in chronic heart failure demonstrated by an implanted haemodynamic monitor

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Evidence-based medicine has clearly established that the combination of diuretics, digitalis, ACE inhibitors, and beta-blocking agents improves the prognosis of patients with chronic heart failure and increases their exercise capacity, at least to some extent. There is ample evidence in placebo-controlled double-blind studies that ACE inhibitors and beta-blocking agents are needed for a better life expectancy in mild, moderate and severe heart failure. This may not be true for diuretics, although all physicians when treating their patients are well aware of the great impact of diuresis on symptomatic efficacy in this syndrome. There are no randomized placebo-controlled trials, however, to support this everyday experience. Several studies indeed have shown that ACE inhibitors without diuretics fail to treat patients with congestion[1–3]. Because of this, most cardiologists include diuretics in their therapeutic regimen, even in the absence of oedema. Such colleagues are probably impressed by the haemodynamic effects of diuretics (see Table 1), which may result, because of decreased preload and