Letter by Fan and He Regarding Article, “Cost-Effectiveness of Percutaneous Coronary Intervention in Patients With Stable Coronary Disease and Abnormal Fractional Flow Reserve”

To the Editor:

We take great interest in the article by Fearon et al1 with regard to the economic and quality implications of percutaneous coronary intervention among patients with stable angina. The study assessed patient utility with the use of the EQ-5D health survey in the Fractional Flow Reserve Versus Angiography for Multivessel Evaluation 2 (FAME 2) trial and found that percutaneous coronary intervention of coronary lesions with abnormal fractional flow reserve was more economically attractive than best medical therapy. However, we have some concerns with the statistical analysis.

Cost–utility analysis is a common comparative effectiveness methodology in current health economics research, and quality-adjusted life-year (QALY) is often used to allocate healthcare resources, with an intervention with a lower cost to QALY saved incremental cost-effectiveness ratio being preferred over an intervention with a higher ratio. Nevertheless, the use of such analysis to determine policy has its own limitations. For one thing, the weight in standard descriptive systems in the EQ-5D questionnaire assigned to a particular condition can vary greatly for individuals, depending on the population being surveyed. For another, the algorithms do not calculate the impact of a patient’s health on the quality of life of caregivers or family.

The decisive measure of the study was an estimated societally acceptable cost-effectiveness threshold of $50,000 per QALY. If it is assumed that the effect of stenting on utility would decline linearly over 3 years and that the cost difference present at 1 year would not change, the incremental cost-effectiveness ratio ($36,000 per QALY) for stenting appeared to provide good value for the added cost compared with medical therapy (<$50,000 per QALY). However, the FAME 2 trial was an international multicenter investigation conducted at 28 sites in Europe and North America2 and therefore the levels of the cost-effectiveness thresholds might vary from 1 country to another as well as within countries. Furthermore, the calculated incremental cost-effectiveness ratio ($36,000 per QALY) for percutaneous coronary intervention was a mean result stemming from all types of related costs that may vary greatly in different countries or even different states. Would it still appear so robust in guiding significance applied back to a single country?

Because the FAME 2 trial was shorter than originally planned, the study made a plausible assumption that the initial benefit of recanalization seen at 1 month would gradually diminish to 0 over 3 years of follow-up,1 mainly on the basis of the result of the Clinical Outcomes Utilizing Revascularization and Aggressive Drug Evaluation (COURAGE) trial.1 However, assumption is only assumption because it may never make a compelling argument until a conclusion based on sufficient evidence (eg, evidence-based medicine) is determined. Additionally, the COURAGE trial was quite different from the FAME 2 trial, with bare-metal stents in the COURAGE trial and second-generation drug-eluting stents in the FAME 2 trial.

Finally, cost–utility analysis is a health policy instrument for determining healthcare spending at the national level rather than a dominant factor in clinical decision making.

Disclosures

None.

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References