

Volume 5 - Issue 3,2006 - Cover Story

Cost-Effectiveness Study on Drug-Eluting Stents

Author:

Edward Susman

Email: EDWARDSUSMAN@CS.COM

Stockholm, Sweden - A new study by Swiss doctors and economists indicates that hospitals may be able to save money by restricting which patients are eligible for drug-eluting stents – devices that remarkably reduce post-angioplasty events, but also cost thousands of Euros more than so-called bare metal stents.

The Basel Stent Cost-effectiveness Trial (BASKET) found that the use of the stents in all patients who undergo angioplasty in the hospital interventional laboratory or radiology suite is not cost-effective. Matthias Pfisterer, MD, professor and head of the division of cardiology, University Hospital, Basel, Switzerland, said that about two-thirds of the sirolimus-eluting (Cypher) stents or the paclitaxel-eluting (Taxus) stents represent a good buy.

Importantly, the research done in the BASKET trial can identify the patients for whom bare metal stents would be appropriate, making it possible for hospitals to restrict the use of the EUR 3,000 stents for state-of-the-art bare metal stents for EUR 1,500 to EUR 2,000 per stent.

In the cost-effectiveness study that Dr. Pfisterer discussed at the European Society of Cardiology Congress 2005, the researchers confirm why patients and doctors are enthusiastic about the drug-eluting device - they resulted in a 44% reduction in the rate of major adverse cardiac events compared with bare metal stents.

The benefit carries with it, however, a cost that is roughly EUR 800 more per patient than the price tag for bare metal stents. Not surprisingly, Dr. Pfisterer said the cost difference is "driven mainly by the difference in stent price." Using either Cypher or Taxus adds about EUR 2,000 to the baseline costs of angioplasty, but the lower rate of adverse events - mainly a reduction in in-stent restenosis - improves the six-month cost-effectiveness profile. The total costs are roughly EUR 10,000 for the drug-eluting stents versus EUR 9000 for the cobalt chromium-based Vision stent.

A further analysis of the study that involved 826 patients who were treated with angioplasty and stent placement to prop open 1,281 de novo coronary lesion found that certain individuals are candidates for the more expensive stents:

- patients undergoing stent placement in arteries 2.5 mm or smaller
- patients undergoing stent placements in lesions longer than 20 mm
- patients undergoing stent placements in blood vessels with more than one
- patients undergoing stent placements and in multi-vessel disease cases
- elderly patients

About two-thirds of patients now undergoing angioplasty with stent procedures meet those criteria, said Dr. Pfisterer

In the study, 264 patients received Cypher stents, 281 Taxus stents and 281 were treated with Vision stents. The patients were followed for six months for occurrence of major adverse cardiac events and costs, with the primary endpoint cost-effectiveness after six months. 263 patients in the Cypher group, 281 in the Taxus arm and 280 in the Vision group were included in the analysis.

There were 39 major events – cardiac death, myocardial infarction, or target vessel revascularization - among the 544 patients treated with drug-eluting stents and 34 events among the 280 patients in the Vision group. The incremental cost effectiveness ratio of Cypher/Taxus versus Vision was roughly EUR 22,000 to avoid one event and the corresponding cost per quality-adjusted life-year gained was about EUR 50,000.

While the BASKET investigators say their study presents a real-world snapshot of the economics of stenting, discussant Petr Widimsky, MD, head of the CardioCenter in Vinohrady, Prague, Czech Republic, said it not exactly true since Vision, the bare metal stent used in the trial is one of the most expensive bare metal stents. He said that the economic gap would have been greater if the investigators had compared Cypher and Taxus to a more typical - and less expensive - bare metal stent such as Zeta.

Raymond Gibbons, MD, a professor of medicine at the Mayo Clinic in Rochester, Minnesota said the he thinks cost-effectiveness studies such as BASKET are helpful, but he speculated that it may not have an impact on practice. "This is competitive and cardiologists as well as hospitals want to be known for using state-of-the-art devices," he said. Moreover, Gibbons, who is president- elect of the American Heart Association, said that "some patients even demand drug-eluting stents because they read about them."

Dr. Kim Fox, MD, professor of medicine at the Royal Brompton Hospital in London, England, United Kingdom, who moderated an ESC press conference where BASKET was discussed, said interventionalists are likely to put their own spin on the findings: "They will call all vessels small and all lesions long."

Published on : Thu, 20 Apr 2006