Drug-releasing stent shows promise for improving outcomes in patients with coronary artery disease

22 April 2008

For patients who underwent angioplasty to open narrowed coronary arteries, the use of stents releasing the drug everolimus reduced the rate of renarrowing of the arteries and significantly reduced the risk of major cardiac events, compared to the widely-used paclitaxel-releasing stents, according to a study in the April 23/30 issue of JAMA.

Stents releasing the drugs paclitaxel and sirolimus have been shown to improve long-term event-free survival compared with bare-metal stents. However, restenosis (renarrowing of a coronary artery after angioplasty) still occurs, and the incidence of stent thrombosis (the formation or presence of a blood clot in a blood vessel), especially after the first year of implantation, is increased with these drug-releasing stents compared with their bare-metal counterparts, according to background information in the article.

Newer drug-releasing stents are being designed with the goal of enhanced safety, efficacy, or both. Everolimus-releasing stents have shown favorable results in preliminary studies in improving clinical and angiographic (radiographic visualization of the blood vessels) outcomes in patients with coronary artery disease.

Gregg W. Stone, M.D., of Columbia University Medical Center and the Cardiovascular Research Foundation, New York, and colleagues conducted the SPIRIT III trial to evaluate the everolimus-releasing stent in comparison to the paclitaxel-releasing stent in 1,002 patients with coronary artery disease. Patients were randomized 2:1 to receive the everolimus-releasing stent (n = 669) or the paclitaxel-releasing stent (n = 333). Angiographic follow-up was prespecified at 8 months in 564 patients and completed in 436 patients. Clinical follow-up was performed at 1, 6, 9, and 12 months.

The researchers found that angiographic in-segment late loss (a measure of restenosis) was significantly less in the everolimus-releasing stent group compared with the paclitaxel group. At 9 months, everolimus stents, compared with paclitaxel stents, were noninferior for the outcome of target vessel failure (47 of 657 patients [7.2 percent] vs. 29 of 321 [9.0 percent], respectively. Use of the everolimus stent compared with the paclitaxel stent resulted in a 44 percent reduction (4.6 percent vs. 8.1 percent) at 9 months in the composite of major adverse cardiac events (cardiac death, heart attack, or target vessel revascularization [repeat procedure to unblock a blood vessel]), and a 42 percent reduction in the composite of major adverse cardiac events at 1 year (6.0 percent vs. 10.3 percent). This was due to fewer heart attacks and target lesion revascularization procedures.

“This large-scale, prospective, randomized, single-blind, controlled study demonstrates that an everolimus-eluting stent compared with a widely used paclitaxel-eluting stent results in a significant reduction in angiographic in-segment late loss at 8 months, with noninferior 9-month rates of ischemia-driven target vessel failure,” the authors write.

Citation: JAMA. 2008;299[16]:1903-1913.

Source: JAMA and Archives Journals

APA citation: Drug-releasing stent shows promise for improving outcomes in patients with coronary artery disease (2008, April 22) retrieved 24 November 2022 from https://medicalxpress.com/news/2008-04-drug-releasing-stent-outcomes-patients-coronary.html

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