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INTERVENTIONAL/SURGERY

CABG down, PCI stable: What does it all mean?

MAY 3, 2011 | Shelley Wood

Chicago, IL – Rates of PCI have stayed stable between 2001 and 2008, while the annual rate of CABG procedures declined by 38%, a new analysis shows [1]. Authors of the study, published in the May 4, 2011 issue of the *Journal of the American Medical Association*, say that the findings likely speak to "a sizable shift in cardiovascular clinical practice patterns away from surgical treatment toward percutaneous, catheter-based interventions."

Whether that shift is good or bad and just who is actually being "shifted" and why remain some of the most contentious questions in cardiovascular medicine.

"The ratio of PCI to CABG used to be 2 to 1 and now it's 3 to 1," **Dr Peter Groeneveld** (Philadelphia Veterans Affairs Medical Center, PA), senior author on the study, told **heartwire**. "That's a bit of a concern, because we know from the **SYNTAX** trial that CABG is the better alternative for patients with triple-vessel and left main disease."

But **Dr Jeffrey Moses** (Columbia University, New York, NY), an interventional cardiologist, commenting on the study for **heartwire**, calls this interpretation of SYNTAX "astonishing" and "disingenuous," saying, "I don't think these guys have been going to the same meetings that I have!"

He points out that based on SYNTAX and other studies, PCI is now considered by both **US** and **European** guidelines as a suitable alternative for lower-risk patients with left main disease and three-vessel disease.

"Contrary to what the authors are saying, the evidence does seem to be moving practice in a direction that I think they'd consider positive. If you look at this logically, the patients who were previously referred for CABG did not go away—they did not get treated medically, they almost undoubtedly got a different form of revascularization—ie, PCI. So with the additional numbers of PCIs from the formerly CABG group, the fact that total PCI *didn't* go up indicates that there is another segment who was getting PCI before who is now being treated medically."

Also commenting on the analysis for **heartwire**, cardiovascular surgeon **Dr Chris Feindel** (University of Toronto, ON) said that that the shift cannot fully be explained by patients getting PCI, appropriately, who in the past were suitable only for CABG. He believes some are not hearing the surgeon's point of view as to what treatment is best. If they were, he says, "I think you'd probably see CABG rates being fairly flat, possibly increasing somewhat in three-vessel disease, and I think you'd see multivessel-disease angioplasty falling to some degree. I don't know how much, but I think it would be a significant amount."

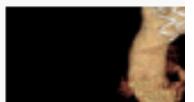
A SYNTAX refresher

As previously reported by **heartwire**, the **three-year results from SYNTAX**, which compared PCI and CABG in patients with left main coronary disease and/or three-vessel disease, showed rates of the primary end point (major adverse cardiac and cerebral events) to be lower in CABG patients than in patients treated with a Taxus paclitaxel-eluting stent. That difference was driven largely by repeat procedures in the PCI group. Rates of death/stroke/MI were nearly identical in the two groups overall. When patients were

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divided into tertiles based on baseline SYNTAX score, reflecting disease complexity, those in the lowest-risk tertile did well with both procedures out to three years; those in the middle and highest tertiles, however, had worse outcomes if treated with PCI.

CABG drops; PCI stays the same

Authors of the new analysis, **Dr Andrew J Epstein** and colleagues, used inpatient data from the **Healthcare Cost and Utilization Project**, supplemented with **Medicare** outpatient claims. They noted a 15% overall decrease in rates of coronary revascularization procedures, mostly driven by a striking drop in CABG procedures, from 1742 to 1081 per million adults. By contrast, PCI rates held steady, from 3827 per million adults in 2001–2002 to 3667 in 2007–2008.

Epstein et al acknowledge that they couldn't, in their data, distinguish patients who were suitable for both revascularization procedures from those best suited to either one procedure over the other. It is possible, they say, that patients whose care "shifted" to CABG "included many patients with less compelling clinical indications for CABG surgery over PCI."

"Who is appropriate for CABG and who is appropriate for PCI—we have these discussions all the time and the data are analyzed and subanalyzed, and that's a matter of uncertainty in many anatomic and clinical circumstances," Moses observed. "But the fact that the overall rates of revascularization are going down in the face of overall outcomes of death and MI improving in the country I would take as an overall positive message."

Groeneveld, in response, says he "can't rule out" the possibility that all of the migration from CABG to PCI consists of patients determined to be newly suitable, based on the evidence.

"The problem is that it's a little hard to believe that that's the whole story, that we've just been treating patients *more* appropriately, and that explains this huge decline. I would buy that if it were a 5% to 10% decline in CABG or a slightly greater decline in CABG compared with PCI. If we're talking about a fraction of SYNTAX patients who have triple-vessel disease or left main but are at low risk—that's still a low percentage of the overall CAD population. We're probably talking about 5000 or 10 000 patients a year, not hundreds of thousands of patients a year."

His "hunch" he continued, is that with interventionalists as the gatekeepers, "CABG is a more difficult destination to reach."

Feindel, likewise, referred to as-yet-unpublished data looking at varying CABG:PCI ratios across hospitals in Ontario, showing that hospital culture is a key driver.

"We've seen that ratio of PCI to CABG from center to center can range from 1.4 up to 4.4, which is pretty dramatic," Feindel said. "One has to wonder what's going on, and is it financial incentives? Medicine is very much a supply-driven economy in the sense that if you have more operators, sometimes I think more things get done whether we like it or not."

In fact, in Epstein et al's analysis, the number of hospitals providing both types of revascularization procedures increased, although more so for PCI (26%) than for CABG (12%). This, at least for CABG procedures, had the effect of driving down case volumes for hospitals by 28% and more than doubling the number of hospitals performing less than 100 CABG procedures per year (11% in 2001 compared with 26% in 2008).

"Usually you would start closing coronary surgery programs if you were faced with declining volumes; instead we are seeing the opposite phenomenon, and that's worrisome if in fact hospitals need to do a minimum volume of CABGs to be good at it, and there's reason to think that's probably true," Groeneveld said.

Stoking the flames

Anticipating all of the discussion that the *JAMA* paper will stoke anew, Moses observed: "These articles tend to get politicized when the message, I think, is pretty interesting and a positive one for the healthcare system."

Groeneveld, for his part, acknowledged that there is no information on procedure appropriateness in his paper or on any clinical outcomes. In fact, the data set they used can't be linked to subsequent patient events. What he hopes the analysis will do, he says, is prompt discussion.

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"I hope that this paper does kind of compel people practicing in clinical medicine as well as patients in this arena to think hard about how patients eventually wind up getting the treatment they get, and I think SYNTAX does the same thing: it makes us wonder whether we are really getting patients to the right kind of treatment."

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1. Epstein AJ, Polksky D, Yang F, et al. Coronary revascularization trends in the United States, 2001–2008. *JAMA* 2011; 305:1769–1776.

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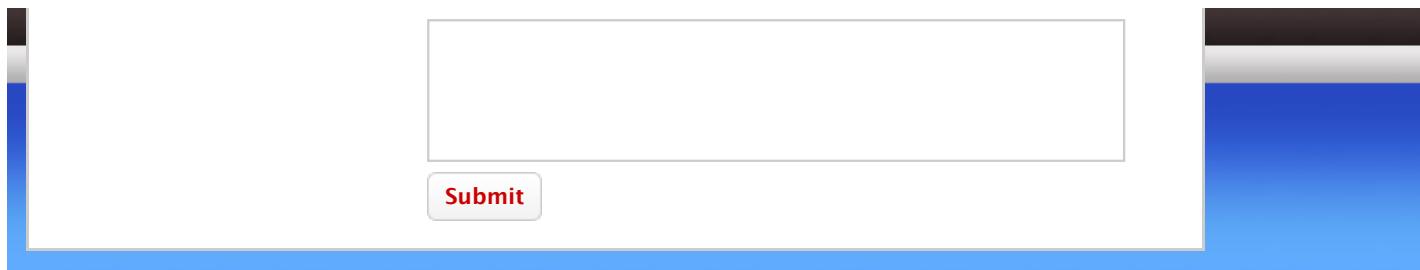
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