

Variations in cardiac procedures related to physician recommendations and hospital characteristics

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Physician preferences and hospital characteristics influence the type of procedures performed on blockages of the heart, leading to significant variations in rates of bypass, stent or angioplasty procedures, found an article in *CMAJ (Canadian Medical Association Journal)*.

There is significant variation in the ratio of percutaneous coronary interventions to [coronary artery bypass graft](#) surgeries (PCI:CABG ratio). Both procedures are performed to address blockages of coronary arteries. PCI procedures are less invasive than [bypass surgery](#) and were initially used to treat single-vessel heart disease. However, PCI is now used more widely for other conditions, including multivessel heart disease and multiple coronary issues. Rates for the procedure have increased in Ontario but there are indications that certain patients with multivessel disease have better long-term outcomes with CABG surgery than with PCI.

Canadian researchers analyzed data for 8972 patients who underwent [diagnostic procedures](#) — cardiac catheterizations — to look at heart function and any [blockages](#) or abnormalities in function, between April 2006 and March 2007 at 17 hospitals that perform cardiac procedures in Ontario. They wanted to understand the reason for the variations in the PCI:CABG ratio.

Coronary anatomy was the most important factor in PCI procedures

being performed rather than CABG surgery but the recommendation for the procedure and the hospital where it was performed were also influential. The researchers found significant variation in the types of procedures offered, mostly among patients with multivessel disease.

"The variation was not primarily the result of differences in patient characteristics or the utilization of primary PCI (i.e., for emergent ST-segment elevation myocardial infarction [MI])," writes Dr. Jack Tu, Institute for Clinical Evaluative Sciences (ICES), with coauthors.

"Rather, it appeared to reflect variations in treatment preferences and practice styles of the cardiologists performing the index catheterizations with regard to the management of patients with non-emergent multivessel disease, patients who could potentially be recommended for either PCI or CABG surgery."

"We found that the recommendation of the physician performing the diagnostic catheterization and the treating hospital were strong independent predictors of the mode of revascularization," write the authors.

The authors suggest changes that can lead to more consistency and transparency, such as creating multidisciplinary teams with the interventional cardiologist, a cardiac surgeon and referring physician, if possible. "Although many patients may still prefer PCI because it is less invasive, cardiac surgeons need to be more involved in clinical decision-making when patients are candidates for either PCI or CABG surgery. Patients need to be fully informed about the benefits and risks of all alternative treatment options," they conclude.

In a related commentary, Drs. David Holmes Jr. and Charanjit Rihal of the Mayo Clinic write that, for patients who could be recommended for either PCI or CABG, "the experience and training of the physician performing the angiography plays an important role. For example, an

experienced interventional cardiologist trained in procedures to treat chronic total occlusion may recommend PCI, whereas a less experienced interventional cardiologist may favour surgical referral."

They conclude that the decision should be made based on the risks and benefits of all treatment options so that a patient may decide without being influenced by physician bias.

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