Commentary: Percutaneous coronary intervention for left main lesions: Once again coronary artery bypass grafting gets the shaft

Harold L. Lazar, MD

The decision to perform a percutaneous coronary intervention (PCI) versus coronary artery bypass grafting (CABG) surgery, for all types of coronary lesions including left main disease (LMD), has been determined by the number and complexity of the coronary lesions as assessed by the Synergy Between Percutaneous Coronary Intervention With Taxus and Cardiac (SYNTAX) surgery score and whether a complete revascularization can be obtained by the technique that is chosen.

LMD may occur in the ostium, shaft, or distal portion of the vessel. Although distal LMD involving the bifurcation of the left anterior descending and left circumflex arteries may require more complex PCI techniques, a recent subgroup analysis of the Evaluation of XIENCE Versus Coronary Artery Bypass Surgery for Effectiveness of Left Main Revascularization trial did not find any difference in mortality or morbidity between PCI and CABG in the ostial, shaft, or distal unprotected left main coronary arteries (ULMCAs). However, in the MAIN COMPARE registry, CABG was associated with decreased mortality and major adverse cardiovascular events (MACE) compared with PCI in patients with distal ULMA, but there was no difference in outcomes in patients with ostial or shaft ULMA disease.

In this edition of the Journal, DeFilippo and colleagues report the results of a meta-analysis to determine outcomes after PCI versus CABG for ULMA disease according to the site of the LMD. They found that after a 5-year follow-up, PCI was associated with a significantly higher risk of MACE compared with CABG for distal ULMA driven by a higher rate of repeat revascularization. There was no significant difference in mortality or MACE in LMD involving the ostium or shaft. The authors concluded that “PCI should be regarded as a valid alternative to CABG for patients with ostial/shaft ULMA.” Unfortunately, there are significant limitations with this database that limit any conclusions that can be made.

Important data regarding the CABG procedures that were performed and their postoperative management are missing from these studies. The use of the left internal thoracic artery and other arterial grafts was reported in only 44% of the studies. Multiple arterial grafting has been shown to improve long-term survival in certain subsets of patients undergoing CABG. Data on “on versus off” CABG was not reported in 55% of the studies. Off CABG surgery has been found to decrease long-term survival after CABG and increase the need for re-revascularization procedures. The use of guideline-directed medical therapy (GDMT) in CABG versus PCI is unknown. The failure to maintain GDMT after CABG has been shown to decrease survival and increase MACE. GDMT is more likely to occur after CABG versus PCI and negates the early benefits of CABG in reducing mortality and MACE compared with PCI.

In view of the small number of patients presenting with acute coronary syndromes, the low-medium SYNTAX
scores, and the low risk of the reported patients, it is unclear as to how these data can be used to determine the revascularization strategy in the majority of patients who present with LMD. I disagree with the authors that PCI should be regarded as a valid alternative to CABG for patients with ostial/shaft ULMCA. Instead, on the basis of the data derived from this meta-analysis, I would conclude that “In patients presenting with ostial/shaft LMD who are at low risk; in the absence of acute coronary syndromes and multiple distal coronary lesions, in whom complete revascularization cannot be achieved, PCI might be an alternative to CABG.”

References

Commentary: Coronary artery bypass grafting versus percutaneous coronary intervention in left main disease: Plausibility does not equal evidence

Grace Lee, BHSc,a
Dominique Vervoort, MD, MPH, MBA,b
Maneesh Sud, MD,b,c,d and
Stephen E. Fremes, MD, MSca,b,c,e

From aTemerty Faculty of Medicine, bInstitute of Health Policy, Management and Evaluation, cSchulich Heart Centre, Sunnybrook Health Sciences Centre, cDivision of Cardiology, Department of Medicine, Sunnybrook Health Sciences Centre, and cDivision of Cardiac Surgery, Department of Surgery, Sunnybrook Health Sciences Centre, University of Toronto, Toronto, Ontario, Canada.

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The debate between coronary artery bypass grafting (CABG) and percutaneous coronary intervention (PCI) for left main coronary artery disease (LMCAD) has dominated the revascularization field for almost 20 years and led to 6 randomized-controlled trials (RCTs). While the Synergy between PCI with Taxus and Cardiac Surgery (SYNTAX) score discriminates between most patients better suited for CABG rather than PCI, it remains unclear...