

Coronary artery disease: Comparison of revascularisation techniques



Patients undergoing coronary artery bypass grafting benefit from a lower risk of repeat revascularisation; however, if a patient wishes to avoid the morbidity associated with surgical revascularisation, percutaneous coronary intervention is a safe and effective alternative, according to a systematic review published in *JAMA Cardiology*.

In patients with left main coronary artery (LMCA) stenosis, coronary artery bypass grafting (CABG) has been the standard therapy for several decades. However, due to significant advances in device technology, increased operators' expertise, and availability of improved antithrombotic therapy, percutaneous coronary intervention (PCI) has emerged as a valid alternative technique in a significant proportion of patients.

This systematic review and meta-analysis was conducted to compare the long-term safety of PCI with drug-eluting stent versus CABG in patients with LMCA stenosis. PubMed, Scopus, EMBASE, Web of Knowledge, and ScienceDirect databases were searched from 18 December 2001 to 1 February 2017. Inclusion criteria were randomised clinical trial, patients with LMCA stenosis, PCI vs. CABG, exclusive use of drug-eluting stents, and clinical follow-up of three or more years (i.e., to allow focus on long-term outcomes and limit the influence of early nonsignificant differences).

A total of four trials were pooled; 4,394 patients were included in the analysis. Of these, 3371 (76.7%) were men; pooled mean age was 65.4 years. The researchers found that, in patients with significant LMCA stenosis, both PCI with drug-eluting stent and CABG are associated with a comparable risk of all-cause death, myocardial infarction, or stroke at long-term follow-up.

The researchers noted: "Cumulative Kaplan-Meier curve reconstruction did not show significant differences over time, and long-term safety was acceptable with both PCI and CABG. The risk of repeat revascularisation is the most important difference between techniques, with a higher risk for PCI at long-term follow-up compared with CABG."

They also said patient preference should be taken into consideration regarding the risks of periprocedural complications of surgery and long-term repeat revascularisation after PCI.

The study has some limitations, including the absence of individual patient data and partial disclosure of results in original publications, which prevented the researchers to perform additional subgroup analyses and explore the impact of technical aspects of PCI procedures both in terms of the number of stents implanted to treat LMCA bifurcation (1 or 2 stents) and technique performed (e.g., culotte, V-stenting, T and protrusion, crush, and double kissing crush). In addition, the absence of significant differences between PCI and CABG in terms of all-cause death, myocardial infarction, or stroke may be due to lack of statistical power. The researchers pointed out: "Even after pooling the data, the total number of patients was not large enough for superiority testing."

Source: [JAMA Cardiology](#)

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