

Publication Brief

Intraoperative transit-time flowmetry in patients undergoing coronary surgery to determine relationships between graft flow and patency and prior coronary interventions and flow demand: a retrospective study.

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STUDY

The aim of this study was to delineate impacts of percutaneous coronary intervention (PCI), flow demand, and status of myocardium on graft flow.

METHOD

This study comprised a retrospective assessment of 736 individual coronary artery bypass grafts that had been created as the sole bypass graft in 405 patients. They included:

- 334 internal thoracic artery (ITA) to left anterior descending (LAD);
- 129 ITA and 65 saphenous vein grafts (SVG) to left circumflex (LCX),
- 142 gastroepiploic artery (GEA) and 66 SVG to right coronary artery (RCA).

The minimal luminal diameter, size of revascularized area, history of myocardial infarction, and PCI history to the LAD (PCI group) in 54 ITA to LAD bypass grafts (16.2%) were also analyzed to determine whether these factors were associated with flow insufficiency. No history of PCI to the LAD was found in 280 grafts.

RESULTS

- Flow insufficiency developed in 123/736 grafts (16.7%) and correlated significantly with stenosis in the distal portion (23.0% vs. 12.8%, $p=0.0003$).
- Prior myocardial infarction significantly correlated with flow insufficiency in GEA-RCA ($p=0.002$) and ITA-LCX grafts ($p=0.04$).
- Graft flow was significantly greater in the non-PCI than in the PCI group (53 ± 29 vs. 42 ± 27 ; $p=0.006$).
- Flow insufficiency and graft failure were significantly higher in the PCI than the no-PCI group (22.2%, vs. 8.2%; $p=0.003$; 9.2% vs. 1.8%; $p=0.003$, respectively).

CONCLUSION

Prior PCI has a negative impact on graft flow. The influences of small revascularized area, myocardial infarction, and PCI necessitate consideration of factors associated with flow demand or microvasculature when planning revascularization.

TRANSONIC OBSERVATION

This paper defines flow insufficiency was defined as ≤ 20 ml/min measured intraoperatively.

REFERENCES

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