

Graft Harvesting and Conduit Selection

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Preoperative preparation is essential for intraoperative planning (myocardial protection strategy and conduit selection)

- ✓ SBP difference of upper arms >20mmHg; significant subclavian stenosis -> free graft or alternate conduits
- ✓ varicosities or previous operation of lower vein
- ✓ postprandial pain → Imaging to determine disease in celiac-mesenteric axis; contraindicates gastroepiploic artery use, endoscopy, stomach cancer in Korea
- ✓ CKD for HD ->> free ITA graft, radial artery(x)
- ✓ Risk of sternal complication; severe obese, DM, COPD
- ✓ Radial artery; Raynaud syndrome, recent arterial puncture, Allen test
- ✓ Carotid bruit(+); TCD. MRA
- ✓ Previous TIA/stroke -> Atherosclerotic disease involving arch vessels -> carotid duplex examination and echocardiography; possible need for CT or MRI angiogram to elucidate disease extent
- ✓ Recent stroke(+) ->> delay 4 weeks
- ✓ Combined CABG and carotid endarterectomy -> controversial
- ✓ Bilateral ITA (x) ; emergency operation, insulin-dependent diabetes mellitus, obesity, and severe COPD for which the patient requires oral or intravenous glucocorticoid therapy
- ✓ Skeletonization; no impact long-term survival of graft patency, while decreasing sternal complications
- ✓ Free or pedicled ITA; little difference, short pedicled graft(x) -> free graft

- ✓ Unsatisfactory flow(< 20ml/min); spasm, small size, or intraoperative injury such as an intimal dissection -> free graft, end-to-end anastomosis, alternate graft
- ✓ Claudication -> Peripheral vascular disease -> Assess peripheral and central pulses; brachial-ankle index, echocardiography to assess ascending aortic calcification, high op risk(5 times), risk of IABP or VAD use
- ✓ Diabetes mellitus -> Poor wound healing; difficult glycemic control perioperatively -> Consider skeletonized harvesting
- ✓ Previous sternal irradiation -> Internal thoracic artery damage -> May contraindicate use of internal thoracic artery
- ✓ Lower extremity vein stripping -> Lack of greater saphenous vein -> Choose alternative conduits
- ✓ Previous abdominal laparotomy -> Possible contraindication to gastroepiploic artery use -> Choose alternative conduits
- ✓ Chronic steroid use -> Poor wound healing postoperatively; consider steroid withdrawal postoperatively; difficult glycemic control perioperatively -> May contraindicate use of bilateral internal thoracic artery use
- ✓ Clubbing -> Bronchiectasis; chronic pulmonary hypertension; lung malignancy Chest radiograph; echocardiography to determine cardiac anatomy

Preoperative medications

- ✓ Aspirin and cardiac medications -> continue
- ✓ Digoxin -> stop 1 day before
- ✓ Warfarin -> stop at least 5days and LMWH (INR <2.0)
- ✓ Clopidogrel -> stop at least 5 days, pt with DES within 1 yr ->continue
- ✓ ACEI ->s-Cr (>25% baseline) -> stop

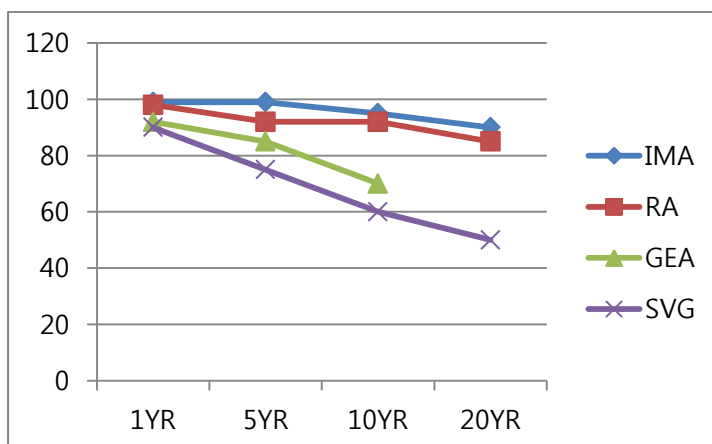
Harvest technique

- ✓ Internal mammary artery
- ✓ Radial artery
- ✓ Gastroepiploic artery
- ✓ Saphenous vein
- ✓ Other conduits

Strategy of grafting

- ✓ In situ grafting
- ✓ Composite arterial grafting
- ✓ Vein grafting
- ✓ Competition

Reported graft patency in CABG



Comparison of published guidelines

variable	ACCF/AHA 2011	ESC/EACTS 2014	STS 2015
IMA to LAD	I/B	I/B	I/B
IMA to 2 nd graft	IIa/B		IIa/B In appropriate patients
BITA			IIa/B No excessive risk of sternal complication
2 nd radial graft	IIb/ C >70% on left or >90% on right		IIa/B Severe stenosis
Total arterial grafting	IIc/C age<60	IIa/B Reasonable life expect. I/C poor vein	
ITA skeletonization		IIa/B all patients I/B DM or BITA use	IIa/B

References

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