American College of Cardiology 60th Annual Scientific Session & i2 Summit

Radial Artery and Saphenous Vein Patency More than Five Years Following CABG Surgery: Results from the Randomized Multicentre Radial Artery Patency Study (RAPS)

Study Sponsor: Sunnybrook Health Sciences Centre

Clinical Trial #: NCT00187356

Background

Aorta-to-coronary saphenous vein grafts (SVG) are the most widely used technique in coronary artery bypass grafting (CABG), but data from the Randomized Multicentre Radial Artery Patency Study (RAPS) show that radial artery grafts may have better long-term patency.

Primary Objective

The primary study objective was to compare the angiographic patency of radial-artery grafts with that of SVGs 8 to 12 months after surgery.

Study Design

- Randomized, multicenter
- Random assignment of grafts rather than patients (within patient randomization)
- Each patient received both a radial-artery graft and a SVG randomly allocated to two different coronary territories
- n=561
- Angiographic follow-up; n=440

Primary Endpoint

- Total occlusion at 1 year

1-Year Results

- Higher graft occlusion in SVGs than radial artery grafts (13.6% vs 8.2%; p=0.009; 40% relative risk reduction)
- More frequent diffuse narrowing of the graft in radial artery grafts (7.0% vs 0.9%; p=0.001)

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- In patients with patent grafts:
  - » Radial artery grafts had higher angiographic stenosis at the proximal anastomosis (21.4% vs 11.1%; p<0.001)
  - » Radial artery graft had less stenosis in the graft body (5.7 vs. 12.3%; p=0.003)
  - » No significant difference at distal anastomosis
  - » No significant difference in perfect graft patency (87.7% for radial vs 85.7% for saphenous)

5-Year Results

- Angiographic follow-up; n=269
- Less total graft occlusion in the radial artery group versus the SVG group (8.9% vs 17.8%; OR, 0.50; 95% CI, 0.32 to 0.80; p=0.004)
- Less functional graft occlusion in radial artery grafts versus SVGs (12.0% vs 18.8%; OR, 1.64; 95% CI, 0.41 to 0.98; p=0.05)
- More stenosis in the graft body with SVGs (15.2% vs 6.7%; p=0.02) which translated into a reduction in complete occlusion or stenosis in the radial grafts (33.8% vs 21.9%; OR, 0.58; 95% CI, 0.4 to 0.86; p=0.004)
- Clinical endpoints could not be compared between graft strategies because of the “within patient” randomization, but overall mortality was 1.4% at 1 year and perioperative myocardial infarction was similar between radial and SVG regions

Conclusions

Overall, the study showed reduced rates of functional and complete graft occlusion as well as less graft disease with the use of radial arteries rather than saphenous veins for CABG.

Further Reading

http://clinicaltrials.gov/ct2/show/NCT00187356?term=NCT00187356&rank=1