

A Revascularization Conundrum: Who Owns the Radial?

Landai Nguyen, D.O.^{a, b}, Bassam Omar, M.D., Ph.D.^a, Mustafa Awan, M.D.^a

Abstract

A patient-level combined analysis of randomized, controlled trials was released on May 31st 2018 in the New England Journal of Medicine (1), comparing radial artery grafts (RAG) to saphenous vein grafts (SVG) in patients who underwent coronary artery bypass grafting (CABG). Primary outcome included major adverse cardiac events (MACE) at follow up, including myocardial infarction (MI), repeat revascularization, and death.

Six trials were analyzed, consisting of 1305 patients; the mean follow up time was 60 ± 30 months. A total of 534 patients received RAG, and 502 patients received SVG.

Patient characteristics:

- Similar in terms of age, gender, diabetes prevalence, presence of LV dysfunction (EF < 35%) and renal insufficiency in both groups.
- The left circumflex artery was the target vessel in 75%, while the right coronary artery was the target vessel in 25% of the cases.
- *Occlusion at follow up: mean time of 50 ± 30 months:*
- 19 graft occlusion events per 1000 patient – year in RAG
- 46 graft occlusion events per 1000 patient – year in SVG

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a Division of Cardiology, University of South Alabama, Mobile, AL, USA

b Corresponding Author: Landai Nguyen, Division of Cardiology, University of South Alabama, 2451 USA Medical Center Dr., Mobile, AL 36617, USA.

Email: landai@health.southalabama.edu

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Results

- Lower incidence of death, MI, and repeat revascularization in the radial artery group (25 vs 39 events per 1000 patient – years) when compared to saphenous vein grafts.
- No significant difference in death from any cause (15 vs 17 events per 1000 patient-years).
- Improved MACE, in women, < 75 year old, and without renal insufficiency.
- Lower risk of RAG occlusion in women.

Conclusion

Arterial grafts have been shown to be superior to vein grafts in multiple observational studies, in terms of patency, at follow-up; it remains unclear, however, whether this impacts mortality. Greater than 90% of patients receive only one arterial graft at the time of CABG in the United States. More randomized trials are needed to assess for any mortality benefit of radial artery grafts over saphenous vein grafts.

Conundrum

Cardiac catheterizations and percutaneous coronary interventions (PCI) are increasingly performed using radial artery access to reduce vascular complications and hasten recovery. Patients are more often referred to CABG following multiple PCIs, many of which may have utilized one or both radial arteries. The suitability of a radial artery as a conduit in CABG following trans-radial catheterization has been called in question due to damage and hyperplasia leading to lower patency as a bypass graft (2). In this era of flourishing radial catheterizations we have to step back and ask: who owns the radial? Should interventionalists

give up the convenience of the trans-radial approach to allow surgeons to safely use the radial as a superior conduit? Further research is needed to identify ways to limit radial artery damage during trans-radial catheterization.

References

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