

# Presence of Atherosclerosis in Multiple Arterial Beds is Associated with Increased Mortality in Patients Undergoing Open Abdominal Aortic Aneurysm Repair

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## BACKGROUND

Peripheral artery disease (PAD), coronary artery disease (CAD) and carotid artery stenosis (CAS) are independently associated with increased mortality after abdominal aortic aneurysm (AAA) repair.

The effect of concomitant atherosclerotic disease across multiple arterial beds is not well defined. **This project aims to quantify the effect of systemic atherosclerosis on outcomes after open AAA repair (OAR).**

## METHODS

The **Vascular Quality Initiative** was queried from 2012-2022 for elective OAR. Patients were identified as having PAD, CAD or CAS and **stratified on the number of arterial beds involved** (1 through 3).

Primary outcomes included post-operative morbidity/mortality. Multivariate analysis was performed to find associations with the primary outcomes.

## RESULTS

- Of the 4013 patients included, mean age was 69.9. +/- 8.2 years and 76.8% were men
- 3353 had atherosclerosis in one arterial bed, 600 in two beds and 60 in three beds
- Patients with concomitant atherosclerotic disease in 3 arterial beds, versus 2 or 1 beds, were more likely to have hypertension and COPD and be prescribed a P2Y inhibitor
- Perioperative mortality and MI was increased in patients with atherosclerotic disease in 3 beds (18.3% vs 8.7% vs 5.3% p <.01; 11.7% vs 5.2% vs 3.7% p <.01 respectively).
- No difference in the 30-day reintervention rates.
- At follow-up (mean: 13 +/- 7.5 months), mortality more frequently observed in patients with involvement of 3 arterial beds (21.1% vs 13.9% vs 10.4% p <.01).
- On **multivariate analysis**, co-concomitant **atherosclerotic disease in two or more arterial beds was independently associated with higher perioperative mortality** (HR 2.3, 95% CI 1.1-4.7, p <.03) and **MI** (HR 2.24, 95% CI 1.2-4.9, p = .01).

## CONCLUSION

In this review of patients with systemic manifestations of atherosclerosis undergoing OAR, **coexisting disease in multiple arterial territories was associated with worse perioperative morbidity and mortality.** Given the **18% perioperative mortality rate** in patients with coronary, peripheral, and carotid artery disease, **appropriate patient selection is critical.**