

The Impact of Reintervention After Endovascular Repair of Infrarenal and Complex Abdominal Aortic Aneurysms on 5-year Mortality



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Introduction

- While reintervention following EVAR is thought to poorly impact long-term survival, studies evaluating complex endovascular AAA repair have revealed conflicting results
- One main limitation in previous studies evaluating these relationships derives from the use of reintervention as a fixed covariate

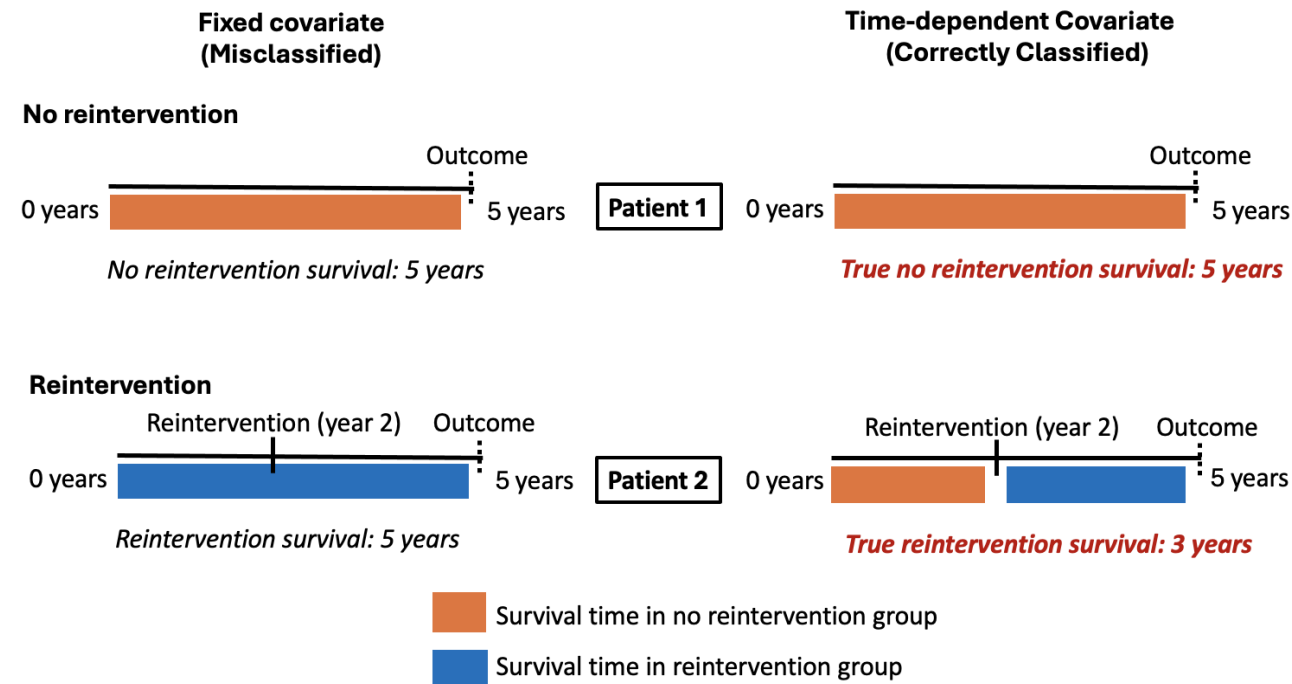
Objectives

- To examine the impact of reintervention on 5-year survival in patients undergoing EVAR and FEVAR, accounting for the time-varying occurrence of reintervention

Methods

- All patients undergoing elective endovascular repair for infrarenal and complex AAA between 2014-2022 in the VQI were included in this study, with Medicare linkage
- Primary Endpoints**
 - 5-year reintervention estimates for EVAR and FEVAR
 - Impact of reintervention as a time-dependent covariate on 5-year mortality using multivariable cox regression
 - Impact of timing of reintervention from index repair (<30 days, 30-365 days, >365 days) on 5-year mortality

Reintervention as a Time-Dependent Covariate



Results

- 26,499 EVARs and 1,251 FEVARs (23% physician modified, 77% commercial custom-made devices) were included in the study

- 5-year reintervention estimate for EVAR: **18%**

Association with 5-year Mortality	Hazard Ratio	P-value
Reintervention as Time-Dependent Covariate	1.90 (1.65-2.19)	<.001

- 5-year reintervention estimate for FEVAR: **48%**

Association with 5-year Mortality	Hazard Ratio	P-value
Reintervention as Time-Dependent Covariate	1.51 (1.08-2.13)	.017

Results

- Regardless of timing, reintervention after **EVAR** was associated with higher 5-year mortality
- Reintervention at 30-365 days and >365 days after **FEVAR** was associated with higher 5-year mortality

		Hazard Ratio	P
EVAR	Reintervention Timing		
	No reintervention	ref	
	≤ 30 days	1.61 (1.92–2.54)	<.001
	30-365 days	1.69 (2.18–4.15)	<.001
> 365 days	2.35 (1.91–2.88)	<.001	
FEVAR	Reintervention Timing		
	No reintervention	ref	
	≤ 30 days	0.56 (0.18–1.76)	0.32
	30-365 days	1.68 (1.06–2.68)	.03
> 365 days	1.84 (1.12–3.05)	.02	

Conclusions

- Using robust methods, we found that any reintervention following EVAR and FEVAR was associated with higher 5-year mortality, except reintervention within 30 days after FEVAR.
- Further studies should evaluate the impact of type and severity of reintervention on long-term survival following endovascular aortic repair.