

A Comprehensive Propensity Matched Analysis of Cerebral Infarction Following TEVAR with Left Subclavian Artery Coverage

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Introduction

- Due to an inadequate landing zone proximal to the LSA, 26% to 40% of patients undergoing TEVAR have their LSA covered
 - When LSA covered, revascularization is performed based on surgeon preference
- 3 major concerns with LSA coverage:
 - SCI
 - Cerebral Infarction
 - Arm ischemia
- Stroke rates up to 11% when LSA covered, although ranges differ significantly between studies
 - Perioperative 30-day stroke rates
 - MOTHER trial 1010 patients
 - Largest study 2594 patients

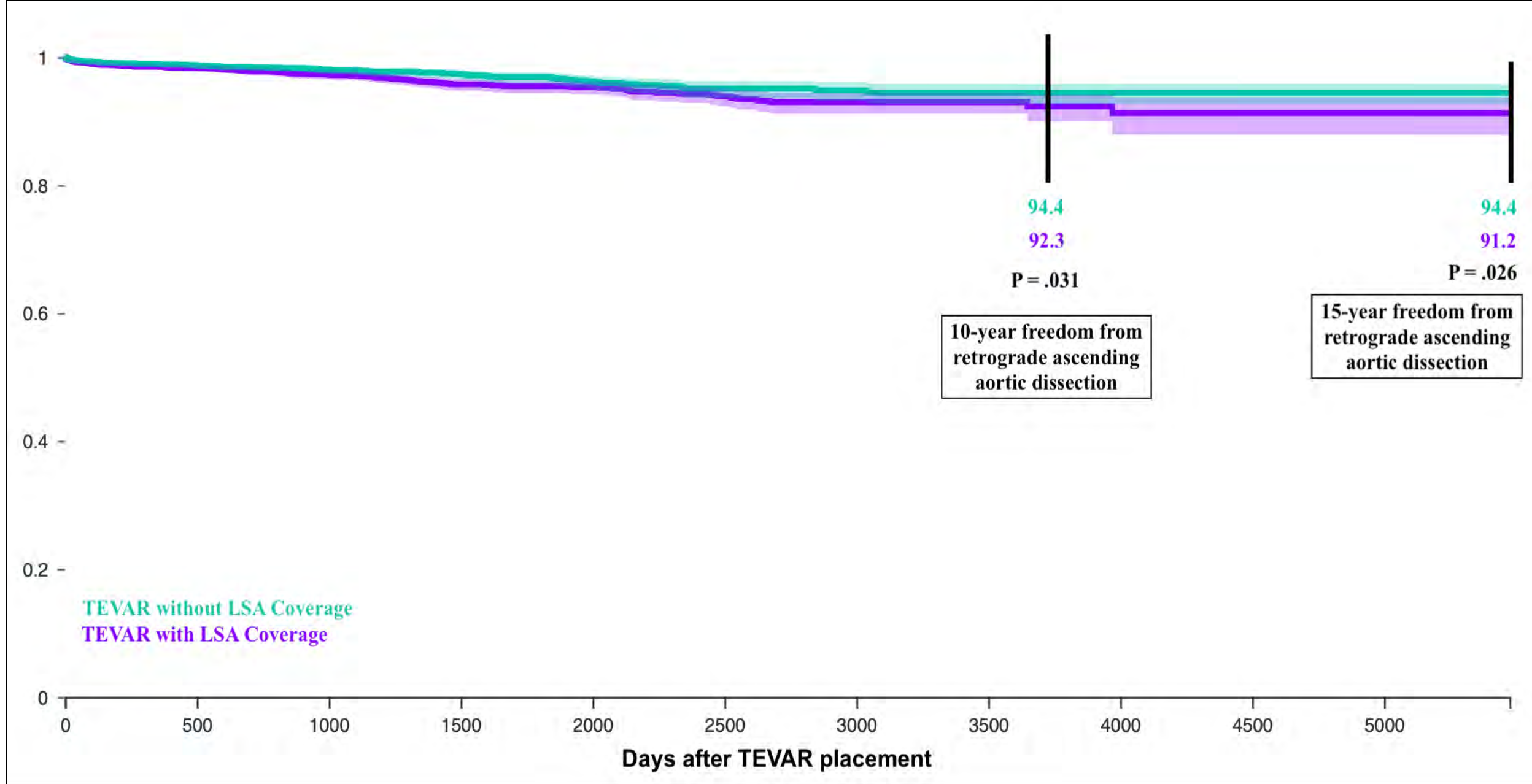
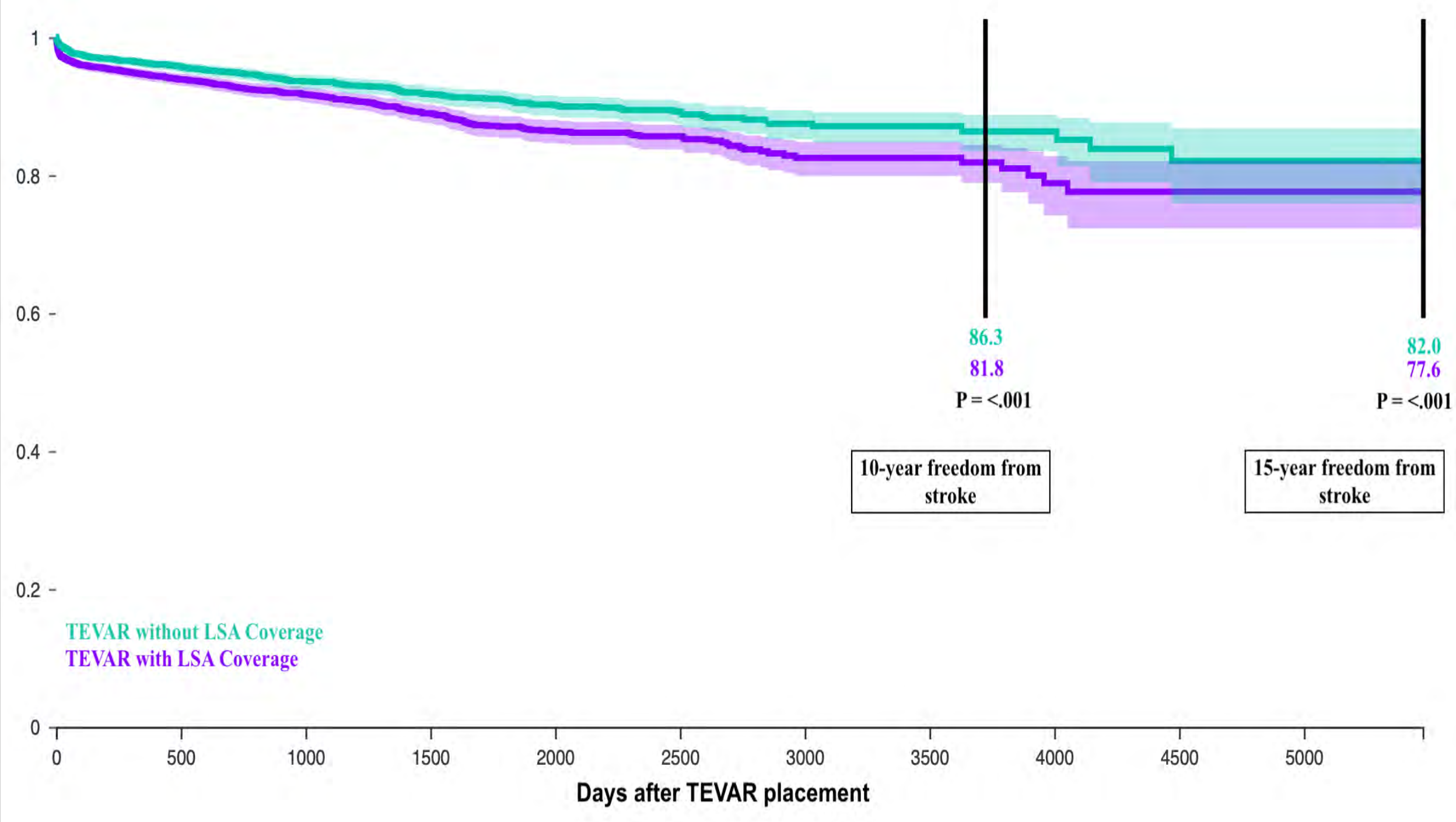
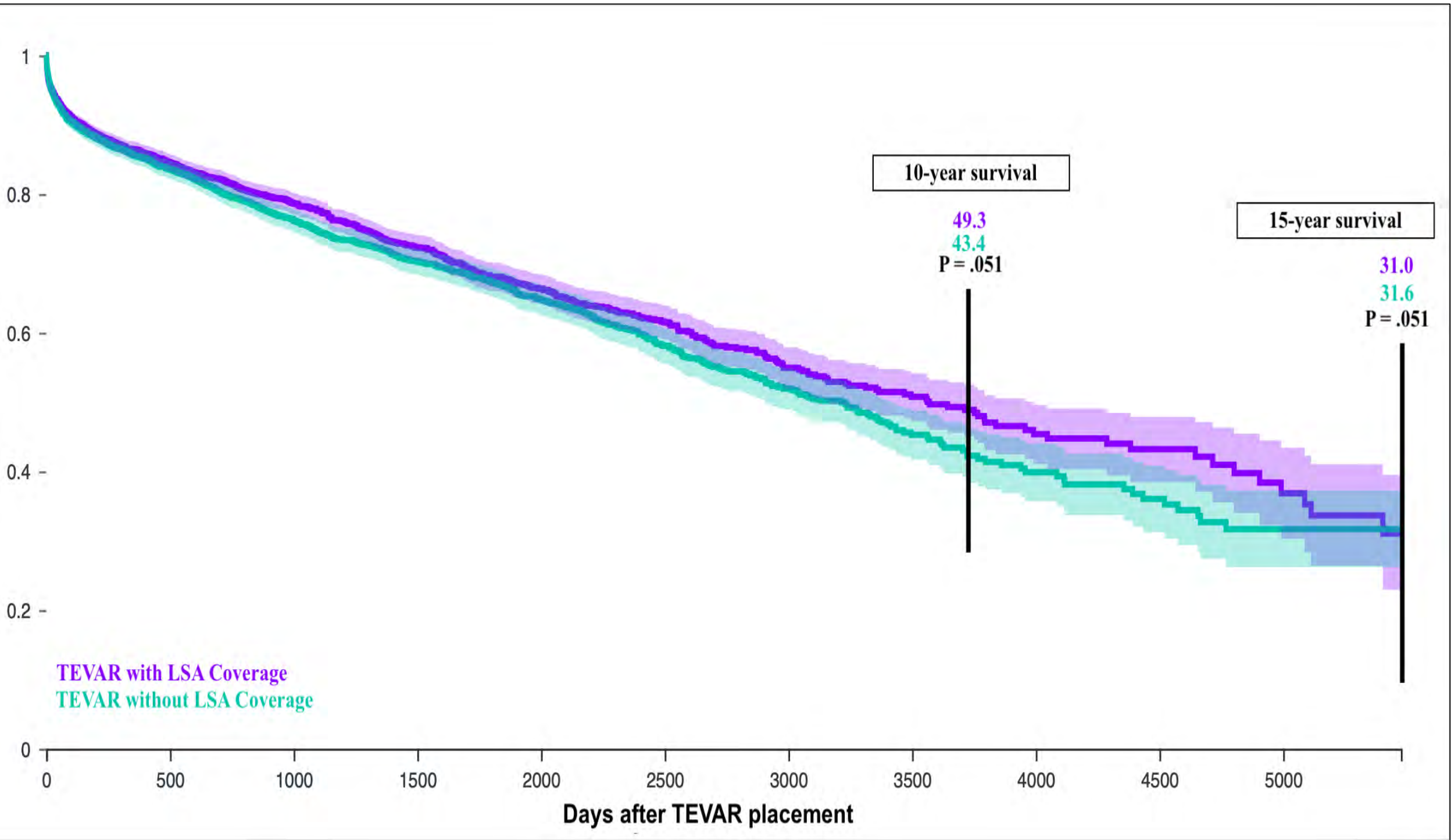
Methods

- TriNetX
 - 3,421 patients with LSA coverage
 - 4,587 patients without LSA coverage
- Decade-based analysis
 - First decade (2004-2014)
 - 544 Patients
 - Second decade (2015-2024)
 - 2,877 patients
- Propensity matched 3,254 patients for the original analysis, and 544 patients for decade-based analysis
 - All cause mortality
 - Cerebral infarction
 - Type of stroke (Ischemic vs. embolic)
 - Retrograde ascending aortic dissection

Type of Cerebral Infarction	TEVAR with LSA Coverage (n=3,254)	TEVAR without LSA Coverage (n=3,254)	OR	(95% CI)	P
7-days					
Overall	66 (2.0)	27 (0.8)	2.47	1.6-3.8	<.001
Ischemic Occlusive	25 (0.8)	<10 (0.3)	2.51	1.2-5.2	.011
Embolic	<10 (0.3)	<10 (0.3)	1.00	0.4-2.4	.990
3-months					
Overall	133 (4.1)	72 (2.2)	1.88	1.4-2.5	<.001
Ischemic Occlusive	50 (1.5)	39 (1.1)	1.39	0.9-2.1	.117
Embolic	24 (0.7)	12 (0.4)	2.01	1.0-4.0	.045
5-years					
Overall	277 (8.5)	193 (5.9)	1.48	1.2-1.8	<.001
Ischemic Occlusive	119 (3.6)	82 (2.5)	1.47	1.1-1.9	.008
Embolic	49 (1.5)	32 (0.9)	1.54	0.9-2.4	.057

Outcomes	TEVAR with LSA Coverage (n=3,254)	TEVAR without LSA Coverage (n=3,254)	OR	(95% CI)	P
30-days					
All-cause mortality	174 (5.3)	171 (5.2)	1.02	0.8-1.3	.868
Cerebral Infarction	100 (3.1)	42 (1.3)	2.42	1.7-3.5	<.001
Ascending dissection	18 (0.5)	16 (0.4)	1.12	0.6-2.2	.730
3-months					
All-cause mortality	266 (8.1)	272 (8.3)	0.97	0.8-1.2	.787
Cerebral Infarction	133 (4.1)	72 (2.2)	1.88	1.4-2.5	<.001
Ascending dissection	28 (0.8)	22 (0.6)	1.27	0.7-2.2	.394
6-months					
All-cause mortality	332 (10.2)	336 (10.3)	0.98	0.8-1.2	.870
Cerebral Infarction	146 (4.5)	88 (2.7)	1.69	1.3-2.2	<.001
Ascending dissection	36 (1.1)	27 (0.8)	1.33	0.8-2.2	.254

Outcomes	TEVAR with LSA Coverage (n=3,254)	TEVAR without LSA Coverage (n=3,254)	OR	(95% CI)	P
1-year					
All-cause mortality	400 (12.3)	422 (12.9)	0.94	0.8-1.1	.411
Cerebral Infarction	171 (5.3)	109 (3.3)	1.60	1.2-2.1	<.001
Ascending dissection	43 (1.3)	28 (0.8)	1.54	0.9-2.5	.073
3-years					
All-cause mortality	571 (17.5)	590 (18.1)	0.96	0.8-1.1	.538
Cerebral Infarction	231 (7.1)	162 (5.0)	1.46	1.2-1.8	<.001
Ascending dissection	64 (1.9)	42 (1.3)	1.53	1.0-2.3	.031
5-years					
All-cause mortality	693 (21.3)	695 (21.3)	0.99	0.8-1.1	.951
Cerebral Infarction	277 (8.5)	193 (5.9)	1.47	1.2-1.8	<.001
Ascending dissection	80 (2.5)	51 (1.6)	1.58	1.1-2.3	.010



Take Home Message:

Cerebral Infarction

Rates of cerebral infarction remain elevated up to 15 years when LSA covered

(**Δ4.5%**)

Retrograde Ascending Aortic Dissection

When covering the LSA, risk of retrograde ascending aortic dissection increased after 3 years and persisted up to 15 (**Δ3.2%**)

Type of Cerebral Infarction

Both ischemic occlusive and embolic in nature, while early term being mostly ischemic and embolic while late term mostly ischemic

