

THE IMPACT OF GENDER ON 30-DAY AND 5-YEAR OUTCOMES POST ELECTIVE ENDOVASCULAR REPAIR OF ABDOMINAL AORTIC ANEURYSM.

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Objective: Several studies report worse outcomes in women compared with men after endovascular aneurysm repair (EVAR). This study aimed to evaluate gender-specific early and 5-year outcomes after EVAR.

Methods: A total of 409 consecutive patients underwent elective EVAR from 2004 to 2017 at two hospitals in Western Australia. Baseline, intraoperative, and postoperative variables were examined retrospectively according to gender.

Results: Of the 409 patients 57 (14%) were women and 352 (86%) men. Females were older (median age, 76.8 vs 73.5 years; $p = 0.017$). Men were more likely to be past smokers (40.9% vs. 22.8%, $p = 0.005$), have a history of CABG (11.2% vs. 3.5%, $p = 0.042$) and malignancy (23.9% vs. 10.7%) than women. No difference in 30-day mortality or composite end-points was demonstrated for women compared with men (3.5% vs. 0.3%; $p = 0.052$ and 31.6% vs. 27.8%; $p = 0.562$ respectively). The Kaplan-Meier curves demonstrated similar outcomes for long-term survival amongst men and women ($p = 0.928$). Survival analyses adjusting for covariates demonstrated a nonsignificant difference in long-term mortality, composite end-points and reintervention rate between genders.

Characteristic	Women (57)	Men (352)	P value
Age, years	76.8 ± 9.5	73.5 ± 9.8	0.017
BMI > 30	9 (15.8%)	94 (26.7%)	0.066
Ethnicity			0.243
Caucasian	52 (92.8%)	347 (98.6%)	
Asian	-	4 (1.1%)	
African	-	-	
Maori	-	-	
ATSI	4 (7.1%)	-	
Others	-	1 (0.3%)	
Comorbidities			
Smoking			
Current	24 (42.11%)	146 (41.5%)	0.929
Former	13 (22.8%)	143 (40.9%)	0.005
Hypertension	41 (71.9%)	269 (76.6%)	0.447
Hyperlipidaemia	28 (50%)	177 (52.4%)	0.743
Diabetes	12 (21.0%)	84 (23.9%)	0.639
Cardiac	34 (59.6%)	177 (50.3%)	0.188
Angina	10 (17.5%)	60 (17.0%)	0.926
Arrhythmia	8 (14.0%)	62 (17.6%)	0.496
CABG	2 (3.5%)	40 (11.2%)	0.042
CAS	3 (5.3%)	24 (6.8%)	0.652
CHF	2 (3.5%)	27 (7.7%)	0.215
MI	7 (12.5%)	53 (15.2%)	0.592
Renal	5 (8.8%)	57 (16.2%)	0.124
Carotid			
CVA	7 (12.3%)	35 (10.0%)	0.598
TIA	5 (8.8%)	28 (7.9%)	0.835
PVD	13 (22.8%)	94 (26.7%)	0.529
COPD	14 (24.6%)	98 (27.8%)	0.603
History of Cancer	6 (10.5%)	85 (24.1%)	0.014
ASA Classification			0.445
Class I	1	3	
Class II	12	75	
Class III	38	209	
Class IV	6	64	

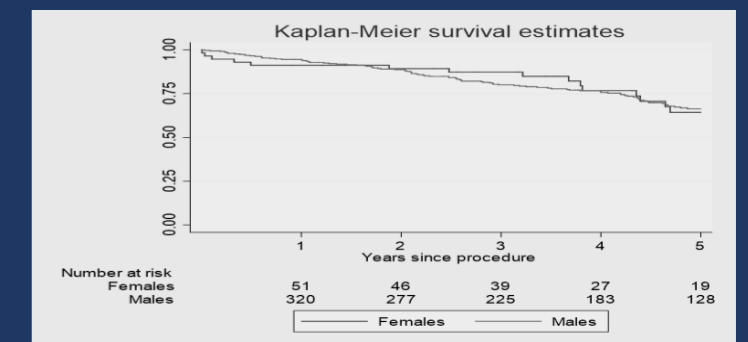
Characteristics	Women	Men	P Value
Size of Aneurysm (mm)	56.3 ± 9.9	59.7 ± 13.3	0.082
Length of Infrarenal neck (mm)	29.3 ± 8.8	32.3 ± 13.1	0.191
Proximal Neck Diameter (mm)	24.0 ± 3.2	24.1 ± 2.8	0.799
Distal Neck Diameter (mm)	27.3 ± 2.7	26.7 ± 2.9	0.112
Neck Angulation (°)	14.0 ± 15.7	20.2 ± 20.4	0.041
Neck Angulation > 60 °	2 (3.5%)	35 (9.9%)	0.081
Neck Flaring > 1mm	27 (47.4%)	140 (39.8%)	0.282
Neck Thrombosis			0.566
None	36 (63.2%)	215 (61.0%)	
Mild	14 (24.6%)	109 (31.0%)	
Moderate	6 (10.5%)	26 (7.4%)	
Severe	1 (1.7%)	2 (0.6%)	
Length of Infrarenal Aorta (mm)	117.9 ± 10.8	121.6 ± 13.9	0.289
Right CIA Length (mm)	59.8 ± 11.3	61.9 ± 12.8	0.237
Distal Right CIA Diameter (mm)	14.5 ± 6.6	15.3 ± 7.5	0.259
Right EIA Diameter (mm)	9.3 ± 1.3	9.6 ± 1.4	0.113
Right Iliac Tortuosity			0.423
None	35 (61.4%)	183 (52.0%)	
Mild	7 (12.3%)	61 (17.3%)	
Moderate	12 (21.0%)	74 (21.0%)	
Severe	3 (5.3%)	34 (9.7%)	
Left CIA Length (mm)	56.7 ± 10.7	57.1 ± 8.8	0.139
Distal Left CIA Diameter (mm)	13.6 ± 2.6	13.8 ± 2.9	0.456
Left EIA Diameter (mm)	9.6 ± 1.5	9.8 ± 1.4	0.285
Left Iliac Tortuosity			0.650
None	29 (50.9%)	156 (44.3%)	
Mild	14 (24.6%)	104 (29.5%)	
Moderate	12 (21.0%)	70 (19.9%)	
Severe	2 (3.5%)	22 (6.2%)	
Neck Calcification			0.459
None	43 (75.4%)	278 (79.0%)	
Mild to Moderate	12 (21.05%)	70 (19.9%)	
Severe	2 (3.5%)	4 (1.1%)	
Patent Lumbar Vessels	51 (89.5%)	292 (82.9%)	0.193
Patent IMA	49 (86.0%)	286 (81.2%)	0.378
Patent Left Iliac	51 (89.5%)	333 (94.6%)	0.164
Patent Right Iliac	53 (93.0%)	326 (92.6%)	0.921

	Univariate			Multivariate		
	OR	95% CI	p-value	OR	95% CI	p-value
Sex	1.03	0.54 - 1.96	0.97	1.12	0.44 - 2.94	0.81
Age				1.09	1.05 - 1.11	0.00
ASA physical status ≥ 3				0.63	0.28 - 1.39	0.26
Comorbidities						
Smoking				1.15	0.62 - 2.37	0.67
Hypertension				1.27	0.63 - 2.54	0.50
Angina				0.85	0.27 - 2.20	0.75
Arrhythmia				1.44	0.50 - 3.15	0.39
Coronary Artery Disease				1.12	0.54 - 2.35	0.75
Coronary Artery Bypass Graft				1.48	0.37 - 4.33	0.50
Myocardial Infarction				0.99	0.31 - 2.34	0.98
Chronic Heart Failure				3.23	0.87 - 10.97	0.09
Transient Ischaemic Attack				1.35	0.32 - 4.54	0.65
Cerebrovascular Accident				0.85	0.24 - 2.41	0.79
Carotid Artery Stenting				1.52	0.33 - 5.23	0.52
Diabetes Mellitus				1.68	0.75 - 3.40	0.16
Hyperlipidaemia				0.81	0.47 - 1.60	0.49
Peripheral Vascular Disease				1.09	0.56 - 2.49	0.82
Chronic Kidney Disease				0.76	0.25 - 1.87	0.56
COPD				1.36	0.67 - 2.59	0.38
Obesity				0.34	0.16 - 1.1	0.38
AAA Characteristics						
Maximum AAA diameter (mm)				1.01	0.98 - 1.03	0.49
Distal Neck Diameter (mm)				0.94	0.81 - 1.09	0.42
Proximal Neck Diameter (mm)				1.08	0.93 - 1.28	0.36
Length of Infrarenal neck (mm)				1.01	0.98 - 1.03	0.49

	Women	Men	
Type of Anaesthesia			0.725
Local/Regional	16 (28.1%)	91 (25.9%)	
General	41 (71.9%)	261 (74.1%)	
Length of Stay (days)	8.43 ± 7.7	7.24 ± 12.02	0.279
Length of ICU Stay (days)	1.61 ± 1.1	1.58 ± 1.8	0.896
Intraoperative			
Successful Deployment	56 (98.2%)	346 (98.6%)	0.597
Death	-	-	
Rupture	-	5 (1.4%)	1.000
Conversion to Open	1 (1.8%)	4 (1.1%)	0.530
Endoleak			
Type I	-	3 (0.85%)	1.000
Type II	4 (7.0%)	38 (10.8%)	0.362
Type III	-	2 (0.6%)	1.000
Type IV	-	1 (0.3%)	1.000

30-day Mortality			
All Cause	2 (3.5%)	1 (0.3%)	0.052
30-day Composite Outcome			
Complications & Mortality	18 (31.6%)	98 (27.8%)	0.562

Long Term Outcomes at 5 years			
All-Cause Mortality	15 (26.8%)	95 (27.5%)	0.907
Freedom from Reintervention	35 (87.5%)	222 (88.8%)	0.812
MAE Rate	20 (35.7%)	123 (35.5%)	0.981
Residual Aneurysm Size	51.2 ± 17.2	53.2 ± 16.4	1.000



Conclusions: Women undergoing EVAR have comparable outcomes to men, implying that EVAR remains the treatment of choice for female patients.