Endovascular Abdominal Aortic Aneurysm Repair is Not Associated with Worse Outcomes in Octogenarians

Angelina Kim, MD, Charles Zhang, MD, Nakia Sarad, DO, Rajeev Dayal, MD, Andy Lee, MD, Varuna Sundaram, MD, Jing Li, MD.

Background

- Endovascular abdominal aortic aneurysm repair (EVAR) is now increasingly offered to older patients and patients with more co-morbidities
- Current literature shows mixed results for octogenarians undergoing EVAR
- Only a few long-term outcome studies

Objective

- To compare the outcomes of octogenarians and non-octogenarians undergoing a standard infrarenal EVAR at our single institution

Methods

- Retrospective study of patients who underwent EVAR between January 2016 and October 2022
- Patient demographics, aorta size, operative indication, postoperative outcomes, and re-intervention rates were collected and compared
- Follow up data until September 2023 was collected

Results

Table 1. Demographics of Octogenarian and Non-Octogenarian Groups

Demographics	Non-Octogenarian (N=57)	Octogenarian (N=18)	p-value
Age, mean (SD)	70.94 (6.53)	86.10 (3.64)	**<0.01**
Male Sex	44 (77%)	14 (78%)	0.99
Race			0.41
White	25 (44%)	9 (50%)	
Black or African American	13 (23%)	1 (6%)	
Asian	13 (23%)	6 (33%)	
Unknown	6 (11%)	2 (11%)	
Hispanic Ethnicity	7 (12%)	1 (6%)	0.42
Hypertension	43 (75%)	16 (89%)	0.22
Diabetes Mellitus	14 (25%)	2 (11%)	0.22
Current Smoker	24 (42%)	2 (11%)	**0.02**
COPD	3 (5%)	1 (6%)	0.96
Heart Failure	0 (0%)	0 (0%)	n/a
BMI, mean (SD)	27.13 (5.14)	27.29 (6.12)	0.46
ASA Classification			0.11
ASA 2	2 (4%)	0 (0%)	
ASA 3	38 (67%)	7 (39%)	
ASA 4	16 (28%)	10 (56%)	
ASA 5	1 (2%)	1 (6%)	
Functional Status			0.66
Independent	52 (91%)	17 (94%)	
Other	5 (9%)	1 (6%)	

Table 2. Clinical Characteristics of Octogenarian and Non-Octogenarian Groups

Clinical Characteristics	Non-Octogenarian (N=57)	Octogenarian (N=18)	p-value
Size of AAA, cm (SD)	5.83 (0.98)	6.06 (1.07)	0.22
Operative Indication			**0.006**
Asymptomatic AAA	47 (82%)	12 (67%)	
Symptomatic AAA	1 (2%)	2 (11%)	
Ruptured AAA	4 (7%)	1 (6%)	
Endoleak	0 (0%)	3 (17%)	
Operative Time, min (SD)	160.70 (57.26)	209.06 (93.14)	**0.04**
Emergency Case	4 (7%)	3 (17%)	0.22
General Anesthesia	51(89%)	16 (89%)	0.94
Type II Endoleak at End of Case	36 (63%)	13 (72%)	0.48
Length of Stay, days (SD)	3.79 (5.99)	3.61 (3.97)	0.44
Discharge Destination			**0.004**
Home	53 (93%)	12 (67%)	
Skilled Facility	4 (7%)	6 (33%)	

Table 3. Comparison of 30-Day Outcomes between Octogenarians and Non-Octogenarians

30-Day Outcomes	Non-Octogenarian (N=57)	Octogenarian (N=18)	p-value
Mortality	1 (2%)	2 (11%)	0.08
Myocardial infarction	0 (0%)	0 (0%)	n/a
Stroke	1 (2%)	0 (0%)	0.57
Postoperative Dialysis	1 (2%)	0 (0%)	0.57
Surgical Site Infection	0 (0%)	0 (0%)	n/a
Urinary Tract Infection	1 (2%)	0 (0%)	0.57
Pneumonia	0 (0%)	0 (0%)	n/a
Pulmonary Embolism	0 (0%)	0 (0%)	n/a
Unplanned Intubation	1 (2%)	2 (11%)	0.08
Readmission	2 (4%)	1 (6%)	0.70
Any Complication	14 (25%)	7 (39%)	0.06

Follow Up Results

	Non-Octogenarian (N=57)	Octogenarian (N=18)	p-value
Reintervention for Type II Endoleak	10 (18%)	2 (11%)	0.52
Mean Time to Intervention, years	3.60	3.25	0.31

- All patients in the octogenarian group, who lived beyond the 30-day period, lived for more than two years after their procedure, except for one

Conclusion and Limitations

- No significant differences in 30-day outcomes
- Though we recognize the inherent biases of our data, age alone does not appear to be a prognostic factor of outcomes in EVARs
- Limitations include small sample size, single institution study, and a relatively short follow up period
- Future studies should be done to address these limitations and to determine what other factors should preclude physicians from offering repair in an older patient population.