Optimal Medical Therapy Is Associated with a 50% Failure Rate within 5 years of the Diagnosis of Acute Uncomplicated Type B Aortic Dissection

Lauren V. Huckaby, MD, MS; Alexander P. Nissen, MD; Kristina A. Porte; Bradley G. Leshnower, MD

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Management of Acute Type B Aortic Dissection

- The optimal therapy for acute uncomplicated type B aortic dissection (AUTBAD) has yet to be determined
- Over the past decade, TEVAR has challenged the use of optimal medical therapy (OMT)
- We sought to identify predictors of failure of OMT from the initial imaging scan

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Methods

- Prospective database of patients with acute uncomplicated type B aortic dissection undergoing OMT

- Single academic institution, 2000-2023

- Outcomes
  - Continued OMT
  - Failure of OMT (including need for aortic intervention or death from any cause)
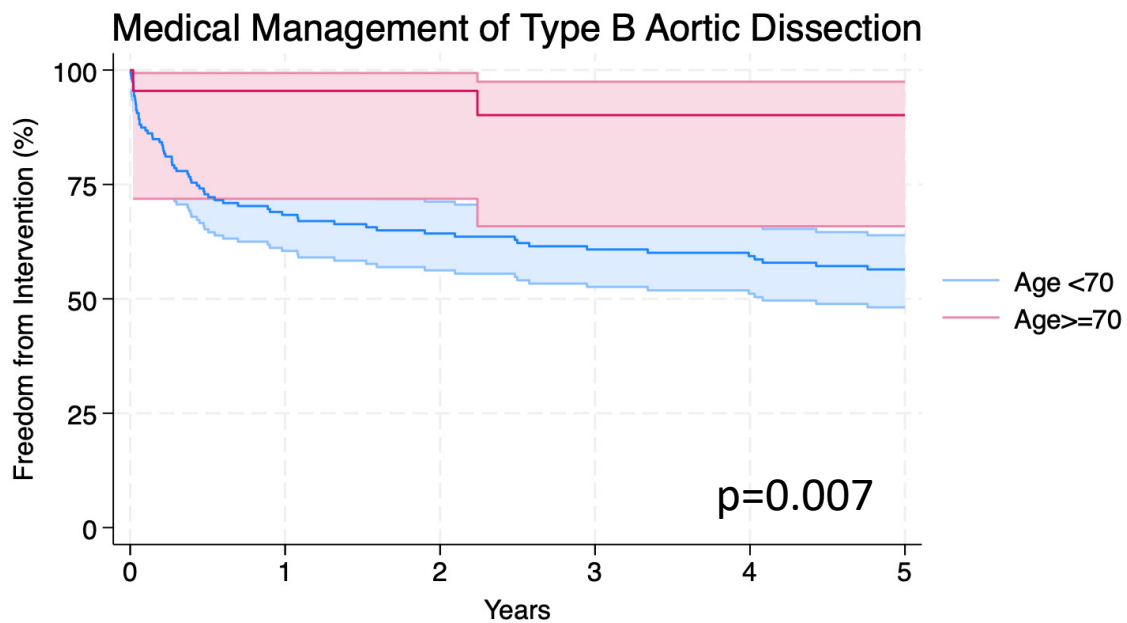
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Baseline Characteristics

	All Patients N=217	Continued OMT N=112	Failure of OMT N=105	P-value
Age (years) – mean (SD)	56.6 (11.9)	56.6 (2.0)	56.7 (11.9)	0.939
Male sex – no. (%)	141 (65.0)	71 (63.4)	70 (66.7)	0.613
Race – no. (%)				0.551
- White	65 (30.4)	33 (29.5)	32 (31.4)	
- Black	147 (68.7)	78 (69.6)	69 (67.7)	
- Asian	1 (0.5)	1 (0.9)	0	
- Native American	0	0	0	
- Hawaiian or Pacific Islander	0	0	0	
- More than one race	1 (0.5)	0	1 (1.0)	
Connective tissue disease – no. (%)	7 (3.2)	3 (2.7)	4 (3.8)	0.637
Hypertension – no. (%)	204 (94.0)	104 (92.9)	100 (95.2)	0.460
Congestive heart failure – no. (%)	23 (10.6)	14 (12.5)	9 (8.6)	0.347
Myocardial infarction – no. (%)	10 (4.6)	3 (2.7)	7 (6.7)	0.161
Cerebrovascular accident – no. (%)	17 (7.8)	10 (8.9)	7 (6.7)	0.535
Family history – no. (%)	8 (3.7)	3 (2.7)	5 (4.8)	0.423
Cocaine use – no. (%)	13 (6.2)	6 (5.6)	7 (6.9)	0.694

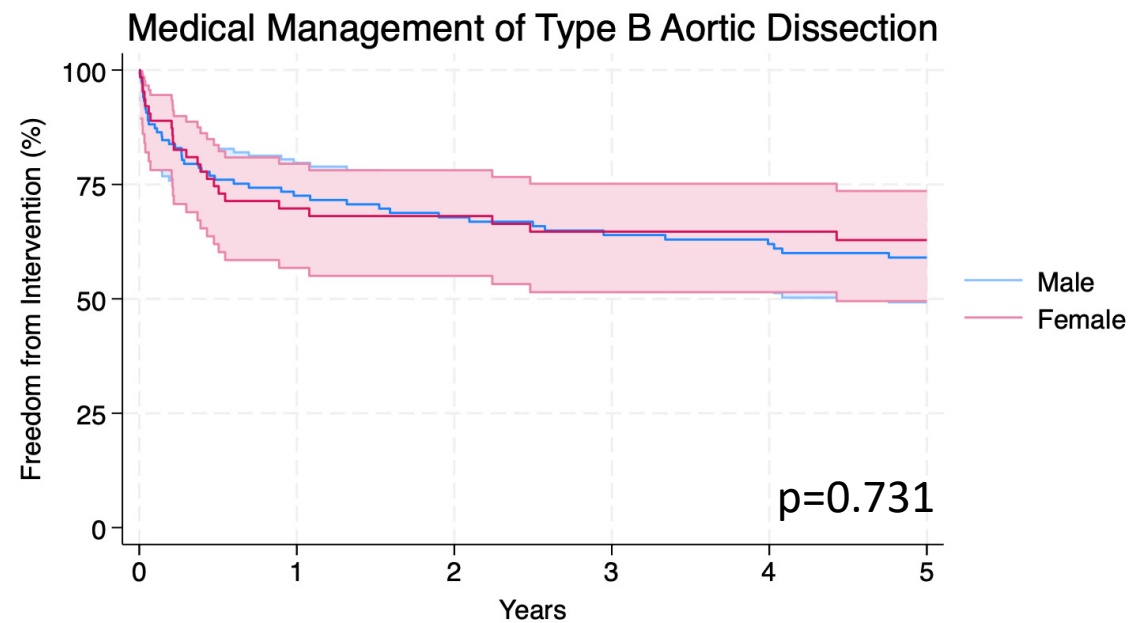**Patients who continued with medical management were similar in demographics to those who failed OMT**

Outcomes by Age and Sex

Medical Management of Type B Aortic Dissection (Age <70 vs Age>=70), p=0.007

Number at risk
	0	1	2	3	4	5
Age<70	160	106	93	87	82	76
Age>=70	22	20	18	17	17	17

Medical Management of Type B Aortic Dissection (Male vs Female), p=0.731

Number at risk
	0	1	2	3	4	5
Male	118	83	71	66	63	59
Female	64	43	40	38	36	34

Age <70 years was associated with failure of OMT

Sex was _not_ associated with failure of OMT

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Aortic Diameter
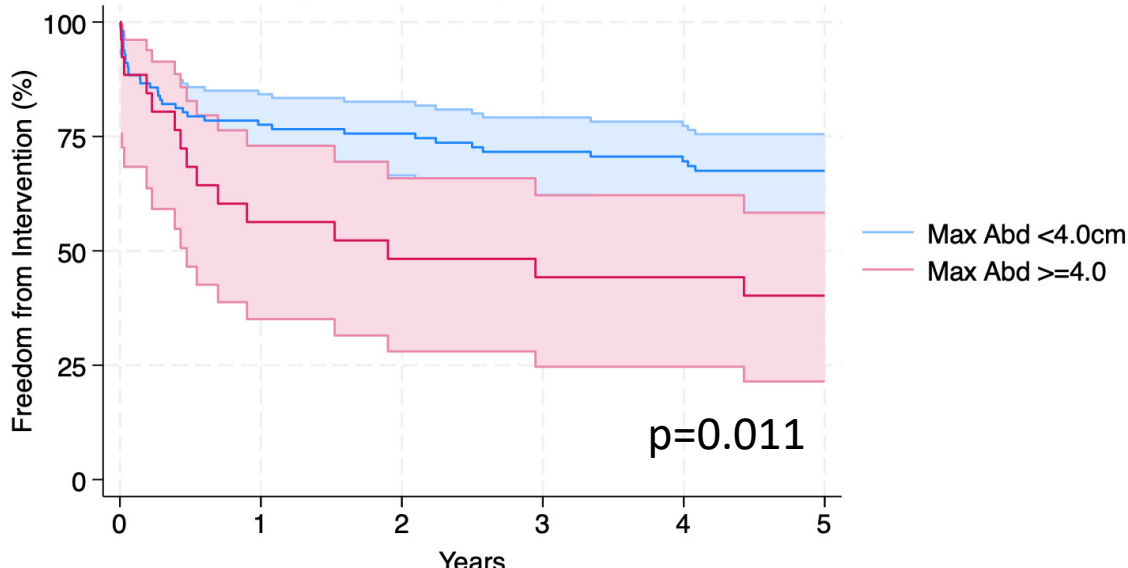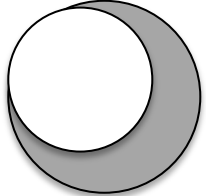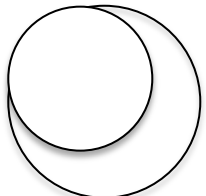
In a multivariable model, only abdominal aortic size (OR 2.24) was predictive of failure of OMT (p=0.022)

False Lumen Status

False Lumen Status on Initial Scan

	Continued OMT	Failure of OMT
Complete Thrombosis	3.7%	2.9%
Partial Thrombosis	45.8%	41.2%
Patent	50.5%	55.9%

False lumen status on the initial scan was not predictive of failure of OMT

Branch Vessels Arising from False Lumen

	Continued OMT	Failure of OMT
Celiac	13.2%	14.4%
SMA	2.9%	6.0%
Renals	50.9%	53.5%
IMA	15.3%	24.2%
Iliacs	42.1%	41.9%

There were no differences in outcomes based on whether branch vessels arose from the true or false lumen

The number of branch vessels arising from the false lumen was also not predictive of failure of OMT

Failure of OMT

**Freedom from Aortic Intervention or Death
In Medical Management of Acute Uncomplicated
Type B Aortic Dissection**

1 year	69.1%
5 years	50.5%

Number at risk

| 216 | 145 | 125 | 111 | 103 | 94 |
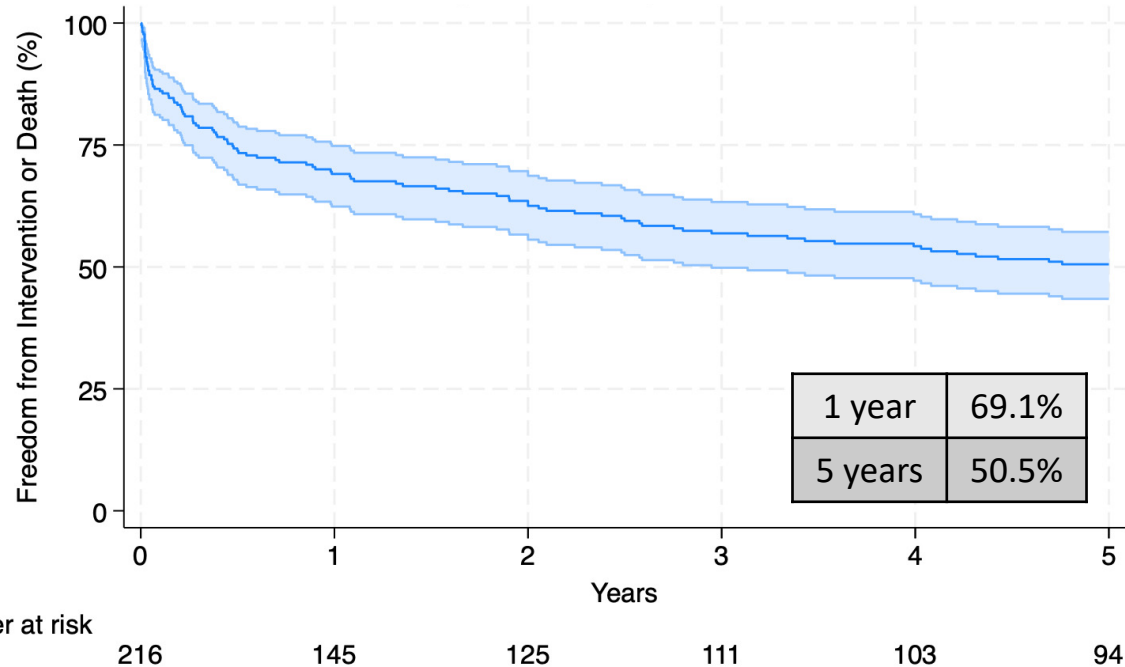
**Freedom from Aortic Intervention
In Medical Management of Acute Uncomplicated
Type B Aortic Dissection**

1 year	71.6%
5 years	60.4%

Number at risk

| 182 | 126 | 111 | 104 | 99 | 93 |
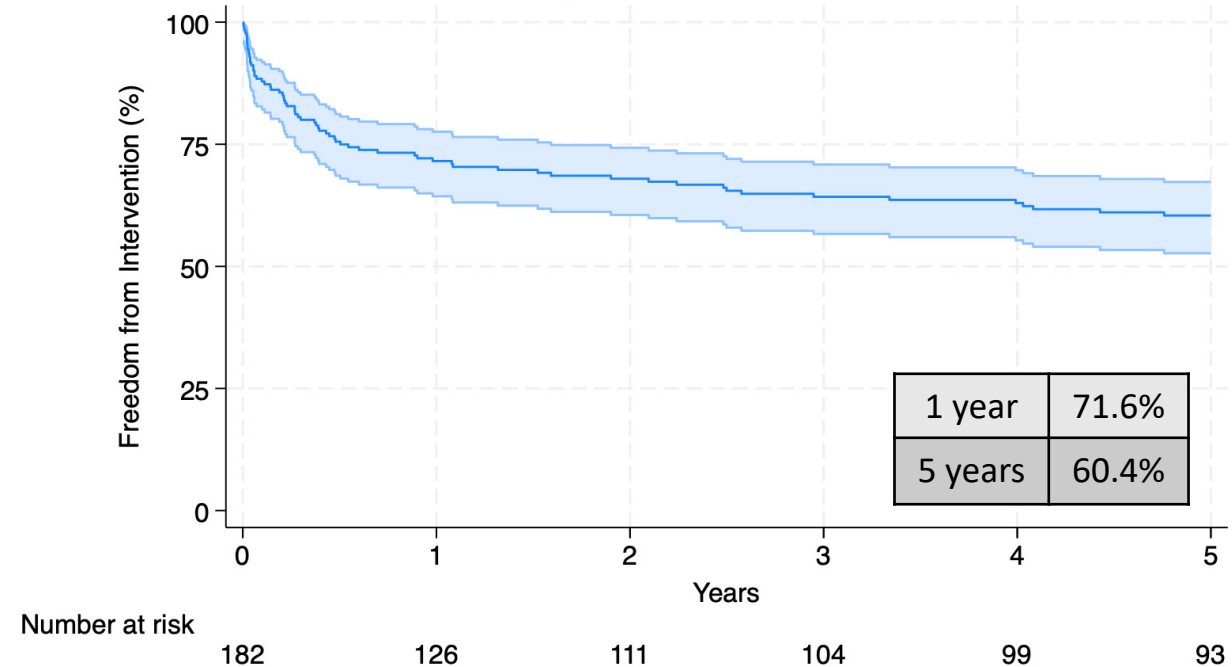
OMT was associated with a <u>50% failure rate</u> at 5 years

Conclusions and Future Directions

- Medical management of acute uncomplicated type B aortic dissection is associated with a <u>failure rate of 50% at 5 years</u>

- Novel biomechanical and flow analyses will provide additional information to predict who will fail OMT

- Randomized trials between OMT and TEVAR are necessary to determine optimal therapy

Thank you

Lauren.Victoria.Huckaby@emory.edu