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# Severe Asymptomatic Aortic Stenosis

## *The Clinician's Perspective*

**Robert O. Bonow, MD, MS**

Northwestern University Feinberg School of Medicine  
Bluhm Cardiovascular Institute  
Northwestern Memorial Hospital

No Relationships to Disclose



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# Severe Asymptomatic Aortic Stenosis

## *The Clinician's Perspective*

Are asymptomatic patients with  
severe AS *really* asymptomatic?



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## Severe Aortic Stenosis

Indications for valve replacement

*Exercise test:*

Symptoms

Hypotension

class I

class IIa

class I

class IIa



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## Severe Aortic Stenosis

Indications for valve replacement

*Exercise test:*

Symptoms

Hypotension



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class I

class IIa



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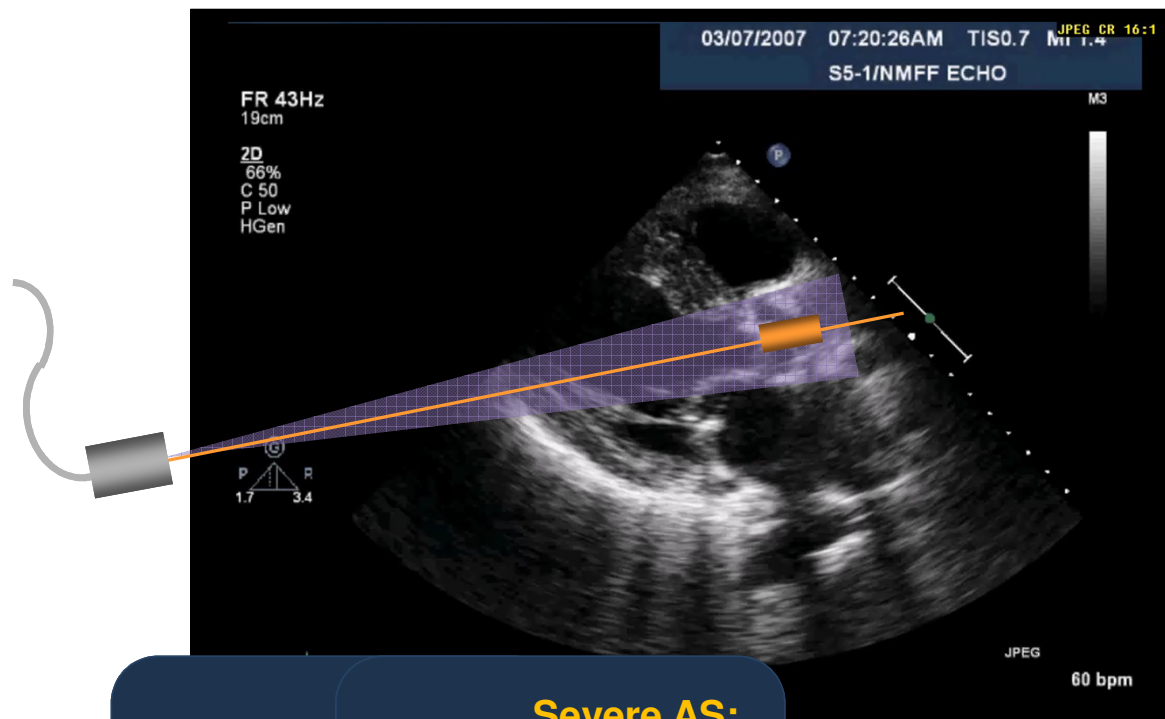
class I

class IIa

Should **asymptomatic** patients  
with severe AS undergo AVR?  
...when they are **really** asymptomatic?



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Vmax: 4.6 m/s  
Mean  $\Delta$ : 52 mmHg  
AVA: 0.7 sq cm

**Severe AS:**  
**>4.0 m/s**  
**>40 mmHg**  
**<1.0 sq cm**

# Aortic Stenosis

## *84 year old man with severe AS*

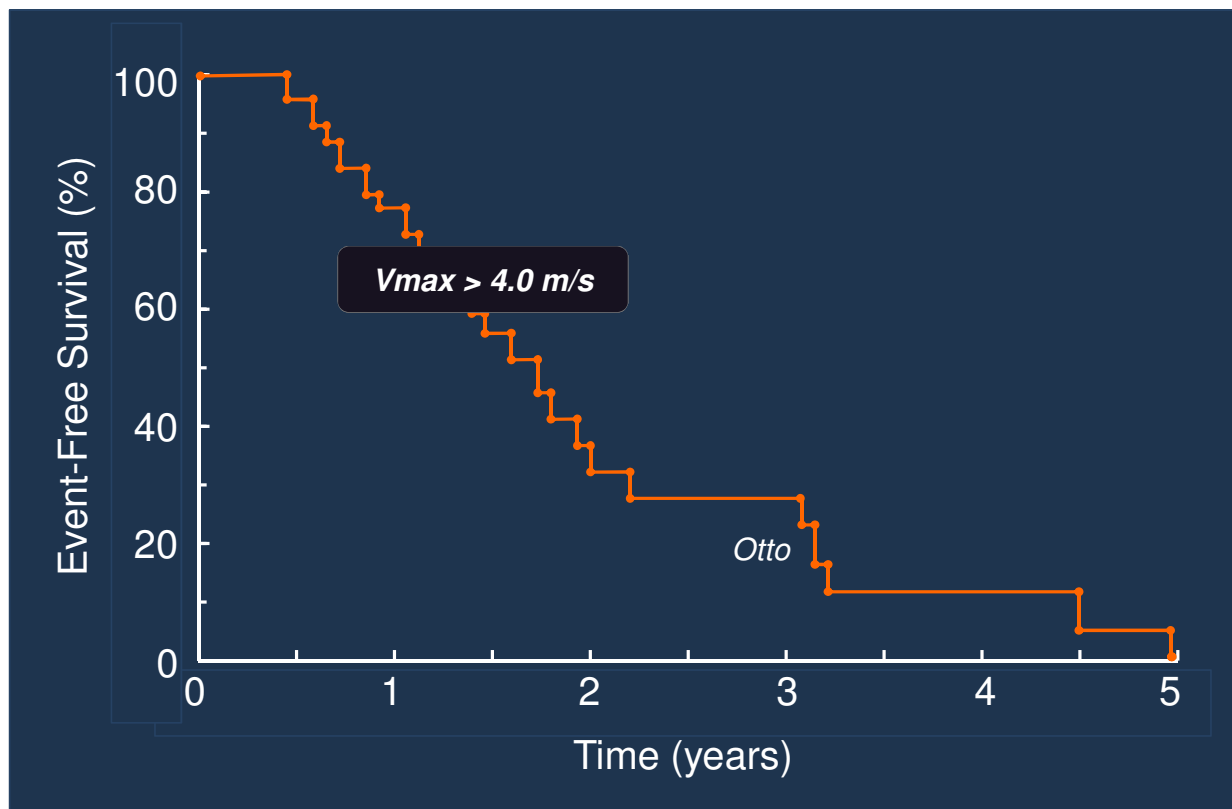
- Watchful waiting? \*
- More data (more testing)?
- Aortic valve replacement?

\* Wait until he develops symptoms in 5-6 years and then recommend TAVR?



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## Natural History of Severe Asymptomatic AS

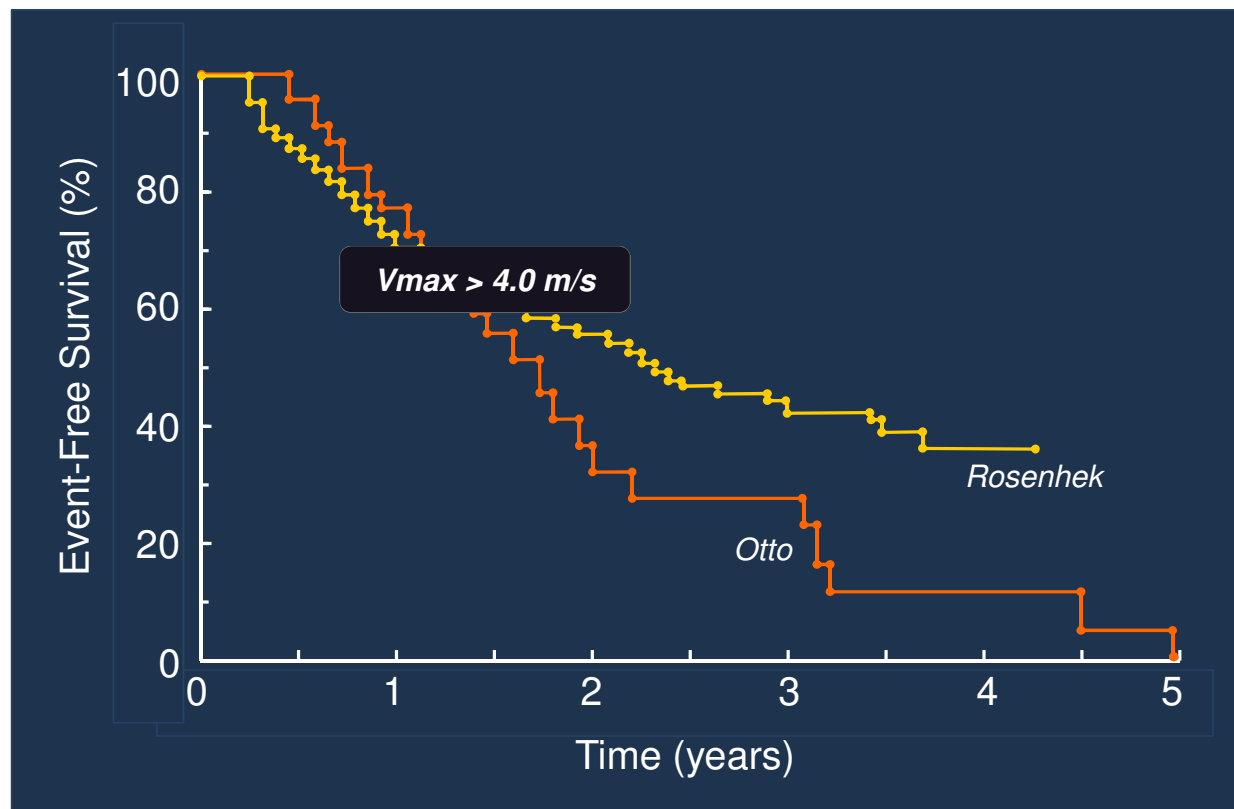


Otto et al. *Circulation* 1997;95:2262-2270



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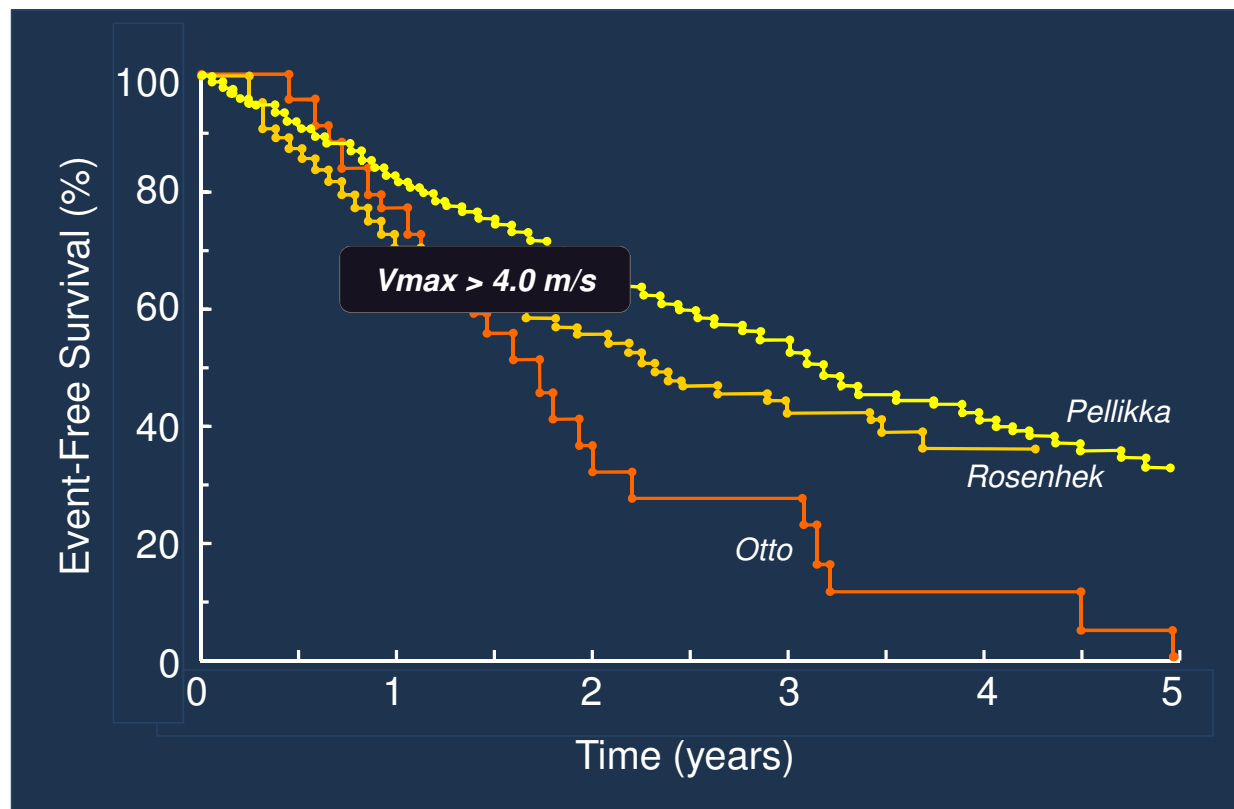
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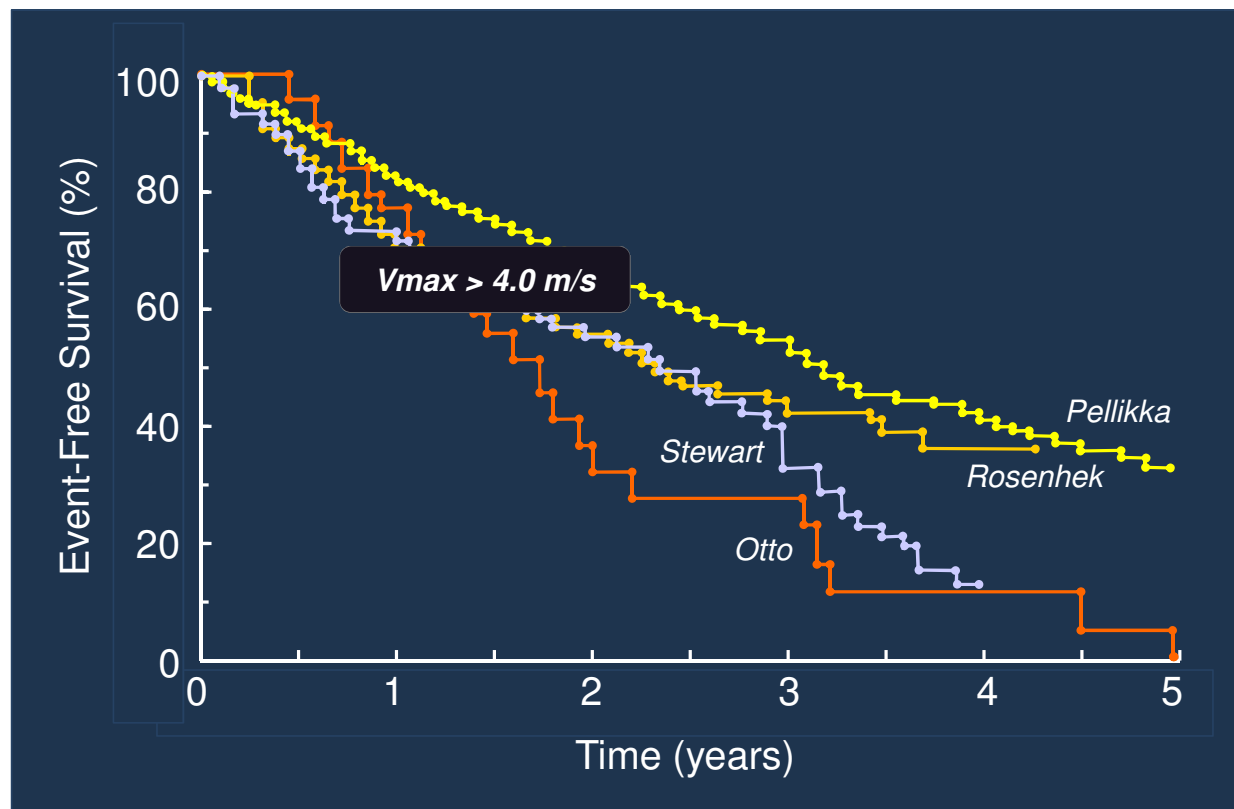
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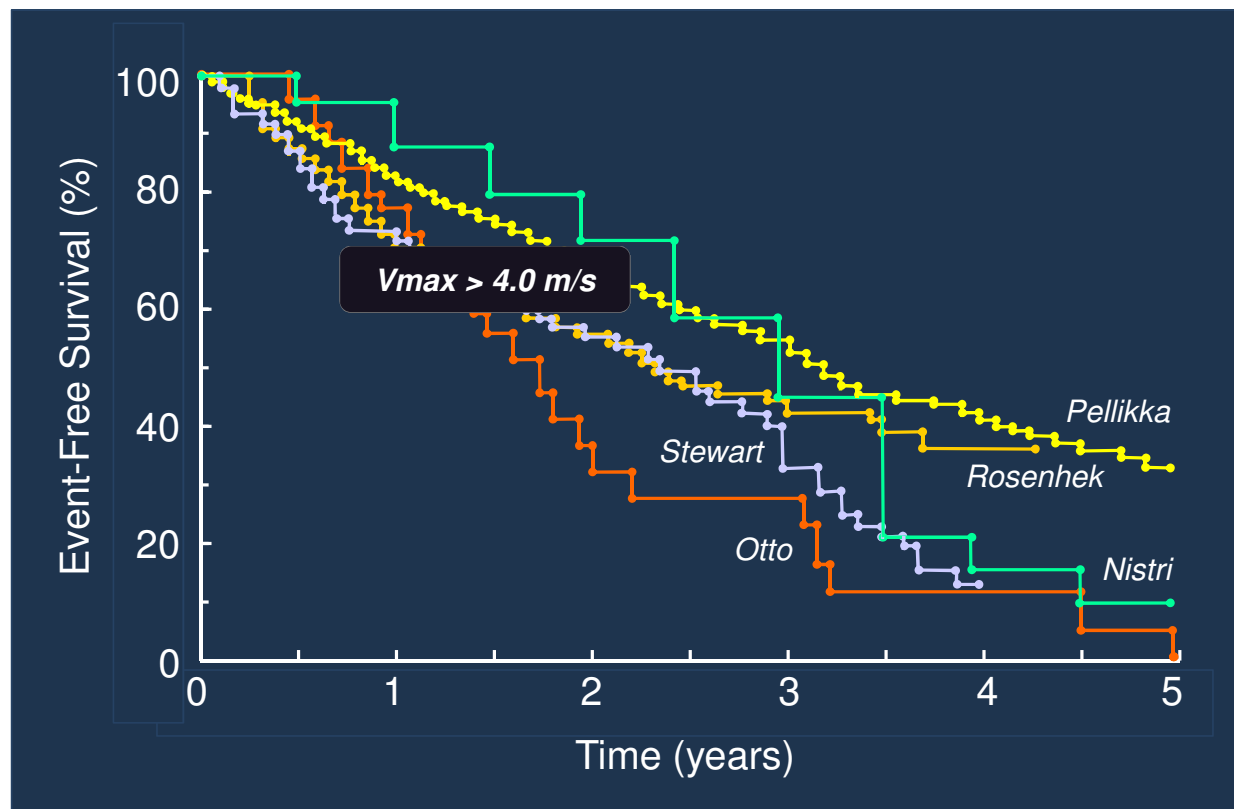
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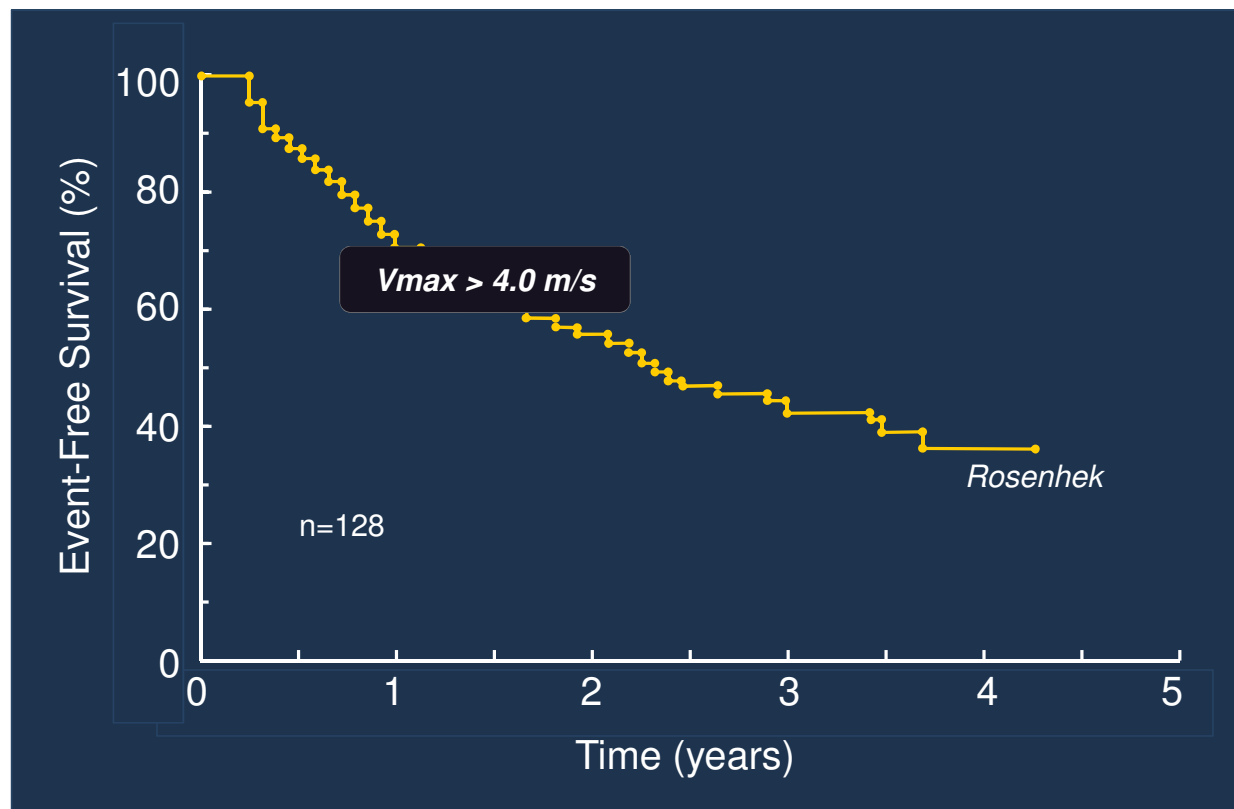
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Nistri et al. *Am J Cardiol* 2012;109:718-723



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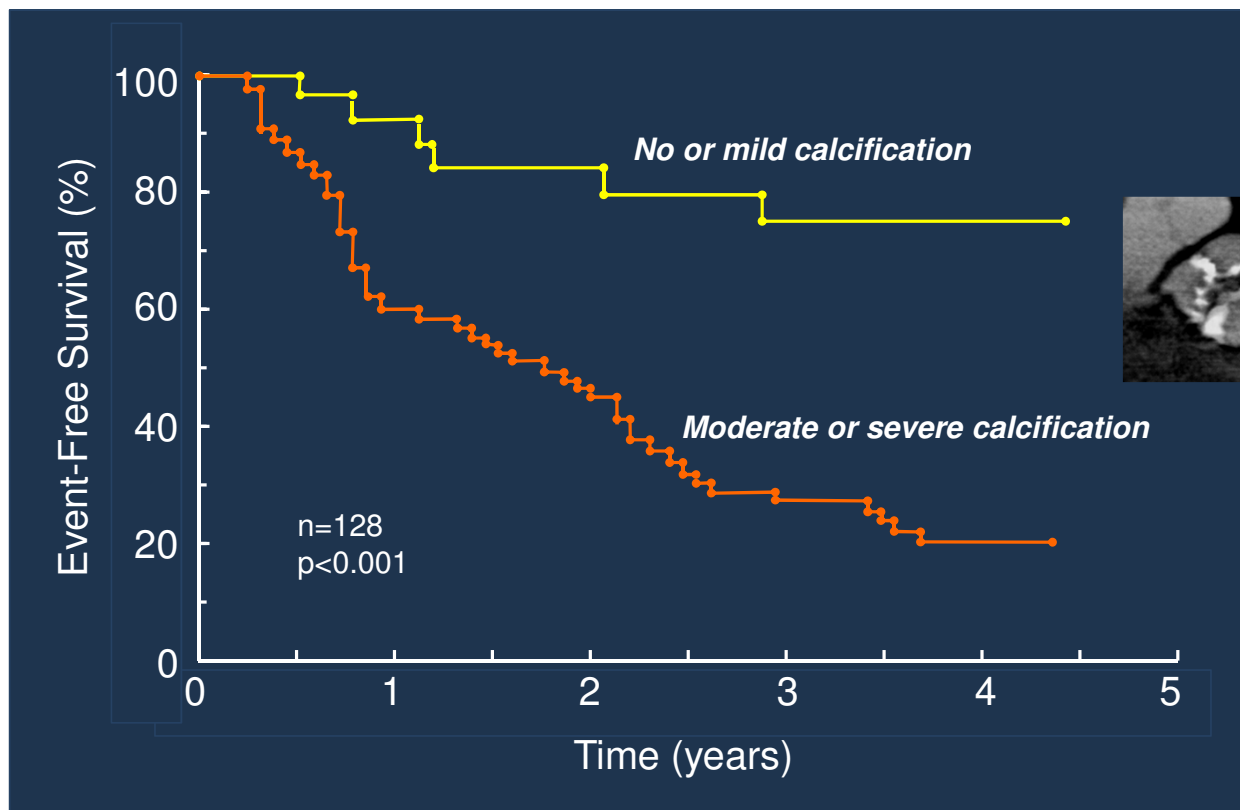


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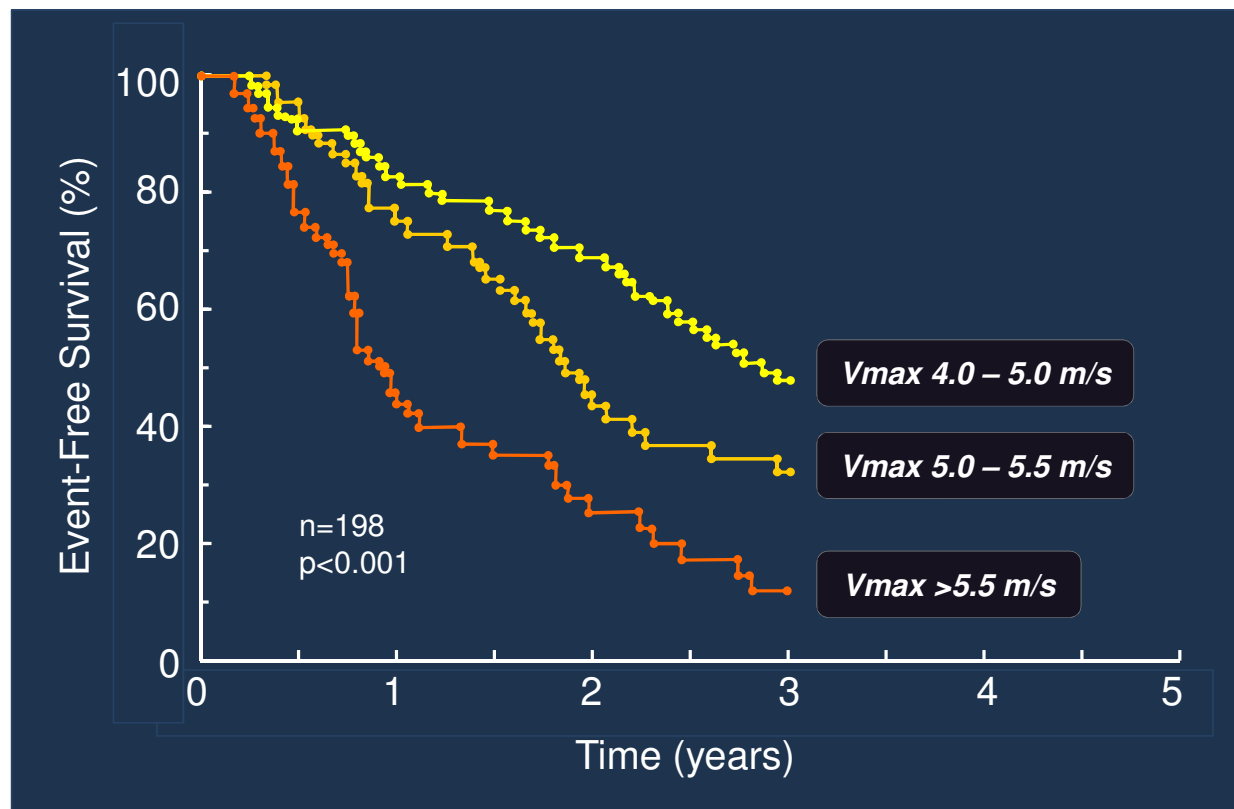


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## Natural History of Severe Asymptomatic AS



Rosenhek et al. *Circulation* 2010;121:151-156



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## ***Asymptomatic Aortic Stenosis***

Indications for valve replacement:



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- Very severe AS:  
 $V_{max} \geq 5 \text{ m/s}$

**class IIa**



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**class IIa**

- Rapid progression and low  
surgical risk

**class IIb**





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## ***Asymptomatic Aortic Stenosis***

### Indications for valve replacement:



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- Very severe AS:  
 $V_{max} \geq 5$  m/s

**class IIa**

- Rapid progression and low surgical risk

**class IIb**

- Very severe AS:  
 $V_{max} > 5.5$  m/s

**class IIa**



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- Very severe AS:  
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**class IIa**

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**class IIb**



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- Very severe AS:  
 $V_{max} > 5.5$  m/s

**class IIa**

- Severe valve calcification  
and rate of progression  
 $\geq 0.3$  m/s / year

**class IIa**



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- Very severe AS:  
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class IIa

- Severe valve calcification  
and rate of progression  
 $\geq 0.3$  m/s / year

class IIa

- Markedly elevated BNP
- Increase in gradient with  
exercise  $> 20$  mmHg
- Excessive LVH

class IIb



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## ***Aortic stenosis***



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The ACC/AHA guidelines have  
lowered the threshold for surgery  
in asymptomatic patients with AS

- Severity of AS
- Severity of calcification
- Left ventricular function
- Exercise response



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## Aortic stenosis



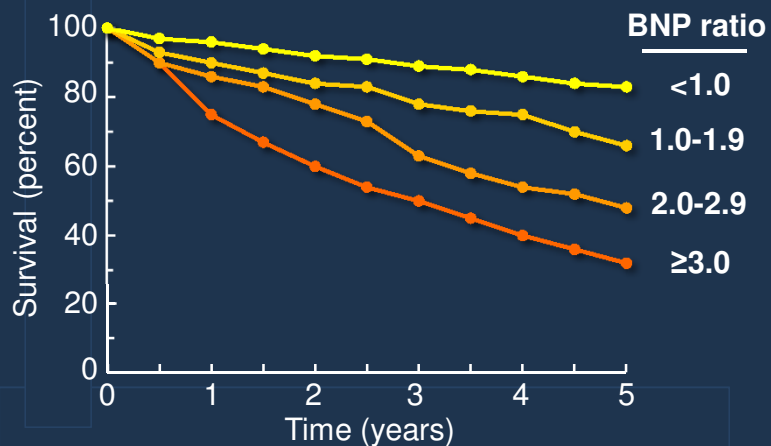
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Clavel et al, *J Am Coll Cardiol* 2014;63:2016-2025