Severe Asymptomatic Aortic Stenosis

The Clinician’s Perspective

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No Relationships to Disclose
Severe Asymptomatic Aortic Stenosis

The Clinician’s Perspective

Are asymptomatic patients with severe AS really asymptomatic?
Severe Aortic Stenosis

Indications for valve replacement

Exercise test:
Symptoms
- Hypotension

Hypotension
- class I
- class IIa

- class I
- class IIa
Indications for valve replacement

**Exercise test:**

<table>
<thead>
<tr>
<th>Symptoms</th>
<th>Hypotension</th>
</tr>
</thead>
<tbody>
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</tbody>
</table>

Should *asymptomatic* patients with severe AS undergo AVR? …when they are *really* asymptomatic?
Vmax: 4.6 m/s
Mean Δ: 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?
Natural History of Severe Asymptomatic AS

Event-Free Survival (%) vs Time (years)

Vmax > 4.0 m/s

Natural History of Severe Asymptomatic AS

- Average hospital mortality: 8.8%
- Low volume centers: 13.0%
- High volume centers: 6.0%

Event-Free Survival (%)

Time (years)


Vmax > 4.0 m/s
Natural History of Severe Asymptomatic AS

Pellikka et al. *Circulation* 2005;111:3290-3295

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Medicare data

Natural History of Severe Asymptomatic AS

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Stewart et al. Eur Heart J 2010;31:2216-2222

Vmax > 4.0 m/s
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Natural History of Severe Asymptomatic AS

Pellikka et al. Circulation 2005;111:3290-2395
Stewart et al. Eur Heart J 2010;31:2216-2222
Nistri et al. Am J Cardiol 2012;109;718-723

Vmax > 4.0 m/s
Average hospital mortality: 8.8%

- Low volume centers: 13.0%
- High volume centers: 6.0%

Medicare data


**Natural History of Severe Asymptomatic AS**

Time (years)

Event-Free Survival (%)
Natural History of Severe Asymptomatic AS

No or mild calcification

Moderate or severe calcification

Average hospital mortality: 8.8%
• Low volume centers: 13.0%
• High volume centers: 6.0%

Medicare data

Natural History of Severe Asymptomatic AS

Rosenhek et al. Circulation 2010;121:151-156
Asymptomatic Aortic Stenosis

Indications for valve replacement:

- Very severe AS: Vmax ≥ 5 m/s (class IIa)
**Asymptomatic Aortic Stenosis**

Indications for valve replacement:

- **Very severe AS:** Vmax ≥5 m/s  
  - class IIa
- **Rapid progression and low surgical risk**  
  - class IIb
Asymptomatic Aortic Stenosis

Indications for valve replacement:

- Very severe AS: Vmax ≥5 m/s [class IIa]
- Rapid progression and low surgical risk [class IIb]
- Very severe AS: Vmax >5.5 m/s [class IIa]
Asymptomatic Aortic Stenosis

Indications for valve replacement:

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

- Rapid progression and low surgical risk
  - class IIb

- Very severe AS: $V_{\text{max}} > 5.5 \text{ m/s}$
  - class IIa

- Severe valve calcification and rate of progression $\geq 0.3 \text{ m/s / year}$
  - class IIa
Asymptomatic Aortic Stenosis

Indications for valve replacement:

- **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

- **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
Aortic stenosis

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
Aortic stenosis

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- Severity of AS
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- BNP?
Aortic stenosis

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- Severity of AS
- Severity of calcification
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- BNP?

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