

FROM THE FAMILY PRACTICE INQUIRIES NETWORK

When should patients with asymptomatic aortic stenosis be evaluated for valve replacement?

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■ EVIDENCE-BASED ANSWER

For patients whose echocardiograms show advanced calcification of the aortic valves, a jet velocity of > 4.0 m/s, or a progression in jet velocity of 0.3m/s/year ; and for patients who have an abnormal exercise response or an impaired functional status, consider referral for valve replacement prior to the onset of symptoms (Grade of Recommendation: C).

■ EVIDENCE SUMMARY

Aortic stenosis is a narrowing of the aortic valve. Degree of severity is judged by valve area: mild ($1.5\text{--}2.0\text{ cm}^2$), moderate ($1.0\text{--}1.5\text{ cm}^2$), severe ($< 1.0\text{ cm}^2$). Alternatively, stenosis may be classified by transvalvular gradient or jet velocity, the latter being the easier quantity to measure by echocardiogram. Prevalence of aortic stenosis increases with age; one series of 1243 elderly women (mean age of 82) found mild stenosis in 10%, moderate stenosis in 6%, and severe stenosis in 2%.¹ Natural history studies show that once classic symptoms develop, average survival decreases to 5 years with the onset of angina, 3 years after cardiac syncope, and 2 years after heart failure.² The incidence of sudden death increases from $< 1\%$ annually among asymptomatic patients to 15% to 20% among symptomatic patients.^{3,4}

Aortic stenosis is suggested by such findings as a harsh systolic murmur at the right upper sternal border, pulsus parvus et tardus, and a sustained point of maximal impulse. Exercise stress testing may provide additional information. In one prospective study of 123 patients, those who had a greater increase in valve area, cardiac output, and blood pressure and a smaller decrease in stroke volume on stress echocardiogram were more likely to remain asymptomatic for the entire length of their time in the study, an average of 2.5 years.⁵

Asymptomatic patients with aortic stenosis who undergo coronary artery bypass grafting (CABG) often have their aortic valve replaced at the same time; the timing of aortic valve replacement in patients not requiring CABG is controversial. One prospective study found the severity of stenosis at baseline to be the strongest prognostic predictor. Patients with a jet velocity of < 3.0 m/s were unlikely to develop symptoms within 5 years; those with a jet velocity of 4.0 m/s had a $> 50\%$ likelihood of developing symptoms or dying within 2 years.⁵

Another study followed 128 patients for 4 years and found that moderate to severe valvular calcification and an increase in jet velocity of 0.3 m/s/year were the best prognostic predictors.⁶ Almost 80% of those with both calcification and a rapid change in jet velocity underwent surgery or died within 2 years⁶ (Table).

Indications for possible valve replacement with asymptomatic aortic stenosis

Predicting factor	Marker of worse prognosis
Calcification	Moderate to severe (multiple large calcified areas to extensive calcification of all cusps)
Jet velocity	> 4.0 m/s
Rate of jet velocity progression	≥0.3 m/s/year
Exercise response	Minimal to no change in valve area, cardiac output, and blood pressure; marked decrease in stroke volume
Functional status	Impaired initially or declining

■ RECOMMENDATIONS FROM OTHERS

The American College of Cardiology/American Heart Association Task Force on Practice Guidelines recommends echocardiograms every 5 years for mild stenosis, every 2 years for moderate stenosis, and annually for severe stenosis.⁴ There is no guideline for exercise testing. Aortic valve replacement is recommended for symptomatic patients and patients with severe stenosis undergoing CABG or other valvular or aortic surgery.

Clinical Commentary by Ken Grauer, MD; and search strategy, at www.fpin.org.

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