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ADVANCED PEDIATRIC CARDIOLOGY

AORTIC REGURGITATION

MONITORING, TREATMENT & SURGICAL OPTIONS

Aortic regurgitation (AR) occurs when the aortic valve does not close properly, causing blood to leak back into the left ventricle. Ongoing monitoring and timely treatment help protect heart function and improve long-term outcomes.



Normal Aortic Valve



Aortic Regurgitation (Valve Leak)



GOALS OF LONG-TERM SURVEILLANCE

- Monitor progression of valve leak
- Detect changes in heart size & function
- Assess symptoms and exercise tolerance
- Monitor aortic root dimensions
- Identify arrhythmias
- Determine the best time for intervention

WHEN TO CONSIDER INTERVENTION

- 1 If the patient is symptomatic
- 2 Progression of left ventricular enlargement or dysfunction
- 3 Progression of aortic regurgitation
- 4 Development of cardiac dysrhythmias

SURVEILLANCE & EVALUATION



Echocardiogram

Key to assessing AR severity, heart size, and heart function



Clinical Assessment

Symptoms, blood pressure, and physical examination



Exercise Testing

Evaluates exercise tolerance and blood pressure response



Follow-Up Frequency

Based on AR severity and heart function

MEDICAL THERAPY: AFTERLOAD REDUCTION

Medications that reduce the workload on the heart and may slow progression:

- ACE Inhibitors (e.g., Lisinopril, Enalapril)
- Angiotensin Receptor Blockers (ARBs)
- Calcium Channel Blockers

Especially beneficial when high blood pressure or left ventricular enlargement is present.

LISINAPRIL BENEFITS IN SIGNIFICANT AORTIC REGURGITATION



Reduces LV Volume Overload

Lowers blood pressure and decreases the amount of blood leaking back into the left ventricle.



Reverses Left Ventricular Hypertrophy

Helps the heart muscle become less thick and reduces harmful remodeling over time.



Improves Aortic Compliance

Enhances elasticity of the aorta, reducing backflow and relieving strain on the heart.



Improves Symptoms & Outcomes

Improves heart function, reduces symptoms, hospitalizations, and may improve survival.

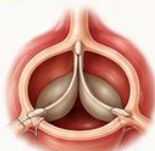


ACE inhibitors like lisinopril can play a vital role in slowing disease progression, improving heart function, and enhancing long-term outcomes in patients with significant AR.

AORTIC VALVE SURGICAL & INTERVENTIONAL OPTIONS

1

Valve Repair



Repair may be attempted in selected patients, but long-term success can be limited due to high pressure on the valve.

2

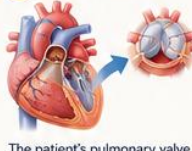
Ozaki Procedure



Uses the patient's pericardium to create new valve leaflets. Sewn into the native annulus and root to form a new functioning valve.

3

Ross Procedure



The patient's pulmonary valve replaces the aortic valve. The pulmonary valve is replaced with a pulmonary homograft (conduit). Often the best option for children and young patients.

4

Valve Replacement



Uses an artificial (mechanical) or tissue (bovine/pig) valve. Often an excellent option for adults.

5

TAVR (Transcatheter Aortic Valve Replacement)



Minimally invasive procedure performed in the cath lab. Typically used for adults, especially those at higher surgical risk.



The choice of procedure depends on age, anatomy, valve condition, symptoms, and overall health. Early evaluation and timely intervention help preserve heart function and quality of life.



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