Prevalence of VHD is increasing

- Most frequent valvular diseases are calcific AS and MR due to rise in degenerative valvular disease and fall in Rheumatic disease

Risk stratification in the elderly

- operative risks can vary widely depending on
  - age
  - comorbidities
  - Parsonnet Score
  - STS Score
  - EuroScore

Increasing numbers of asymptomatic patients are discovered which are due to widespread use of echocardiography

Stress testing is underused in evaluation of valvular heart disease

- **Patient's need to be involved in the decision and needs to be educated with regard to issues such as the prevention of endocarditis and use of anticoagulation**

Incidence of rheumatic valve disease has declined in industrialized countries because of the development of streptococcus infection prophylaxis

2 most frequent valvular diseases are calcific AS and mitral regurgitation (MR).

A clinical examination detects VHD in asymptomatic patients; an electrocardiogram and chest x-ray is usually obtained, with echocardiography as the key technique to confirm the diagnosis of VHD and to assess its severity and prognosis.

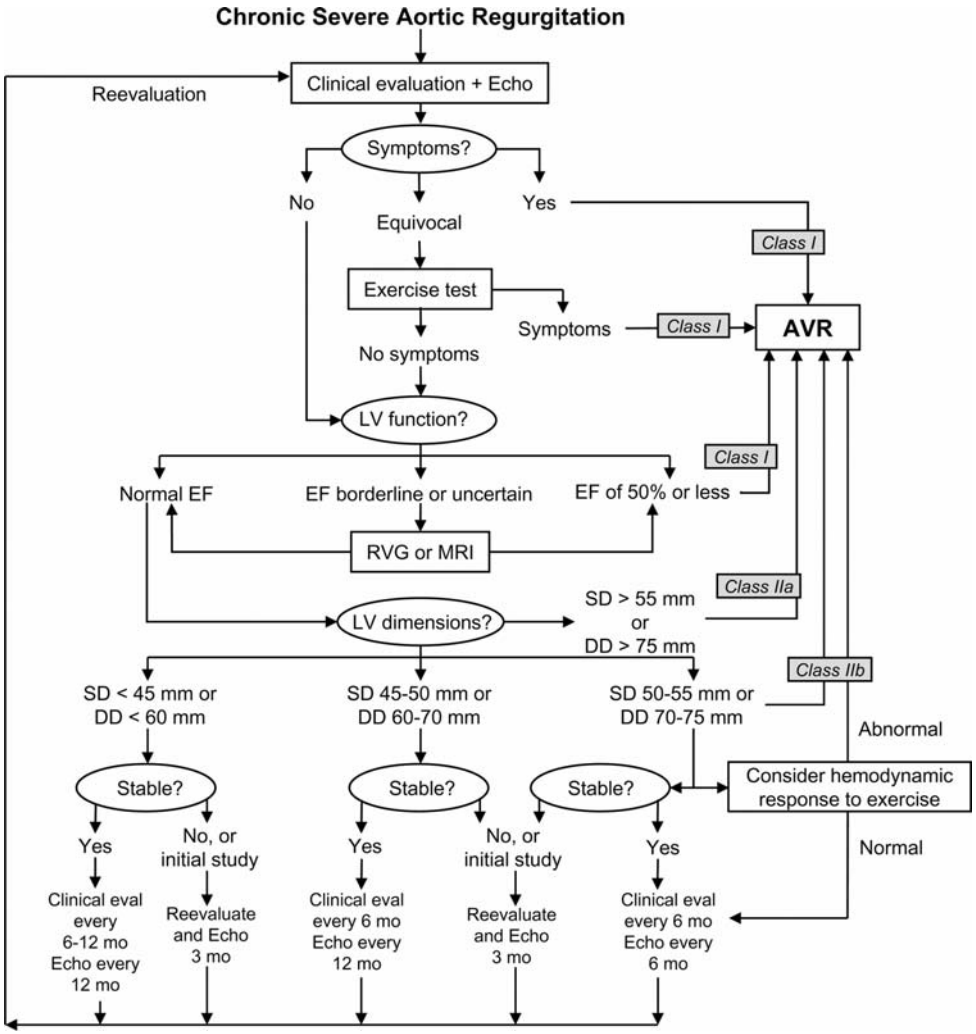
Treatment of VHD usually involves surgical valve replacement, and each incidence of VHD has its own indications

Aortic regurgitation (AR)

;

- Surgical intervention
  - Symptomatic patients
  - Asymptomatic patient with resting left ventricular ejection fraction (LVEF) of ≤ 50%;
  - Patients undergoing coronary artery bypass graft surgery (CABG) or surgery of ascending aorta, or on another valve
  - Asymptomatic patients with resting LVEF > 50% with severe left ventricular (LV) dilatation
  - Aortic root disease with maximal aortic diameter valve ≥ 55 mm for most patients

Management Strategy for Patients With Chronic Severe Aortic Regurgitation



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Medical therapy for AR

- **nitroprusside and inotropic agents prior to surgery in patients with poorly tolerated acute AR**
- **chronic severe AR and heart failure, angiotensin-converting enzyme (ACE) inhibitors are the treatment of choice when surgery is contraindicated**
- **asymptomatic patients with high blood pressure, the use of vasodilators such as ACE-inhibitors or dihydropyridine calcium channel blockers is warranted**

AS

Surgical indications include patients with severe AS and any symptom

- Patients with moderate to severe AS undergoing CABG or surgery of ascending aorta, or on another valve;
- patients with symptoms or signs of LV dysfunction.

Asymptomatic patients with severe AS are only recommended in select patients at low operative risk (eg, those with a blend of calcified valve with rapid increase in peak aortic velocity of ≥ 0.3 m/second per year).

Nonsurgical candidates may be treated with digitalis, diuretics, ACE-inhibitors, or angiotensin-receptor blockers if they are experiencing heart failure

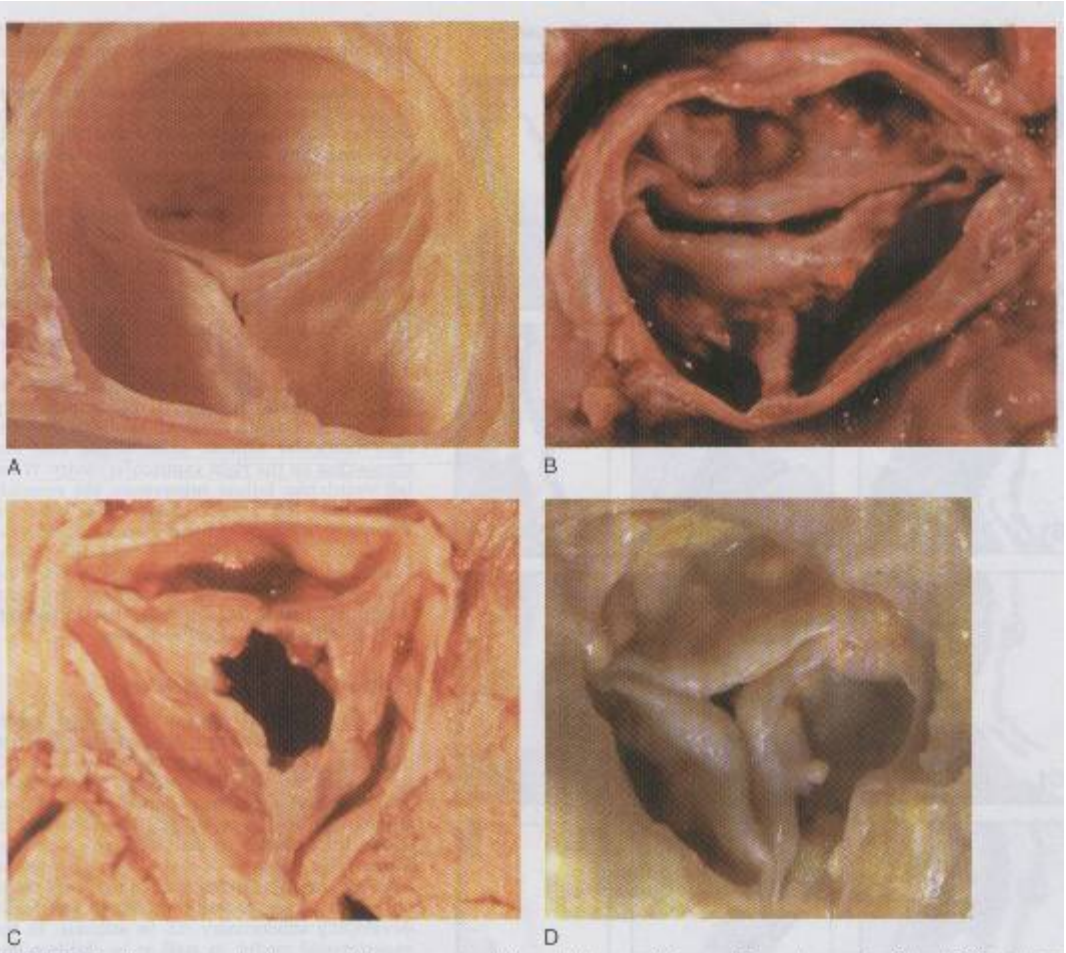
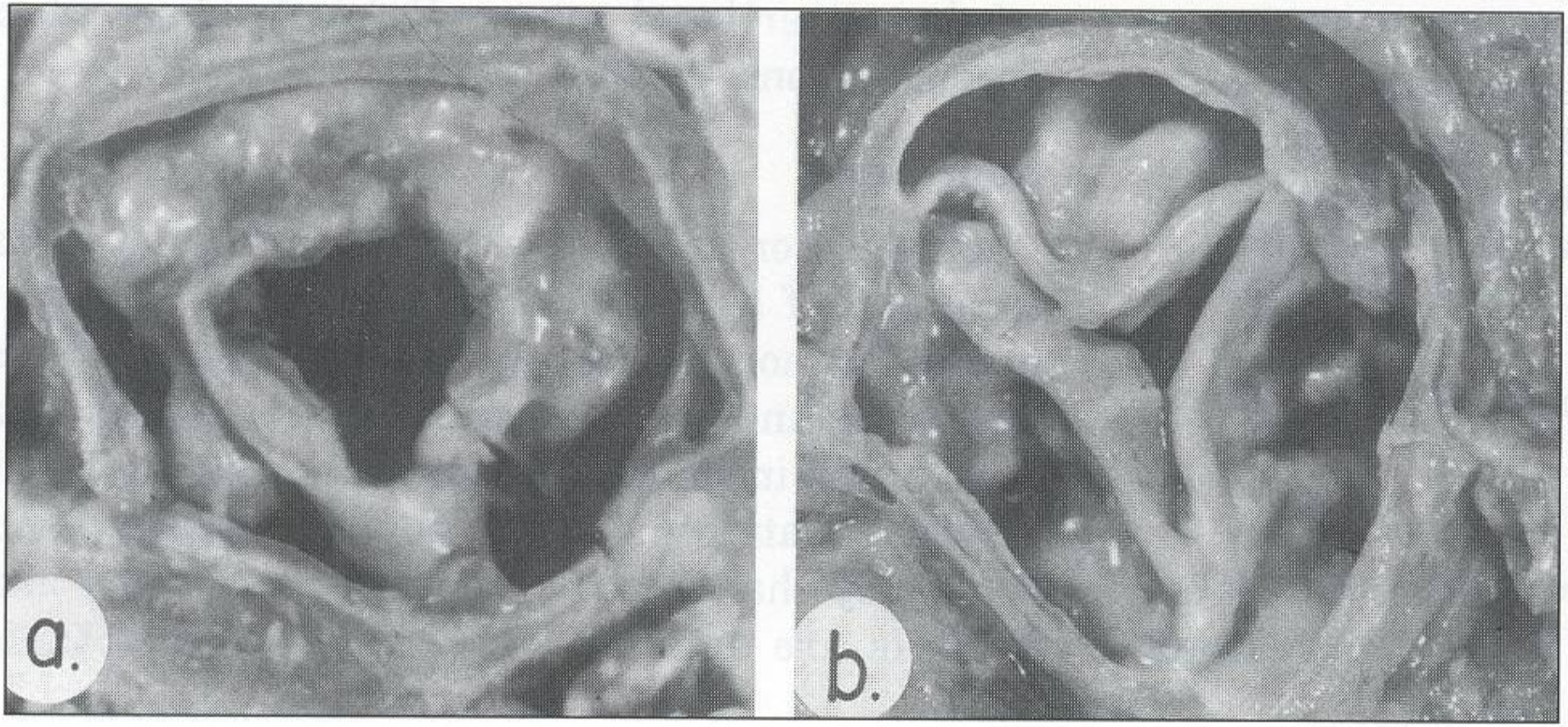


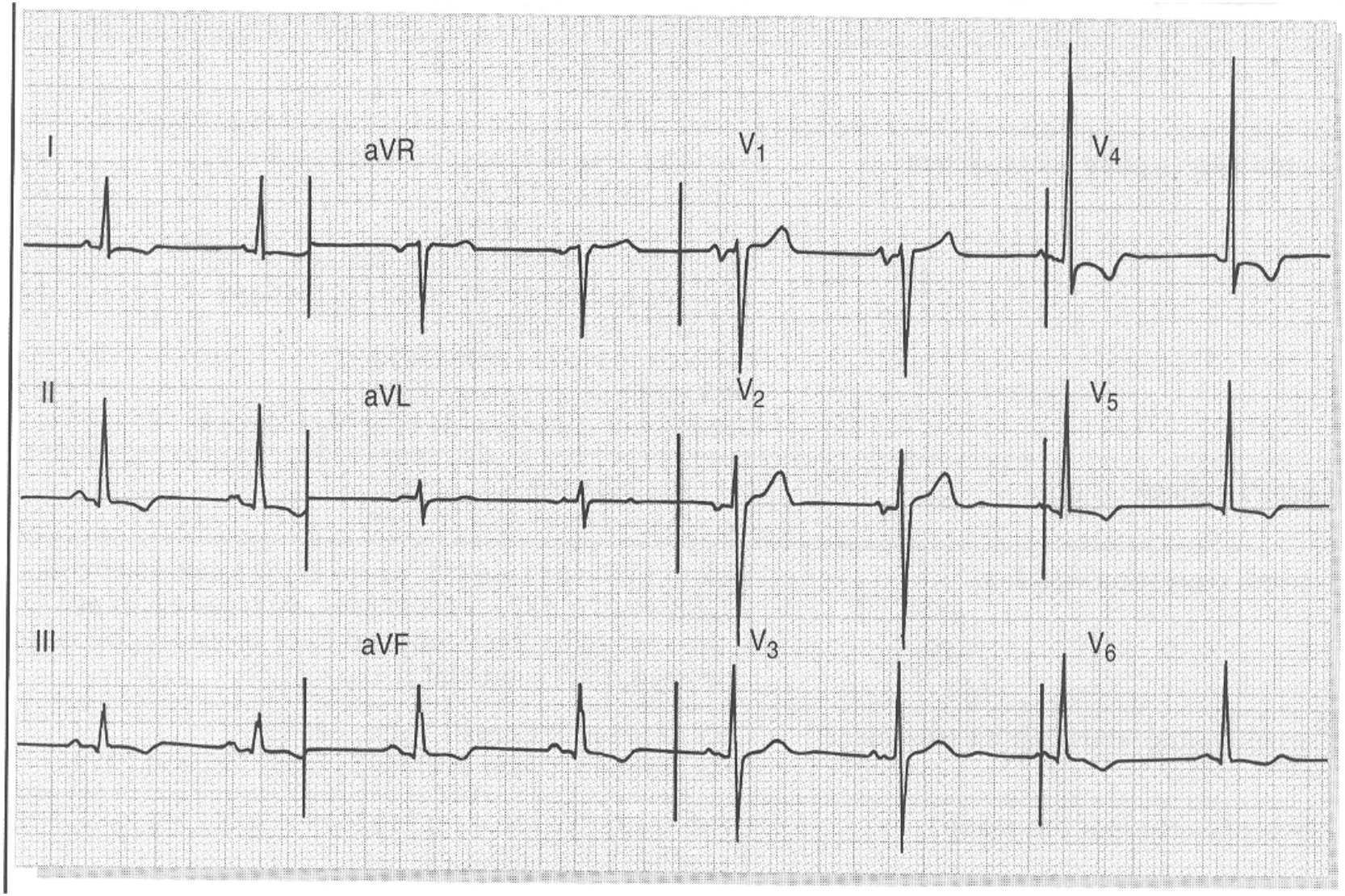
FIGURE 57–24 Major types of aortic valve stenosis. **A.** Normal aortic valve. **B.** Congenital bicuspid aortic stenosis. A fibrous raphe is present at 5 o'clock. **C.** Rheumatic aor


a.
b.

AORTIC STENOSIS

- In general:

- Mild Aortic Stenosis=1.5-2.0 cm2
- Moderate Stenosis=1-1.5 cm2
- Severe Aortic Stenosis=<1.0 cm2
- Critical Aortic Stenosis=<0.8 cm2


I
aVR
V1
V4
II
aVL
V2
V5
III
aVF
V3
V6

AORTIC STENOSIS

- Management-4
- AVA <1.0 cm2 whose symptoms are
- believed to result from the stenosis
- Asymptomatic patients if progressive
- LV dysfunction, or if hypotensive
- response to exercise
- Threshold for AVR will likely lower in
- the future

Degenerative Aortic Stenosis

- Most common type of AS today and the usual cause for aortic valve replacement
- Shares common risk factors with mitral annular calcification
- Risk factors for calcific aortic stenosis are similar to those for vascular atherosclerosis

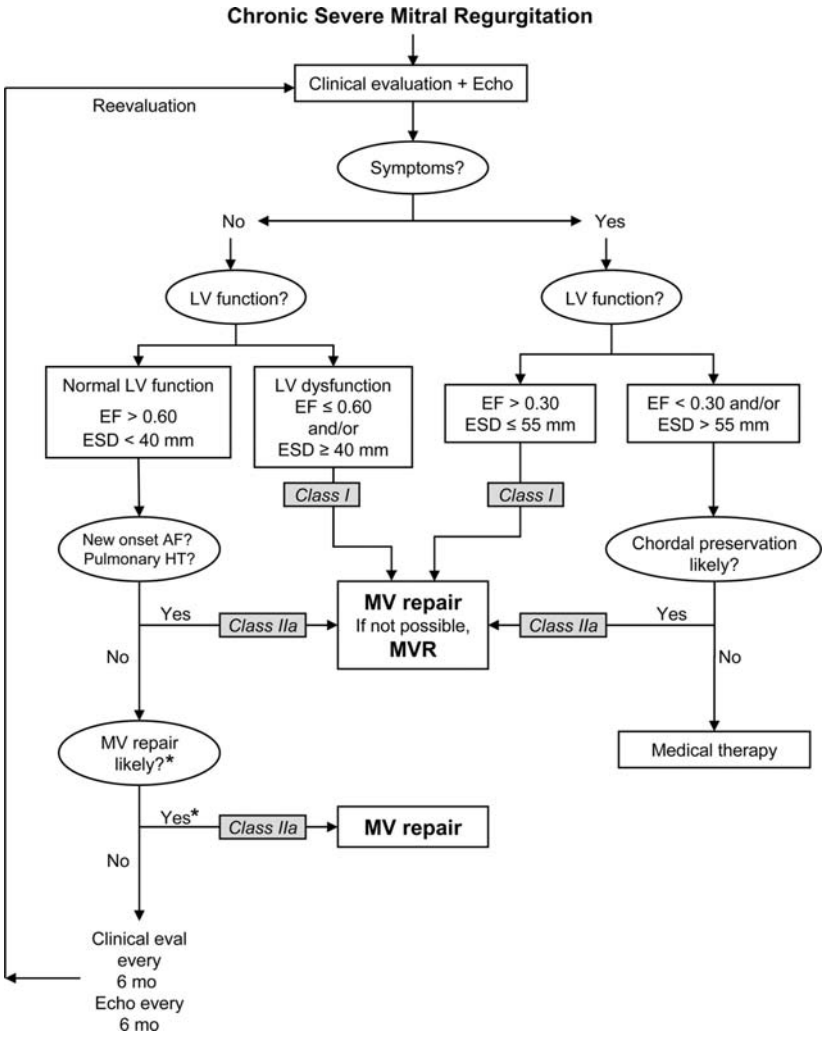
MR

Urgent surgery is indicated in symptomatic patients with acute MR; surgery is indicated in asymptomatic patients with severe LV dysfunction (end systolic dimension, > 45 mm and/or LVEF, ≤ 60%); asymptomatic patients with preserved LV function and either atrial fibrillation or pulmonary hypertension.

In acute MR, nitrates and diuretics are indicated. When heart failure develops, ACE-inhibitors have a benefit, along with beta-blockers and spironolactone.

Anticoagulant therapy (target international normalized ratio between 2 and 3) should be given in patients with MR and permanent or paroxysmal atrial fibrillation or whenever there is a history of systemic embolism or evidence of left atrial thrombus and during the first 3 months following mitral valve repair

Management Strategy for Patients With Chronic Severe Mitral Regurgitation



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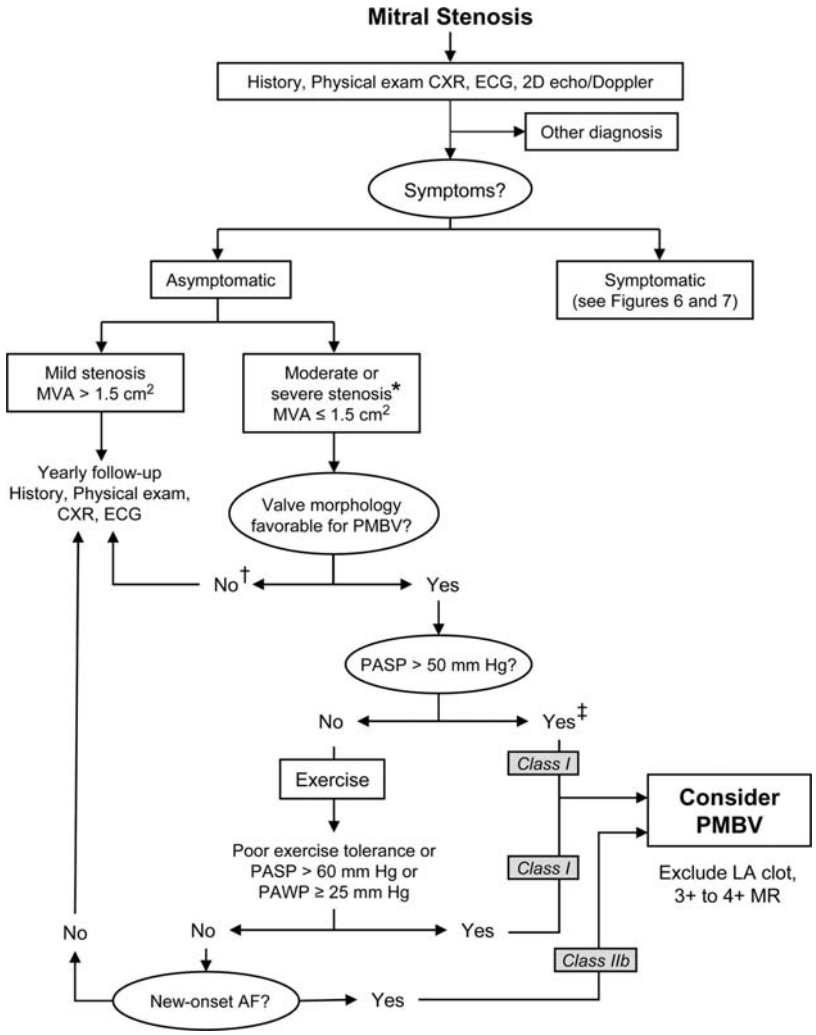
Mitral stenosis (MS):

Currently, percutaneous mitral commissurotomy (PMC) is the treatment of choice when surgery is contraindicated or high risk or for patients with favorable characteristics. Intervention is indicated for patients with clinically significant MS and inpatients with high thrombus-embolic risk or high risk for hemodynamic decompensation. The most important contraindication to PMC is left atrial thrombus.

Diuretics or long-acting nitrates can improve dyspnea, while beta-blockers or calcium channel blockers are useful in improving exercise tolerance

Management Strategy for Patients With Mitral Stenosis



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Tricuspid stenosis

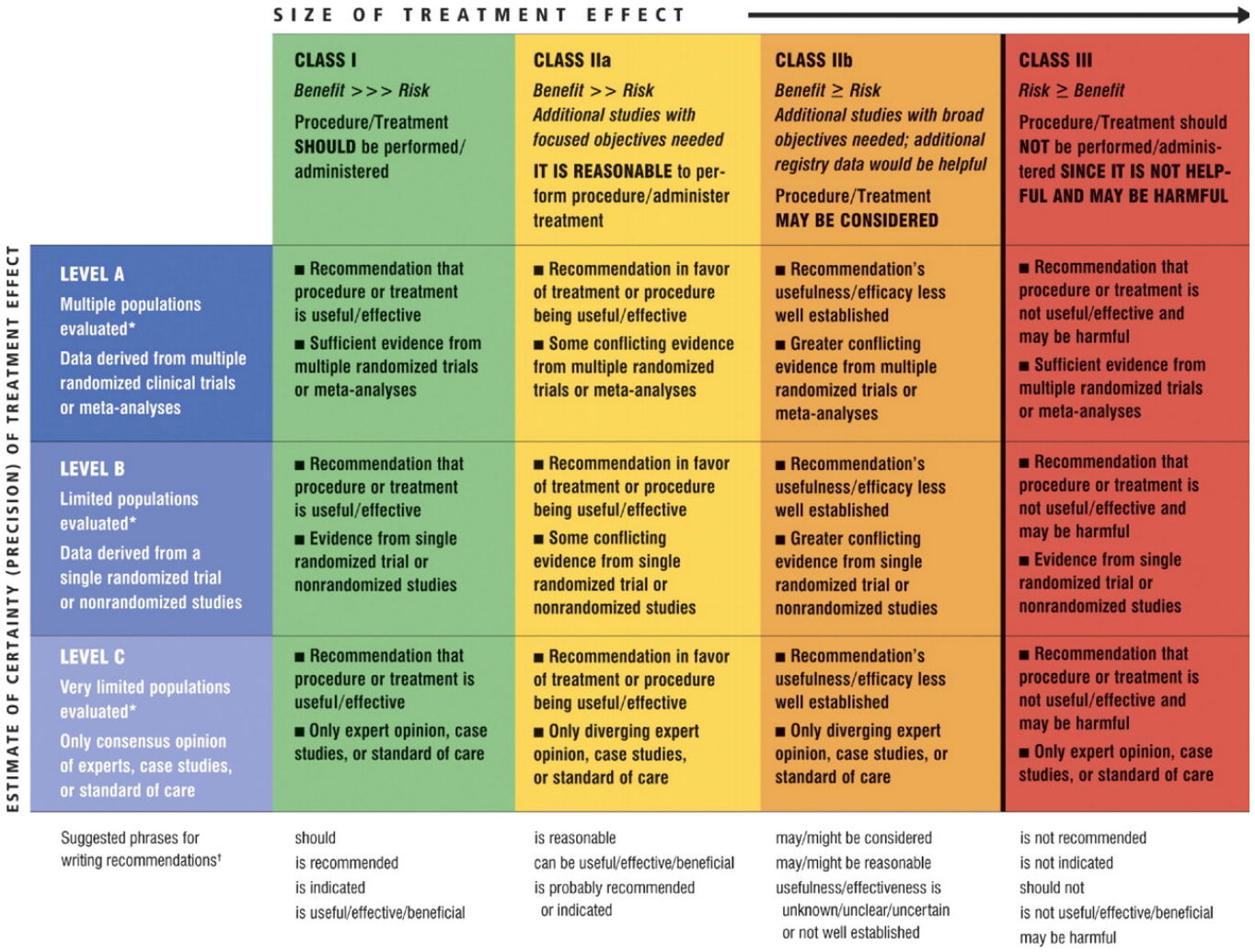
Intervention on the tricuspid valve is usually performed at the time of intervention on the other valves in patients who are symptomatic despite medical therapy

Tricuspid regurgitation (TR)

Conservative surgery with annuloplasty is preferable to valve replacement; the need for valve replacement is determined at the time of surgical correction.

Severe TR should be corrected; and diuretics improve signs of congestion

Applying Classification of Recommendations and Level of Evidence



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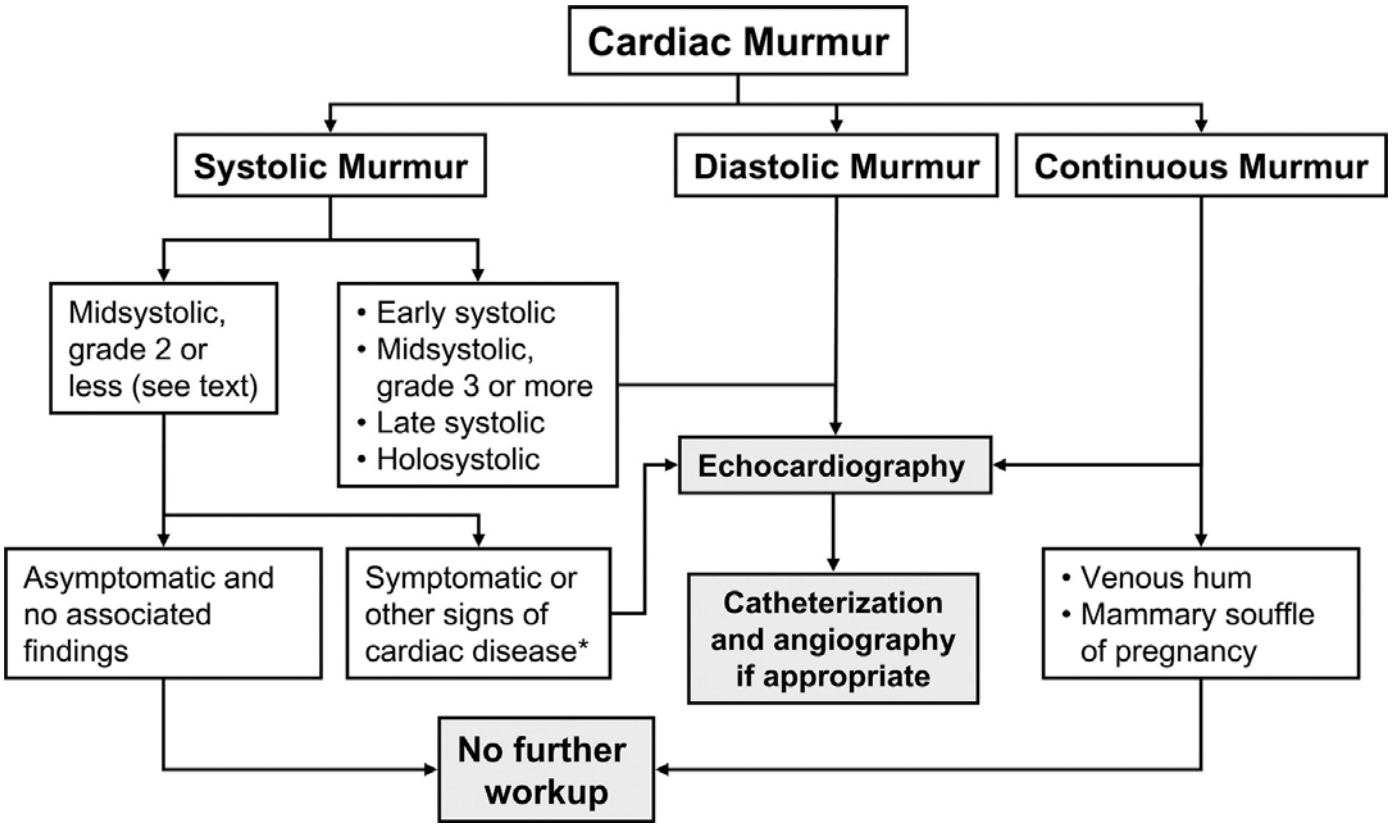
JACC Journal of the American College of Cardiology

widely used method of screening for valvular heart disease (VHD). The production of murmurs is due to 3 main factors:

- high blood flow rate through normal or abnormal orifices
- forward flow through a narrowed or irregular orifice into a dilated vessel or chamber
- backward or regurgitant flow through an incompetent valve

Often, more than 1 of these factors is

Strategy for Evaluating Heart Murmurs



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Innocent Murmurs

Characteristics of innocent murmurs in asymptomatic adults that have no functional significance include the following:

- grade 1 to 2 intensity at the left sternal border
- a systolic ejection pattern
- normal intensity and splitting of the second heart sound
- no other abnormal sounds or murmurs
- no evidence of ventricular hypertrophy or dilatation and the absence of increased murmur intensity with the Valsalva maneuver or with standing from a squatting position

Echocardiograpy

- purposes of echocardiography are to
- • define the primary lesion in terms of cause and severity
  • define hemodynamics
  • define coexisting abnormalities
  • detect secondary lesions
  • evaluate cardiac chamber size and function
  • establish a reference point for future comparisons
  • re-evaluate the patient after an intervention