

#### aortic stenosis:

- (i) symptomatic aortic stenosis (unless comorbidities preclude it)
  - surgery is the only effective therapy for symptomatic AS
- (ii) mild to moderate aortic stenosis undergoing CABG
  - aortic stenosis is graded based on echocardiography criteria
  - mild (effective valve area of  $>1.5\text{cm}^2$ )
  - moderate (effective valve area of  $>1-1.5\text{cm}^2$ )
  - severe (effective valve area of  $<1\text{cm}^2$ )

#### aortic regurgitation:

- (i) NYHA class III or IV symptoms due to AR
- (ii) LVEF  $<25\%$  or end systolic dimension  $>60\text{mm}$  or both
- (iii) LVEF 25-49% may be an indication (controversial)
- (iv) AR associated with aortic root dilatation of  $>50\text{mm}$

#### mitral stenosis:

- (i) moderate or severe mitral stenosis (mitral valve area  $<1.5\text{cm}^2$ )  
in symptomatic patients (NYHA III or IV)

#### mitral regurgitation:

- (i) symptomatic mitral regurgitation
- (ii) asymptomatic patients with mild or moderate LV dysfunction
- (iii) acute onset of atrial fibrillation due to MR
  - ischaemic MR may improve with revascularisation

aortic  
valve  
surgery

mitral  
valve  
surgery

indications  
for adult  
cardiac  
surgery  
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coronary  
artery  
disease

#### general:

- the aim of surgery is to eliminate symptoms & prolong life so the indications should be based on:

- (i) symptoms
- (ii) left ventricular function
- (iii) area of ischaemia
- (iv) anatomic localisation of coronary artery stenosis

#### specific anatomical coronary lesions:

- (i) left main stenosis of  $>50\%$  or a left main equivalent ( $>70\%$  stenosis in the proximal LAD & proximal Cx arteries)
  - (ii) triple vessel disease with  $>70\%$  lesions in all 3 coronary territories
  - (iii) significant proximal LAD stenosis with 2 vessel disease
- NB: long term survival benefit is even greater when LV function is depressed before surgery

#### trials:

- in the early 1990s, three large multicentre randomised trials were undertaken in Europe & the United States: the Veterans Administration Cooperative Study, the European Coronary Surgery Study and the Coronary Artery Surgery Study which all demonstrated a significant benefit for CABG over medical treatment
- since these trials several important factors have changed:
  - (i) patients are older (patients  $>65$  were excluded)
  - (ii) surgical techniques have improved with use of arterial grafts
  - (iii) new medical therapies such as statins have been shown to prolong life after CABG

#### predicted surgical risk:

- risk factors that increase perioperative mortality include:
  - (i) increased age
  - (ii) diabetes mellitus
  - (iii) COPD
  - (iv) renal failure
  - (v) previous surgery
  - (vi) left ventricular dysfunction
  - (vii) pulmonary hypertension
  - (viii) emergency operation
- risk can be predicted with the Euroscore ([www.euroscore.org](http://www.euroscore.org))