Identification of patients suitable for transcatheter aortic valve implantation (TAVI) (Based on 2017 ESC/EACTS guidelines)

**Identification of patients suitable for TAVI**

1. **Suspicion of Aortic Stenosis (AS)**
2. **Assessment of Aortic Stenosis severity**
   - Auscultation
   - Echocardiography
3. **Diagnosis of severe AS confirmed**
   - For physically active patients, exercise testing is recommended for unmasking symptoms
   - STS or EuroSCORE II ≥4%
   - Logistic EuroSCORE I ≥10%
   - Presence of other risk factors not included in scores (e.g. frailty, porcelain aorta, sequelae of chest radiation)
   - Decision by Heart Team according to individual patient characteristics
4. **sAVR or TAVI**
   - Age < 75 ≥ 75
   - Endocarditis suspected
   - Frailty †
   - Restricted mobility and conditions affecting rehabilitation
   - Severe comorbidity not reflected in score
   - Previous cardiac surgery
   - Sequelea of chest radiation
   - Suitability for transfemoral TAVI
   - Severe chest deformation or scoliosis
   - Expected patient-prosthesis mismatch
   - Aorta or LV thrombi
   - Unfavorable access (any) for TAVI
   - Vascular/valve anatomy unsuitable for TAVI
   - Concomitant cardiac surgical intervention

**Recommendations for treatment of severe symptomatic AS**

**Patient evaluation**

**Decision on intervention**

**Assessment of Aortic Stenosis severity**

**Referral to Heart Team**

**ESC/EACTS Guidelines recommendations to assist the Heart Team’s decision for choice of intervention**

- **Increased surgical risk**
  - Not suitable for surgical aortic valve replacement (sAVR)

- **Low surgical risk**
  - ≥4%

In special cases, asymptomatic patients might also be referred to the Heart Team.*

*Majority of asymptomatic patients should be put on watchful waiting and periodically re-evaluated. In some special cases they might benefit from referral to Heart Team. For more information, please consult the 2017 Guidelines.

†Frailty should be diagnosed using a non-subjective assessment tool, and not using methods such as the ‘eyeball’ test.

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Dobutamine echocardiography
Integrated approach to confirm low flow 3D TOE or MSCT
Severe AS unlikely
High flow status excluded

*High flow may be reversible in settings such as anaemia, hyperthyroidism, arteriovenous shunts.
†Pseudo-severe AS is defined by an increase to an AVA >1.0 cm² with flow normalisation.

Valve morphology by echocardiography suspicious of AS
Assess velocity / gradient
High-gradient AS
Vmax ≥4 m/s, ∆Pm ≥40 mmHg
Low-gradient AS
Vmax <4 m/s, ∆Pm <40 mmHg
Moderate AS

Severe high-gradient AS (normal flow / low flow)
(normal EF / low EF)
Reassess at restored normal flow
Severe AS Define flow status (SVi)
Exclude measurement errors that may cause underestimation of gradient/flow/AVA
Define whether high flow status is reversible
Normal flow
(LVi >35 mL/m²)
Low flow
(LVi ≤ 35 mL/m²)
LVEF ≥50%
LVEF < 50%
Assess LVEF

Calcium score by MSCT

Pseudosevere AS † or true severe AS
Flow reserve present reversible*Not reversible

Assess aortic valve area (AVA)
YesNo
AVA
> 1.0 cm²
AVA
≤1.0 cm²

Multidisciplinary teams with competencies in valve replacement, aortic root surgery, mitral, tricuspid and aortic valve repair, as well as transcatheter aortic and mitral valve techniques including reoperations and reinterventions. The Heart Teams must meet on a regular basis and work with standard operating procedures.

Requirements

Valve morphology by echocardiography suspicious of AS
Assess velocity / gradient

Low-flow AS
20% or more

Severe AS

High-flow AS
40% or more

AVA
> 1.0 cm²
AVA
≤1.0 cm²

Data review

Results available for review internally and externally.
Participation in national or European quality databases.
Robust internal audit processes including mortality and complications, repair rates, durability of repair, repair rate with a minimum of 1 year follow-up.

Requirements

Imaging including 3D, stress echocardiographic, perioperative TOE, cardiac CT, MRI, and graduated exercise echocardiography

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Assessment of Aortic Stenosis severity


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Heart Valve Centre