Acute Heart Failure-Valve

ACCA Masterclass 2017

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AHF and Prognosis

- ESC HF pilot
- 12 Month Mortality 12%
- 12 Month hospitalisation 44%
- No brilliant prediction model
HF due to Aortic stenosis

• **Braunwald**

• **50% 2 year survival**

• **Looking for reversible causes**
  • Aortic stenosis
  • CAD with hibernation/acute ischaemia
  • Alcohol
Variation from HF practice

• **Care with Vasodilators**
  - Can precipitate hypotension

• **Care with assessment**
  - Low flow, low gradient AS
    - Can generate some gradient, but EF too low to generate much
    - Might improve with treatment-assess with DSE
  - Low Flow, low gradient AS with normal EF
    - Stiff heart, poor long axis function
Recommendations for treatment of valvular diseases in patients with heart failure

<table>
<thead>
<tr>
<th>Recommendations</th>
<th>Class</th>
<th>Level</th>
<th>Ref</th>
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<tbody>
<tr>
<td>In symptomatic patients with reduced LVEF and ‘low-flow, low-gradient’ aortic stenosis (valve area &lt;1 cm², LVEF &lt;40%, mean pressure gradient &lt;40 mmHg), low-dose dobutamine stress echocardiography should be considered to identify those with severe aortic stenosis suitable for valve replacement.</td>
<td>IIA</td>
<td>C</td>
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<td>TAVI is recommended in patients with severe aortic stenosis who are not suitable for surgery as assessed by a ‘heart team’ and have predicted post-TAVI survival &gt;1 year.</td>
<td>I</td>
<td>B</td>
<td>495, 496, 509</td>
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<td>TAVI should be considered in high-risk patients with severe aortic stenosis who may still be suitable for surgery, but in whom TAVI is favoured by a ‘heart team’ based on the individual risk profile and anatomic suitability.</td>
<td>IIA</td>
<td>A</td>
<td>497, 498</td>
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<td>In patients with severe aortic regurgitation, aortic valve repair or replacement is recommended in all symptomatic patients and in asymptomatic patients with resting LVEF ≤50%, who are otherwise fit for surgery.</td>
<td>I</td>
<td>C</td>
<td>317</td>
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<td>Evidence-based medical therapy in patients with HFrEF is recommended in order to reduce functional mitral regurgitation.</td>
<td>I</td>
<td>C</td>
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<td>Combined surgery of secondary mitral regurgitation and coronary artery bypass grafting should be considered in symptomatic patients with LV systolic dysfunction (LVEF &lt;30%), requiring coronary revascularization for angina recalcitrant to medical therapy.</td>
<td>IIA</td>
<td>C</td>
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<td>Isolated surgery of non-ischaemic regurgitant mitral valve in patients with severe functional mitral regurgitation and severe LV systolic dysfunction (LVEF &lt;30%) may be considered in selected patients in order to avoid or postpone transplantation.</td>
<td>IIb</td>
<td>C</td>
<td></td>
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Acute presentation

Figure 12.2

Patient with suspected AHF

1. Cardiogenic shock?
   - Yes
   - Gravitational support
     - Pharmacological
     - Mechanical
   - No

2. Respiratory failure?
   - Yes
   - Ventilatory support
     - Oxygen
     - Non-invasive positive pressure ventilation (CPAP/BiPAP)
     - Mechanical ventilation
   - No

Immediate phase (Initial 60–120 minutes)

Immediate stabilization and transfer to ICU/CCU

Identification of acute etiology:
- C: acute Coronary syndrome
- H: Hypertension emergency
- A: Arrhythmia
- M: acute Mechanical cause
- P: Pulmonary embolism

Often acute on chronic!
Initial presentation

- 87 year old man
- Known AS under FU at DGH
- **Sudden deterioration**
  - Syncopal episodes over Xmas.
  - He was in heart failure on arrival. Pulmonary odema, hard to lie flat
  - BP 90/60
- **Initial Treatment**
  - IV diuretics
  - O2
- **Investigations:**
  - Severe AS, trivial AR
  - ECG SR, Partial LBBB

www.escardio.org/ACCA
PMH

- Severe coronary artery disease
  - MI 1979, 1989
- Renal impairment (creatinine 200)
- Prostate cancer-controlled.
Next Move

- Transfer to Tertiary centre

- Assess Coronary status
  - Small troponin rise
  - Known CAD
Angiogram
Angiogram
Echocardiogram

DI 5.5:1, Poor LV function
MDT

- Options:
  - Medical RX
  - AVR and grafts
  - TAVI

- BAV

- Euroscore 25%
- I quoted 30% death rate from BAV
BAV

- 20mm balloon
- LFA also tortuous
Echocardiogram

Pre BAV DI 5.5:1

Post BAV DI 3.3:1
Follow-up

• Echo 1 month
  • LV looks improved-Mod severe Impairment
  • MR is better-Mild, moderate now
  • Still severe AS.

• Symptoms have been steady for a few weeks.
• His breathing is good.

• NYHA Class: II
Now

- **Med RX**
  - Frail
  - Stable
  - Could have BAV again
- **TAVI**
  - Does not fix CAD
- **AVR and grafts**
- **ICD**
TAVI assessment

- **Bloods:**
  - haemoglobin, 11.7, creatinine 101 (creatinine 225)
- **Carotid:**
  - no significant stenosis.
- **Lung function**
  - FVC 4.16 (116%), FEV1 2.9 (116%).
- **Echo:**
  - moderate to severe aortic stenosis, peak gradient 65, valve area 0.9, non-dilated LV with moderately impaired systolic function (improved from previous), EF 41%. Normal RV size and function. PAP 48 mmHg. Mild MR and TR.
- **Angiography:**
  - See images
- **CT:**
  - annular size 27 x 30.
  - Minimum diameter iliac femorals 8 mm. Thrombosed saccular aneurysm arising from left common iliac artery just proximal to bifurcation and tortuosity of both iliac arteries to be discussed at Vascular MDT. Indeterminate 20 mm lesion of the right adrenal gland.
TAVI
Valve deployment
The New Valve
TAVI done

- 29mm Sapien valve
- TPW left in o/n
- Great success
Next day

- TPW removed
- Tamponade needing emergency pericardiocentesis
- Home day 5
Follow-up

- Medication:
  1. Aspirin 75mg od
  2. Ranitidine 150mg bd
  3. Bisoprolol 2.5mg od
  4. Bumetanide 1mg od
  5. Atorvastatin 40mg od
  6. Perindopril 2mg od not tolerated
  7. Ramipril 1.25mg od
  8. Spironolactone 12.5 mg od
Follow-up

• HF admission 2 years later - age 89
  • Poor LV, well functioning valve
  • Mild angina
  • Nitrate added
  • Not for ICD

• Died 3 years later - age 90
Summary

• Certain death within a few months with no RX

• 3 year survival with BAV and then TAVI

• Consider aortic valve intervention in Acute and Chronic HF

• Beware the stiff heart