Surgical or percutaneous aortic valve replacement?
Female patient, 79 years

Antecedents

1996: Rheumatoid arthritis
1996: Hypertension
2004: bilateral renal artery stenosis (stent right)
2010: internal medicine (hypertension)
2011: nephrology (GFR 25 → 15 ml/min)
Out-patient clinic Nephrology

- Heart failure after stopping bumetanide & enalapril because of serum sodium of 124 mmol/l
- Pro-BNP: 8181 pmol/l
- R/ bumetanide iv → po
**Current situation**

Except for claudication, well until August 2011 (swimming, gymnastics)

Frail, 163 cm, 52 kg (BMI: 20)
100 bpm, 135 / 70 mmHg

Heart: systolic murmur (max R2, 3/6)
Lungs: some rales base both lung fields
No peripheral edema

Peripheral arteries are not palpable
**Echo**

LVEF: 20%, global hypokinesia (RV: moderate)

Grade I insufficiency over all valves

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Peak v aortic valve</td>
<td>2.5 m/sec</td>
</tr>
<tr>
<td>LVOT velocity</td>
<td>0.6 m/sec</td>
</tr>
<tr>
<td>VTI LVOT</td>
<td>8 cm</td>
</tr>
<tr>
<td>VTI aortic valve</td>
<td>40 cm</td>
</tr>
<tr>
<td>AVA</td>
<td>0.5 cm²</td>
</tr>
<tr>
<td>Lab</td>
<td></td>
</tr>
<tr>
<td>-----------</td>
<td>----------</td>
</tr>
<tr>
<td>Sodium</td>
<td>132 mmol/l</td>
</tr>
<tr>
<td>Potassium</td>
<td>3.1 mmol/l</td>
</tr>
<tr>
<td>Urea</td>
<td>10.7 mmol/l</td>
</tr>
<tr>
<td>Creatinine</td>
<td>141 umol/l</td>
</tr>
<tr>
<td>GFR</td>
<td>31 ml/min</td>
</tr>
<tr>
<td>HB</td>
<td>6.3 mmol/l</td>
</tr>
</tbody>
</table>

![GFR Graph](image)
Summary

Frail female patient, 79 years
163 cm, 52 kg (BMI 20)

Rheumatoid arthritis
Renal insufficiency (GFR: 31 ml/min)

Hypertension, atherosclerosis (renal & peripheral)

Aortic stenosis with severely impaired LV function
Episode of heart failure after stopping R/

LES: 47% (69% if critical preoperative state +)
## Aetiology of systolic LV dysfunction

<table>
<thead>
<tr>
<th>Causes</th>
<th>Effects</th>
<th>R/</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>Degenerative changes</td>
<td>-</td>
</tr>
<tr>
<td>Hypertension</td>
<td>Hypertrophy → …</td>
<td>Antihypertensive R/</td>
</tr>
<tr>
<td>Rheumatoid arthritis</td>
<td>Amyloidosis</td>
<td>-</td>
</tr>
<tr>
<td>Aortic stenosis</td>
<td>Hypertrophy → …</td>
<td>TAVI / AVR</td>
</tr>
<tr>
<td>Coronary artery disease</td>
<td>Ischemic cardiomyopathy</td>
<td>PCI / CABG</td>
</tr>
<tr>
<td>...</td>
<td>...</td>
<td>...</td>
</tr>
</tbody>
</table>
Annual mortality on dialysis?

1) 5 – 10%
2) 10 – 20%
3) 20 – 30%
4) > 30%
What is your strategy?

1) medical treatment

2) TAVI (coronary & peripheral angio)

3) AVR (coronary angio)

4) other…..
Haemodialysis

3 x 4 hrs (Tues- Thurs- Saturday)
Ultrafiltration: 500 – 1200 ml
Access: CVC shunt jugular right
Uncomplicated
What is your strategy?

1) medical treatment

2) TAVI (+/- PCI)

3) AVR (+/- CABG)

4) other......
**Stress echo (20 & 40 mcg/kg/min)**

<table>
<thead>
<tr>
<th></th>
<th>LVOT</th>
<th></th>
<th>Aorta</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>V (m/sec)</td>
<td>VTI (cm)</td>
<td>V (m/sec)</td>
</tr>
<tr>
<td>Baseline</td>
<td>0.5</td>
<td>6.4</td>
<td>2.4</td>
</tr>
<tr>
<td>20 mcg</td>
<td>0.9</td>
<td>13.5</td>
<td>3.9</td>
</tr>
</tbody>
</table>

**40 mcg/kg/min dobutamine:** no ischaemia
Subclavia left 4 mm
Subclavia right 5 mm

Agatston ao root 1547
Annulus 19 x 25 mm

Femoral left 5 mm
Femoral right 4 mm
Nephrology

Dialyse: 3 x 4 hrs → 2 x 3 hrs (Tues- & Saturday)
What is your treatment strategy?

1) medical treatment

2) transapical TAVI

3) AVR

4) other......
EDWARDS Sapien XT 23 mm - transapical
• The value of seeing the patient, certainly when it is a complex problem

• The value of the elucidation of factors that contribute to the clinical condition and whether its / their correction may lead to improvement

• The value of individual responsibility in a multidisciplinary team