My best and worst TAVR case of the year. The single most important lesson learned

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TAVR
- 3/2015 – 9/2016: 8 pts
- 10/2016 – 5/2016: 22 pts

30 pts

<table>
<thead>
<tr>
<th></th>
<th>mortality</th>
<th>number of patients</th>
</tr>
</thead>
<tbody>
<tr>
<td>In-hospital</td>
<td>0%</td>
<td>N=30</td>
</tr>
<tr>
<td>1 month</td>
<td>0%</td>
<td>N=27</td>
</tr>
<tr>
<td>6 months</td>
<td>0%</td>
<td>N=11</td>
</tr>
<tr>
<td>1 year</td>
<td>0%</td>
<td>N=7</td>
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My worst TAVR case of the year

- ♀ 90 years
- Previous BAV (bridge to TAVR):
  - AVA: 0.45 cm² --> 0.55 cm²
- NYHA: III
- ECHO:
  - Severe aortic valve stenosis
  - AVA: 0.55 cm²
  - EF: 40%
- Coronary Angio:
  - No significant stenosis
- Comorbidities:
  - Hypertension
- Logistic EuroSCORE I = 20.33%
Preprocedural CT scan

Annulus diameter:
- **min:** 15.9 mm
- **max:** 24.2 mm
- **mean:** 19.7 mm
TAVR planning

- **Anesthesia:** Conscious Sedation
- **Temp PM:** YES (Right internal jugular vein)
- **Access site:** left femoral
- **Pre-dilation:** NO
- **Device:** self-expanding Medtronic Evolut R 23mm
Valve deployment 1
Valve deployment 2
Valve deployment 3
Aortography 1
1st balloon post-dilation

balloon
20 x 45 mm
2nd balloon post-dilation

balloon
20 x 45 mm
Final result
Case done!!!
Sometimes, things go wrong...

- 2 hours post-op: patient complains of dyspnea
- HR: 70 bpm → 100 bpm
- BP: 130 mmHg → 50 mmHg
- Auscultation: absence of breath sounds (right)
- Ht: 34.2% → 18.5%
- ECHO:
  - No signs of tamponade
  - EF: 40%
  - Prosthetic valve: normal functioning
  - No PVL
  - Fluid in the right lung
Post-op chest X-ray
Pre-op chest X-ray
Diagnosis: massive hemothorax

- **Cause:**
  - parenchymal injury during central venous cannulation at the beginning of the procedure (3 attempts)

- **Treatment:**
  - fluid/blood product resuscitation
  - vasopressor support
  - right chest tube placement → evacuation of more than 2 liters of blood immediately
8 h post-op chest X-ray

chest tube
24 h post-op chest X-ray
Happy end...

- patient remained hemodynamically stable with no further bleed
- discharged to home on post-op day 8
- 3 months FU: complete recovery
parenchymal injury during central venous cannulation may lead to hemothorax and **delayed** hemodynamic deterioration after TAVR.

- close monitoring of patients in CCU after TAVR is life saving
My best TAVR case of the year

- **♂ 80 years**
- **H: 180 cm, W: 100 kg**
- Ex-Smoker, Hyperlipidemia, Hypertension
- **NYHA: III**
- **ECHO:**
  - Bicuspid AV
  - Severe aortic valve stenosis
  - AVA: 0.7 cm²
  - EF: 50%
- **Coronary angio:**
  - LAD: 60% mid
- **Comorbidities:**
  - COPD
  - Extracardiac arteriopathy
  - Pulmonary hypertension

- **Logistic EuroSCORE I = 29.63%**
Preprocedural CT scan

Annulus diameter:
- min: 24.6 mm
- max: 34.2 mm
- mean: 29.8 mm
- **Anesthesia:** Conscious Sedation
- **Temp PM:** YES (Right internal jugular vein)
- **Access site:** right femoral
- **Pre-dilation:** YES (25mm balloon)
- **Device:** self-expanding Medtronic Evolut R 34mm
Balloon pre-dilation

(25x 40mm)
Valve deployment 1
Valve deployment 2
Aortography
1\textsuperscript{st} balloon post-dilation

balloon
25 x 45 mm
2nd balloon post-dilation

RAO projection

balloon
25 x 45 mm
TAVR for bicuspid AS with the self-expanding Evolut R device is feasible.

Procedural planning with CT-scan is particularly important.

Often the valve is underexpanded within the elliptical-shaped annulus.

Several balloon post-dilations may be necessary to optimize the final result.
Thank you for your attention!!!