TAVI: Repositionability, the Game Changer?
Boston Scientific Lotus™ Valve System
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The Good Ol’ Days...

TAVI (CoreValve 31)
- Unintended deep implantation
- Postdilatation
- Valve leaflet destruction
- Resulting severe aortic regurgitation

Second CoreValve
- Unintended high implantation
- Unchanged severe aortic regurgitation

Third CoreValve
- Unintended deep implantation
- Suboptimal expansion
- Postdilation
- Relevant aortic regurgitation
Mechanisms of Aortic Regurgitation

A. Calcification

B. Too high

C. Too low

D. Too small

Sinning JM et al, J Am Coll Cardiol. 2012;59(13):1134-1141
TAVI Devices: Challenges and Limitations

- Control and placement accuracy
  - Critical in minimizing paravalvular leakage and conduction disturbances

- Adequate Sealing
  - Minimize paravalvular aortic regurgitation

- Delivery System Profiles
  - Reduce vascular complications

- Avoid heart block requiring pacemaker implantation
The Lotus™ Valve Design

1. Bioprosthetic Aortic Valve Implant
2. Catheter-Based Delivery System
3. Control Knob

Lotus Valve is pre-attached to delivery system.
The Lotus™ Valve Design

- Bovine pericardium in nitinol frame
- Adaptive seal conforms to irregular anatomical surfaces to minimize paravalvular leak
- Valve deployed via controlled mechanical expansion
- No rapid pacing during deployment
- Valve functions early, enabling controlled deployment
- Repositionable and fully retrievable, ability to assess valve in final configuration before release
Case 1

- 84 year old male patient
- Chronic renal failure
- COPD GOLD II
- Severe symptomatic aortic stenosis (dP mean 75 mmHg)
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- Annular diameter = 28 mm
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- Severe symptomatic aortic stenosis (dP mean 75 mmHg)

- Annular diameter = 28 mm
- Valve = functionally bicuspid
- Orifice diameter = 22-25 mm
Aortic gradient pre intervention

Aortic gradient post intervention

FR 21Hz
16cm
2D 70%
C 50
P Low
HPen
CF 66%
2.5MHz
WF High
Med

Vmax 427 cm/s
Vmean 319 cm/s
Max PG 73 mmHg
Mean PG 46 mmHg
VTI 123 cm

FR 25Hz
18cm
2D 62%
C 50
P Low
HPen

Vmax 175 cm/s
Vmean 122 cm/s
Max PG 12 mmHg
Mean PG 7 mmHg
VTI 35.6 cm
Case 2

- 81 year old male patient
- Coronary artery disease with prior CABG surgery and PCI
- Severe symptomatic aortic stenosis (dP mean 43 mmHg)
- Tricuspid valve with raphe
- Annular diameter 19-22 mm
Case 3

- 88 year old male patient
- Coronary artery disease
- History of myocardial infarction
- AAA with prior endovascular aneurysm repair
- Previous PM-Implantation due to high-grade AV-block and syncope
- Severe symptomatic aortic stenosis (dP mean 80 mmHg)
MSCT Analysis (3mensio Software)

Sizing Chart

Lotus Valve
TAVI: Repositionality, the Game Changer?

- To be competitive with SAVR, TAVI results need to be improved

- Newer-generation TAVI devices have specific properties to improve periprocedural outcomes

- The features of repositionability and resheathability allow total control of deployment and avoid paravalvular leakage and aortic regurgitation

- Second-generation valves such as the Lotus Valve are able to adapt to difficult anatomies, and can be retrieved and repositioned in case of suboptimal results

- Therefore, second-generation valves such as the Lotus Valve may be able to improve outcomes in order to rival with SAVR
Vielen Dank für Ihre Aufmerksamkeit