Transcatheter Mitral Valve Procedures, Making Novel Therapies More Widely Available

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Are they the same?

TAVI

TMVI
Challenges to TMVI

- Complex structure
- Higher dislodgement forces
- Large, complex devices
- Absence of Calcium
- Access routes
- Post op anticoagulation
- Large Effective Orifice area

Modified from V Bapat, N Piazza
The Brompton Experience

• Novel catheter based and percutaneous mitral interventions

• Heart Team Approach

• Led by cardiac surgeons
Which patients??

• Prohibitively high surgical risk patients

• Complex mitral valve pathologies

• Treatment tailored to each individual patient
Which device??

Transcatheter Mitral Valve Replacement
The Tendyne TMVR System

- D-Shaped Self-Expanding Nitinol Outer Frame
- Circular Self-Expanding Nitinol Inner Frame
- Fully retrievable and repositionable
- Large Valve Size Matrix to Treat Varying Anatomies
- Valve Tether to Apex
  - Provides Valve Stability - Designed to Reduce PVL
- Apical Pad Assists in Access Closure

Tri-leaflet porcine pericardial valve in an apically tethered, self-expanding nitinol frame

Courtesy: Ms J Kleine, Tendyne
Tendyne Transcatheter Mitral Valve
Patient

- 75 yrs. Male
- Mod/Severe FMR
- Prior CABG, Poor lung function
- Outcome: No MR / PVL

Courtesy: Mr. Neil Moat
Which device??

Transventricular Mitral Valve Repair?

Harpoon

NeoChord
Neochord:
Transapical, off-pump mitral valve repair

Courtesy: Dr Krzysztof Wrobel
Courtesy: Mr. Neil Moat
Harpoon: Trans-apical beating heart mitral Valve repair with an ePTFE chordal implantation device
Harpoon:
Transapical, beating-heart mitral valve repair

Courtesy: Mr. T MacNeil, Harpoon Medical
Harpoon

Courtesy: Mr. Neil Moat
The Mitral Space: A cardiac surgeon’s perspective
Evolution of the TCV Mitral programme

- Sapien III
- Harpoon
- Direct Flow
- Tendyne
- Neochord
Transcatheter Annuloplasty
CardioBand

- Transfemoral venous access
- Transseptal approach
- Supra annular fixation with multiple anchors
- Trigone to trigone implantation
- Annular dimensions reduced under ECHO guidance to optimize coaptation
- Future options preserved
- Mitral and Tricuspid
- Combined with Mitraclip

Transcatheter direct annuloplasty
“Surgical-like ring”
Millipede IRIS Technology

- Semirigid ring for mitral and tricuspid
- Clinical benefit with reduction in MR and TR
- Annular reduction 24-50%
- Preserves future options
  - Valve in Ring
  - Mitraclip
- First-in-Man 2015
- Phase I completed (Open)
- Phase II (Transcatheter) in progress

Percutaneous Annuloplasty Ring
Mitral and Tricuspid
Transcatheter Mitral Valve Procedures

Complex and very varied
Several stakeholders
Broadens access to treatment in very high risk patients
Essential requirement in surgical centres treating complex mitral pathology?
Funding for novel technologies post CE marking??
Surgical involvement in TCV procedures??
Designated Centres?
The Role of SCTS?
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