The forgotten Valve,
What is the future?

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Why aren't we so enthusiastic about it???

- Functional TR accounts for 85% to 90% of all severe TR.
- A non-significant survival rate at 5-year follow-up was documented for patients who underwent TV surgery when compared with medically managed patients.
- Reoperations for recurrent TR are high risk surgical procedures (up to 37% in-hospital mortality in patients with previous left-sided valve surgery) and therefore not routinely offered.

Steven Bolling Tricuspid regurgitation truths and myths, TVT 2016
Current Percutaneous Technologies

TRICINCH Device

**Device Name and typology:**
Catheter-based device to perform tricuspid annular cinching (Annuloplasty system)

**Description:**
Corcskrew anchor, self-expanding stent and a Dacron band connecting both. Once anchored, the stent is released in the inferior veina cava and tension is applied through the Dacron Band

**Downside:**
Leaflet or coronary damage
Single anchor with risk of detachment
Incomplete plasty with risk of TR recurrence

**Experience:**
24 pts PREVENT trial
Trialign Percutaneous Tricuspid

Device Name and typology: Annuloplasty system designed to mimic the Kay surgical procedure
Description: Delivery of polyester pledget via right ventricle through the tricuspid annulus. Pledgets are plicated and locked directly on the annulus. The system is advanced through transjugular route.
Downside: -Incomplete plasty which can be mitigated by implanting 2 pairs of pledgets
Experience: 15 ptn (SCOUT trial)

The Millipede System

Device Name and typology: Repositionable and retrievable tricuspid ring annuloplasty
Description: Collapsible nitinol ring with individually controlled collars. Corkscrew-shaped anchors attach the ring to the annulus. The implant is then contracted reducing the dilated annulus to the physiological size
Downside: -Atrioventricular block.
Experience: 2ptn
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Device Name and typology:
Spacer Anchored at the right ventricular apex
Description:
A foam-filled polymer balloon and rail that is anchored at the RV apex. It is advanced via left axillary vein and completely retrievable
Downside:
- Large device not addressing the anatomical changes in FTR
- Affects RV pacing lead.
Experience:
18 pt

MitraClip

Device Name and typology:
A V-shaped clip which can grasp contiguous leaflets together
Description:
A 4-mm wide cobalt chromium polyester covered implant with 2 arms that grasp 2 leaflets. The delivery system can be advanced through transjugular or transfemoral
Downside:
Risk of leaflet detachment and injury
Chordal entanglement.
Doesn’t target annular dilation.
Experience:
Most familiar
64 ptnt
NaviGate Tricuspid

Device Name and typology:
Nitinol tapered stent with a truncated cone configuration and annular winglets for secure anchoring of the annulus and tricuspid leaflets.

Description:
The winglets engage the annulus from both atrial and ventricular sides. The truncated cone enables low height profile

Downside:
- One Patient.

Experience:
Minimal however virtually the valve replacement can minimize the regurgitation
It can reach a wider patients
It can shorter procedure time

Is it easy as it looks??? Challenges

• Annular and valvular anatomy
  • Need of intervention on anterolateral part of the TA which is technically challenging because of the close proximity of the right coronary artery
  • Septal annulus is precluded because of the close proximity of the conduction system.
  • Necessity to perform a complete annuloplasty with ring.
  • The abundance of primary, secondary and tertiary chordae make per se the approach to the TV difficult to be performed
Challenges (Transcaval Approach)

- Inferior vein cava forms an angle of 45° with the tricuspid plane, which makes this approach challenging.
- RA have inconstant presence of prominent Eustachian valve or Chiari network which can obstacle the advance of the delivery system.
- Impossibility to pass through the RV.

Imaging and procedure guidance

- The midesophageal 4-chamber and the midesophageal RV inflow-outflow views.
- The transgastric RV inflow, modified midesophageal bicaval and the transgastric TV short axis views.
- Dynamic view acquisition between the previous is a must to perform a complete examination of the TV. However it is not always easy.
What will we be waiting for

• PREVENT (NCT02098200)
• SCOUT I (NCT02574650)
• SCOUT II (not registered)
• TRI-REPAIR (NCT02981953)
• SPACER (NCT02787408)
• TRICAVAL (NCT02387697)
• STTAR (not registered)
• HOVER (NCT02339974)

Thank you