Disclosures

- Research-grants, travelling, speaking-fees, IP with Cook.
- Research-grant, travelling, speaking-fees with Cordis
Background

- Treatment of choice for pathologies in the ascending aorta and the aortic arch is open surgical repair
- Severe comorbidities exclude some patients from surgical treatment

Hypothesis:

Less invasive endovascular treatment options to avoid median sternotomy, aortic cross-clamping and cardiopulmonary bypass are necessary
Why Transcardiac Access?

- Access across aortic valve technically easier
- Lower damage risk of narrow or kinked aorto-iliac and femoral access vessels
- Access-profile nearly unlimited
- Short approach to target
- Better device control (straight orientation)
- Easy access to branches
Why Transcardiac Access?

- Easier stabilization against systolic jet
- Drainage of pericardial effusion
- Availability (cardiac-units)
- ...

How to use it?

- Through & through wire access
- Introduction of main stent-graft
- Branch vessel access
- ...

Transcardiac Access Routes

- Transseptal access
- Transapical access
Transapical Access
Transapical Access

- Well established Access
- Standard access for TAVI
- Few casereports for TEVAR
- Open mini-thoracotomy, incision of pericardium
- ....
Transapical Through & Through
Transapical TEVAR

MacDonald et al 2009, JVS 49: 759-62

Transapical TEVAR in Acute Type A Dissection

- 67 year-old male
- Acute type A dissection
- Pericardial tamponade
- Severe comorbidities
Transapical TEVAR in Acute Type A Dissection
Transapical TEVAR in Acute Type A Dissection
Transapical TEVAR in Acute Type A Dissection
Transapical TEVAR in Acute Type A Dissection

12h postop.
Transapical TEVAR in Acute Type A Dissection

6m postop.
Branch Vessel Access
Percutaneous Transapical TEVAR
Transapical Branchvessel-access
Perc. Transapical Closure
Transseptal Access
Transseptal Access
Transseptal Access
Transseptal Puncture - History

- Joseph 1997:
  Carotid artery stenting

- Dorros 2000:
  Stent-graft stabilization

- Cribier 2002:
  Aortic valve replacement
Transseptal Throughwire Access

- 65 year-old female
- 6.5cm TAA
- Multiple Kinks
- Morbidly obese
Transseptal Throughwire Access
Transseptal Throughwire Access
Transseptal Branchvessel-access
Critical Issues

- Transapical access:
  - Surgical exposure required
  - Pericardium to be crossed
  - ...........

- Transseptal access:
  - Strain to anterior mitral leaflet
  - Transient mitral reflux
  - ............
Summary

Transcardiac access:

- Standard access for Aortic valve implantation
- Different access-routes through the heart
- Short distance, straight route, profile nearly unrestricted
- Relevance of transcardiac access yet to be defined
Thank you very much for your attention
Perc. Transapical Closure

Clinical Experience With Percutaneous Left Ventricular Transapical Access for Interventions in Structural Heart Defects

A Safe Access and Secure Exit

Vladimir Jelnin, MD, Yuriy Dudiy, MD, Bryce N. Einhorn, Itzhak Kronzon, MD, Howard A. Cohen, MD, Carlos E. Ruiz, MD, PhD

New York, New York

- 32 patients, pred. paravalvular leak closure
- 5-12F sheaths
- Amplatzer-occludes

Perc. Transapical Closure

Transapical Through & Through

Single case report

Mini-thorakotomy

Ramponi et al 2011, JEVT 18: 350-4
Transapical TEVAR

- Few case reports
- Well established Access
- Cardiac axis