MHIF FEATURED STUDY: PROMINENT

CONDITION:
High triglycerides, low HDL, T2DM, secondary cardiovascular prevention

CRITERIA LIST/QUALIFICATIONS:

Inclusion
TG > 200, HDL < 40, T2DM, LDL<70 or high dose statin or statin intolerant

Exclusion
Type 1 diabetes, HbA1c > 9.5%, NYHA Class IV HF, significant liver disease

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DESCRIPTION:
Placebo controlled trial of a potent fibrate, pemafibrate, to prevent MI, ischemic stroke, unstable angina requiring revascularization, and CV death in adults with T2DM.

TRIGLYCERIDES MATTER – AND THIS STUDY IS HELPING ADDRESS THEM!

OPEN AND ENROLLING:
Please Refer Patients!
MINIMALLY INVASIVE MITRAL VALVE SURGERY:
Is it necessary?

Bassam Shukrallah, MD

Outline

- Benefits/drawbacks
- Indications/contraindications
- Review results, morbidity, mortality, QOL
- Building a program
• Vanderbilt 2006-2010
  - Michael Petracek, MD
  - Mini-mitral with cold fib. arrest
• AATS 2014 Toronto - Patrick McCarthy, MD
  - In Defense of The Sternotomy

“We no long perform open Nissen fundoplication. Our trainees are trained in laparoscopic NF, why are we not capable of doing the same in cardiac surgery?”

• 40 right single lung transplant
• 27 mini-HVAD

Began considering Mini-mitral valve surgery
Right lung transplant

Mini-HVAD
Endocarditis

- 20 mini-mitral valve replacement (5 combined with tricuspid valve replacement)

Traditional Approach for MVR/r

- Sternotomy
- Cardiopulmonary bypass
- Arrested heart
Traditional Approach for MVR/r

Advantages
- Comfort
- Provides full access
- Provides ideal operating conditions
- Allows surgical team full control of circulation and oxygenation

Disadvantages
- Pain
- Increased blood loss
- Prolonged healing time (2-3 months)
- Sternal wound complications
- Cosmesis

Minimally Invasive approach

Advantages
- Cosmesis
- Less pain
- Less blood loss
- More rapid healing (2-4 weeks)
- Minimization/avoidance of sternal wound complications
- Shortened postop ICU and total hospital length of stay
- More cost-effective (?)

Disadvantages
- Technically demanding
- Not appropriate for every surgical team
- Not appropriate for every patient
- Expensive technology
Alternative approach

Three approaches

APPROACH
- Right thoracotomy
- Partial sternotomy
- Robot

AORTA
Cross-clamp or no cross-clamp. (arrest or fibrillate)

Tool or approach?
Minimally Invasive approach

- Same Operation as with Sternotomy
  - Same durability
  - Same results

- Different Technologies (different tools)
  - Thoracoscopic
  - Robotic
  - Direct Vision

Who’s Eligible

- All valve patients are potential candidates
- Relative contra-indications
  - Other cardiac pathology e.g. CAD
  - Peripheral vascular disease
  - Body habitus
    - Extreme obesity
    - Severe pectus excavatum
  - Previous thoracic surgery
Demystifying Mitral Valve Repair

- 95% of degenerative MVD can be repaired utilizing 5 techniques
  1. Triangular resection - posterior leaflet
  2. Sliding repair - posterior leaflet
  3. Artificial chords - anterior leaflet
  4. Closure of commissures
  5. Annuloplasty - all patients
Minimally invasive mitral valve surgery: a systematic review and meta-analysis

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Summary

The mitral valve has been traditionally approached through a median sternotomy. However, significant advances in surgical optics, instrumentation, tissue telemanipulation, and perfusion technology have allowed for mitral valve surgery to be performed using progressively smaller incisions including the minimally invasive and hemi sternotomy. Due to reports of excellent results, minimally invasive mitral valve surgery has become a standard of care at certain specialized centers worldwide. This meta-analysis quantifies the effects of minimally invasive mitral valve surgery on morbidity and mortality compared with conventional mitral surgery and demonstrates equivalent perioperative mortality (1641 patients, odds ratio (OR) 0.46, 95% confidence interval 0.15–1.42, p = 0.18), reduced need for reoperation for bleeding (1553 patients, OR 0.56, 95% CI 0.35–0.90, p = 0.03) and a trend towards shorter hospital stays (1208 patients, weighted mean difference (WMD) −0.73, 95% CI −1.52 to 0.05, p = 0.07). These benefits were evident despite longer cardiopulmonary bypass (WMD 25.81, 95% CI 13.13–38.50, p < 0.0001) and longer times (WMD 0.77, 95% CI 0.33–1.22, p = 0.0003) in the minimally invasive group. These findings show consistently
Despite MIVS having increased CPB times, there was NO difference in mortality.
Survival at 1,3,5 years:
Mini → 98,97,95%
Conv→97,91,86%

Neurologic events
- Risk of stroke → 2.1 vs. 1.2 % (95% CI 1.35-2.38, RR 1.79)
- Subanalysis → 3 fold increase without aortic occlusion
- Grossi et al → Retrograde perfusion in elderly, PVD, and EF <30%, and no aortic occlusion all increased risk of stroke (each with P <0.05)
- Murphy et al→ CT screening in robot MVS → 1.6% stroke
Bleeding, transfusion, reexploration

- Robotics → Two studies no difference, but decreased CT output. Two studies → reduction in all
- Thoracotomy and hemisternotomy → 3 out of 10 studies found a decrease in all, and remaining showed no difference

Atrial fibrillation
- 4 studies showed no difference (539 pt., OR .86, 95% CI 0.59-1.27, P = .45)

Infection
- 3 studies
- 1.8% and 7.7% incidence MIVS vs. sternotomy (P < 0.03)

Pain and quality of life
- 2 studies demonstrated less pain, and analgesic use with MIVS
- Return to normal activity was seen at 4 weeks ahead of sternotomy
Length of stay
- Mean → 3 day shorter
- Median → 1 day shorter
Other benefits of alternative approaches

- hybrid procedures
- Zebra’s (special/complex cases)
Minimally Invasive Direct Access Balloon-Expandable Transcatheter Mitral Valve Replacement for Extensive Mitral Annular Calcification after Transcatheter Aortic Valve Replacement

Joseph Lamelas, MD,* Guilherme V. Silva, MD,† and Subhashis Chatterjee, MD‡

FIGURE 2. After MI leaflet reaction with thickened mitral annular calcification.

FIGURE 3. Intraoperative view through minimally invasive approach of the SAPIEN 3 valve seated in the mitral position.

Ruptured mycotic aneurysm
Program

- Patient selection
- Team training - learn from established successful programs
- Addressing challenges
- Institutional support
- Ongoing quality improvement and results review

Conclusions: Robotic mitral valve repair and low operative algorithm-driven patient selection outcomes and procedural efficiency.
Final Thoughts

• Minimally invasive mitral valve surgery is a safe and viable alternative to sternotomy
• Same surgery, different cut
• Alternative approaches in cardiac surgery expand the spectrum of disease treated (hybrid procedures)
• We can and should build a program!

THANK YOU