

# What's New in Procedures for Valvular Heart Disease?

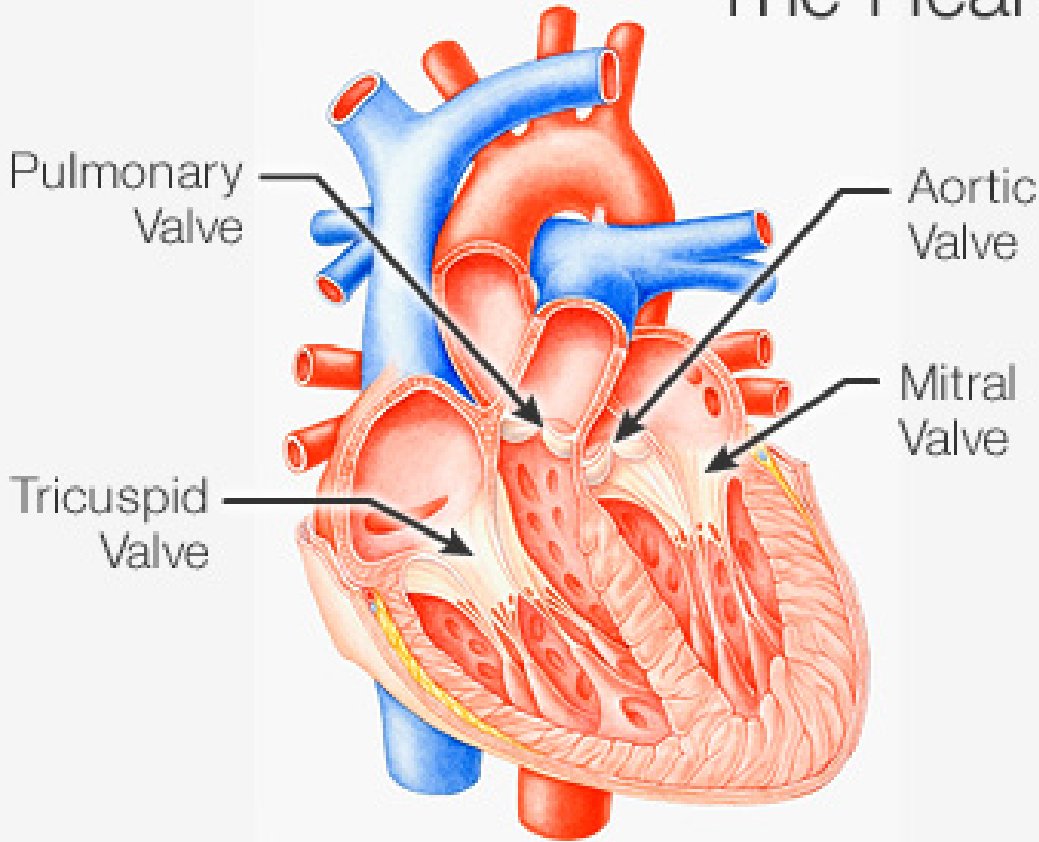
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# Objectives

- Describe new procedures for valvular heart disease
  - **Transcatheter Aortic Valve Replacement (TAVI/TAVR)**
  - **Transcatheter Mitral Valve Repair (MitraClip)**

# The Heart





# Valvular Dysfunction

- Stenosis
  - The valve does not open wide enough to allow blood flow through it due to stiffening or fusing
- Regurgitation/Insufficiency
  - Backward blood flow through the valve due to incomplete closure ie. leaky valve
- Causes of valvular dysfunction
  - Calcific or degenerative valve disease with aging
  - Rheumatic heart disease
  - Congenital defects

# Aortic Stenosis

- Most common type of valvular dysfunction
- Calcification of aortic valve
- Affects 2-7% of those over 65 years of age
- Unpredictable rate of progression
- Signs and Symptoms
  - angina
  - syncope/dizziness
  - heart failure



# Less invasive interventions

- Catheter-based (transcatheter)
- Performed in the Cath lab under general anesthesia or sedation
- Interventional cardiologist and cardiac surgeon present
- Option for high risk surgical patients but now an option for intermediate and low risk patients as well
- Minimum 1 day hospital stay

# Percutaneous Aortic Valves (TAVI/TAVR)



Core Valve

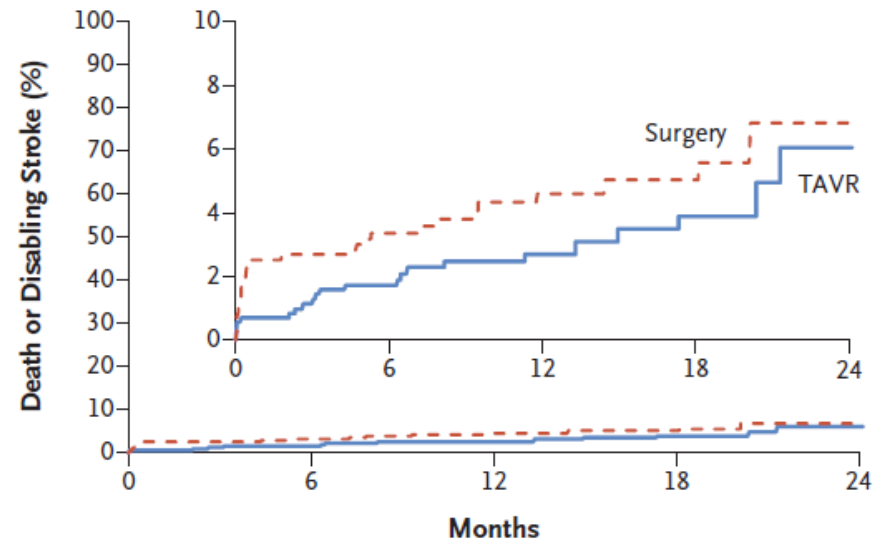
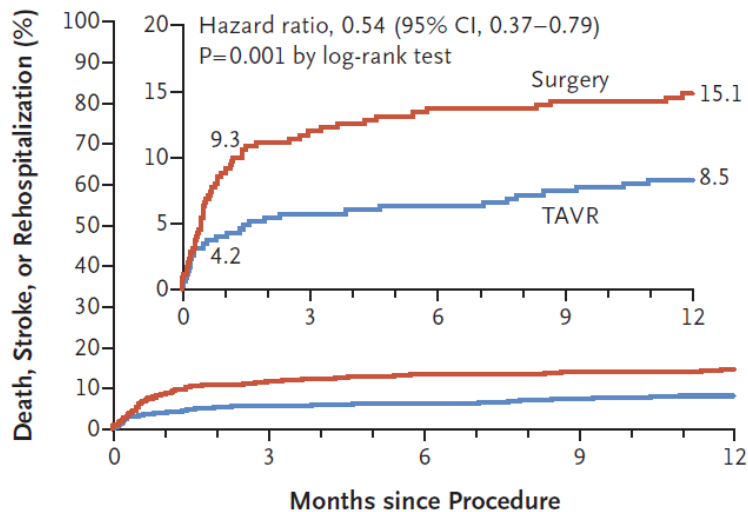


Edwards Sapien Valve

Bioprosthetic (tissue) valve surrounded by metal frame

# TAVI in the news...

- Up to recently, only for those at high risk of surgical complications, but now data exists for low surgical risk patients as well







# TAVI Complications

- major bleeding/vascular complications (access related bleeding) - 5%
- heart block
  - transient – 30%
  - permanent pacemaker – 10%
- aortic regurgitation (peri-valvular leak) – moderate/severe 3%
- stroke - 2%
- new atrial fibrillation – 5-10%

# TAVI - Medications

## Antithrombotic Therapy During/After TAVI

- Intra-procedural
  - Heparin 5000 unit bolus, maintain ACT > 250 – 300 seconds
  - Reversal with protamine at end of procedure
- Dual antiplatelet therapy
  - ASA 80- 325 mg indefinitely *plus* clopidogrel 75 mg daily for 3 – 6 months
  - Single antiplatelet therapy is an option in those at high bleeding risk
  - The benefit of oral anticoagulation has not been established
    - Several ongoing studies
  - Lack of comparative trials, guidelines based on expert opinion

# Antithrombotic Considerations

- Angiogram is required as work-up for TAVI
  - to assess coronary flow to cardiac muscle, coronary height and femoral arteries
  - PCI may be required
- There are often *other* concomitant indications for antiplatelet (ie recent stents) or anticoagulation therapy (ie. atrial fibrillation)
  - individualized approach required considering bleeding and thrombotic risks



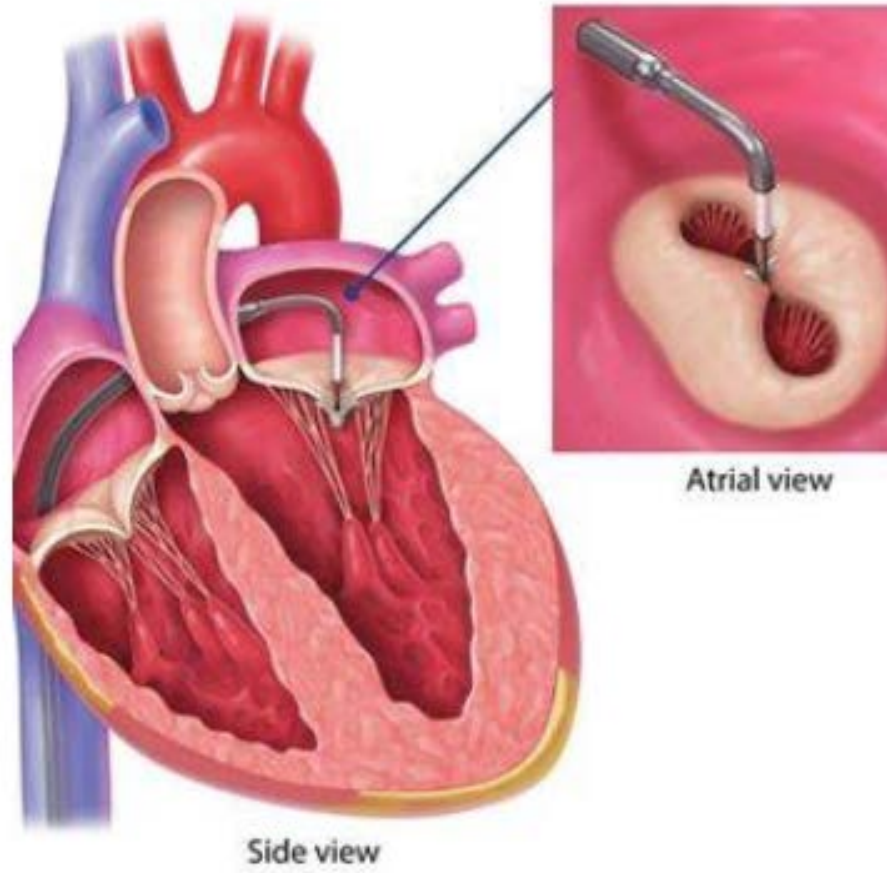
# Mitral Regurgitation

- Causes
  - Mitral valve prolapse
  - Papillary muscle dysfunction due to ischemia (ischemic MR)
  - Dilation of the left of ventricle (functional MR)
- Consequences
  - Left atrial and left ventricular dilatation
    - Ensures adequate preload
  - Eventually pulmonary congestion, heart failure symptoms

# Mitral Regurgitation

- Indications for surgery
  - Symptomatic pts with severe MR
  - Asymptomatic pts with abnormal LV function
  - Asymptomatic pts with normal LV function with high likelihood of successful repair
- Goal of surgery
  - Improved symptoms

# MitraClip



# MitraClip - Medications

- Peri-procedural heparin
- ASA < 100 mg **or** clopidogrel x 6 months
- Endocarditis prophylaxis recommended
- Reassessment of medications – improved cardiac output

# Pharmacologic Considerations

- **antithrombotics** – an individualized approach required due to:
  - Bleeding risk
    - Complex patients (increased age, risk of bleeding, co-morbidities etc)
  - Concomitant indications for antiplatelet (ie recent stents) or anticoagulation therapy (ie. atrial fibrillation)
- **diuretics**
  - Reassess post procedure as less heart failure
- **endocarditis prophylaxis**
  - Reasonable for all patients with any prosthetic valve replacement/repair



# Summary

- Transcatheter approaches are becoming more common
- Pharmacists need to understand how these procedures impact drug therapy



Thank You & Questions