Aortopathies

Pathophysiology
- Hypertensive and hemodynamic change of pregnancy increase risk of aneurysm rupture and dissection
- Observation can occur at any point in pregnancy with highest risk in third trimester

Clinical Presentation
- Acute chest pain at rest or on exertion
- Symptoms worsen with the elevated velocity of the aorta
- Urgent: Acute aortic dissection and rupture; prompt hospitalization and early surgery

Imaging
- Transesophageal echocardiography (TEE)
- Computed Tomography Angiography (CTA) Use for aggressive lesions

Antepartum
- Normal pregnancies (Do Not fluid overload)
- Maintain adequate blood volume and return to myocardial function
- Adequate urine output
- Consider chronic pulmonary embolism

Mainstay of Treatment
- Mobile bed rest during pregnancy

Fluid Management
- Normal fluid intake; avoid diuretics

Obstetric Medications to Avoid or Use Caution
- Terbutaline, alfuzosin (Refrain)
- Avoid overmedication (NO strong opioids)

Timing of Delivery
- 32-36 weeks

Mode of Delivery
- Cesarean section

Pulmonary Artery Hypertension

Pathophysiology
- As PVR increases, PA pressure increases leading to RV failure and decreased CO leading to hypotension (this is when ptc becomes symptomatic)
- Fetal distress (as Potter syndrome with PA failure and hypotension)
- Right atrial pressure (RAP) increases due to "thickened" right ventricle with regurgitation from RV back into LA, RV ischemia and dysfunction lead to fluid retention (impaired venous return and death)

Clinical Presentation
- Secondary causes: AOD, VOD, or PDA Disease progression: echocardiogram, peripheral edema, ascites and/or early satiety. RPR, preeclampsia, "EXTRAORDINARY"

Antepartum
- Manufacture at 36-39w exp 34-36w Pneumonitis, fibrinogenosis, coagulopathy (AVH) also consider chronic pulmonary embolus

Mainstay of Treatment
- Mobile bed rest during pregnancy

Fluid Management
- Normal fluid intake; avoid diuretics

Obstetric Medications to Avoid or Use Caution
- Terbutaline, alfuzosin (Refrain)
- Avoid overmedication (NO strong opioids)

Timing of Delivery
- 32-36 weeks

Mode of Delivery
- Cesarean section

Mitril Stenosis

Pathophysiology
- Rheumatic heart disease (most severe)

Clinical Presentation
- Echocardiogram, peripheral edema, ascites and/or early satiety. RPR, preeclampsia, "EXTRAORDINARY"

Antepartum
- Managing at 36-39w exp 34-36w Pneumonitis, fibrinogenosis, coagulopathy (AVH) also consider chronic pulmonary embolus

Mainstay of Treatment
- Mobile bed rest during pregnancy

Fluid Management
- Normal fluid intake; avoid diuretics

Obstetric Medications to Avoid or Use Caution
- Terbutaline, alfuzosin (Refrain)
- Avoid overmedication (NO strong opioids)

Timing of Delivery
- 32-36 weeks

Mode of Delivery
- Cesarean section
### Cardiomyopathy/Heart Failure

**FLUID MANAGEMENT**
- Maintain afterload - Maintain normotension likely to worsen condition, judicious use only.

**OBSTETRIC MEDICATIONS TO AVOID OR USE CAUTION**
- Non-dihydropyridine calcium channel blockers, Milrinone, Varenicline, Venlafaxine (Reminyl).

**BLOOD PRESSURE AND HEART RATE PARAMETERS**
- Between 150/90 to 140/90 mm Hg, HR 60 to 100. Avoids sedation, blood loss, hypotension, Valvahal, excess catecholamines, exercise, hyperventilation

**TIMING OF DELIVERY**
- 20-30 weeks not after 40 weeks

**MOOD OF DELIVERY**
- Assisted vaginal delivery with regional anesthesia to avoid pain and increase in HR, reserves only for obstetric indications

**REGIONAL ANESTHESIA-EPIDURAL**
- Yes - avoid pain

**REGIONAL ANESTHESIA-SPINAL**
- No - avoid rapid drop in bp, avoid rapid sympathetic blockade

### Cardiomyopathy/Heart Failure

**FLUID MANAGEMENT**
- Maintain afterload - Maintain normotension likely to worsen condition, judicious use only.

**OBSTETRIC MEDICATIONS TO AVOID OR USE CAUTION**
- Non-dihydropyridine calcium channel blockers, Milrinone, Varenicline, Venlafaxine (Reminyl).

**BLOOD PRESSURE AND HEART RATE PARAMETERS**
- Between 160/90 to 140/90 mm Hg, HR 60 to 100. Avoids sedation, blood loss, hypotension, Valvahal, excess catecholamines, exercise, hyperventilation

**TIMING OF DELIVERY**
- 20-30 weeks not after 40 weeks

**MOOD OF DELIVERY**
- Assisted vaginal delivery with regional anesthesia to avoid pain and increase in HR, reserves only for obstetric indications

**REGIONAL ANESTHESIA-EPIDURAL**
- Yes - avoid pain

**REGIONAL ANESTHESIA-SPINAL**
- No - avoid rapid drop in bp, avoid rapid sympathetic blockade

### Pregnancy-Associated MI (PAMI)/SCAD

**PATHOPHYSIOLOGY**
- Fetal ischemia.

**CLINICAL PRESENTATION**
- Umbilical cord involvement or obstruction in preg. may lead to severe fetal changes.

**IMAGE**
- TTE for fetal motion abnormalities, consider LUS

**ANTIPERPETUATION**
- Early inosartane strategy for ACS vs conservative medical management. Most resolved within 3 months. Risk of acute MI present

### Aortic Stenosis

**PATHOPHYSIOLOGY**
- Increase in cardiac output leads to worsening of left-sided cardiac failure. Cardiac output factors - left ventricular pressure (increases symmetrically in heart failure, arrhythmia, syncope). SVR decreases. DIP decreases leading to decreased coronary perfusion to thinned myocardium - SCHM. Mitral ischaemia leads to decreased LVEF function and decreased cardiac output — more SCHEMA leading to ischaemia.

**CLINICAL PRESENTATION**
- 10% risk of cardiac event with severe AS. Fixed and limited cardiac output, through right side valve area. Stable hypotension and decrease preload. Red flags: previous valve interventions, profound diastolic dysfunction, worsening TNI, NYHA III/IV. In addition, no vaso-stable course, enhanced RVE new cardiac symptoms, worsening ventricular function, increasing pulmonary pressures, new severe valve organization, more important increase in valve gradient, increasing RVE consistent dilating aortic root.

**ANTIPERPETUATION**
- Complete TTE with full anatomic and hemodynamic management of the valve. Surgery with early reoperation for CHF

**MANAGEMENT**
- Carotid endarterectomy, Anticoagulant therapy
- Aspirin may be used to treat symptoms of NSTEMI, but not recommended in severe AS with worsening NYHA class III/IV

**MAINSTAY OF TREATMENT**
- Maintain afterload - Normal HR (avoid tachycardia).

**FLUID MANAGEMENT**
- Avoid rapid drops in BP, avoid rapid sympathetic blockade

**BLOOD PRESSURE AND HEART RATE PARAMETERS**
- BP goals - 90/60. HR blocker use for HF control

**TIMING OF DELIVERY**
- Determined by gestational age, obstetric considerations and clinical status of mother

**MODE OF DELIVERY**
- Assisted vaginal delivery with regional anesthesia to avoid pain and increase in HR, reserves only for obstetric indications

### Conclusion
- This document serves only as a general guide in cases where appropriate subspecialists are not actively available. This guide should NOT be used in place of consultation with subspecialists or transfer to tertiary care facilities. Please individualize the care of each patient.