Two Hearts Beat As One: Your Heart & Pregnancy

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The Pregnant Heart

- Cardiovascular Changes
- Common Symptoms
- Cardiac Conditions Associated with Pregnancy
Cardiovascular Changes

- begin in first trimester
- plasma volume increases
- red blood cell mass increases
- both plateau near third trimester

![Graph showing increase in plasma volume (Plasma Vol) and red blood cell mass (RBC) over trimesters.](image)
Hemodynamic Changes

- Uterine blood flow ↑
- Blood volume ↑40-45%
- Heart rate ↑10-20%
- Blood pressure - neutral

Cardiac Output
Increased 30%

Normal Symptoms

- heart racing
- lightheaded or dizzy
- shortness of breath
- edema
Palpitations

- racing or fluttering
- random
- with activity
- SVT

Dizzy / Lightheaded

- spinning
- dizzy
- off balance
- faint
Syncope

- Vasovagal
- Orthostatic
- Heart Block

Shortness of Breath

- Panting
- Heavy breathing
- Minimal Exertion

Edema

- Swelling
- Feet
- Hands
- Severity
- Associated symptoms
Hypertension & Preeclampsia

- Regular monitoring
- Chronic - greater than 140/90 - prior or < 20 wks
- Gestational - New > 140/90 - after 20 wks
- Preeclampsia - Increase over baseline, proteinuria, end-organ damage
- Eclampsia - Marked proteinuria with new HTN, additional features

Preeclampsia / Eclampsia

- Proteinuria - > 0.3 gm in 24 hr
- Increased BP
- Headache & Blurred vision
- Abdominal pain
- Low Platelets
- Abnormal Liver Enzymes

HELLP Syndrome
Therapy In Pregnancy

- Salt restriction
- Bed rest (occasional)
- Medical therapy - methyl dopa, beta blockers, diuretics
- IV magnesium
- Urgent delivery

Peripartum Cardiomyopathy

- Abnormal function of ventricle
- Occur last month to 6 mos after
- Incidence 1 in 3000
- Risk factors - hypertension, multiparity, older maternal age,
PPCM Symptoms

❖ Increasing shortness of breath
  ❖ waking from sleep or sleep in chair
❖ Chest pain
❖ Persistent swelling
❖ Palpitations
❖ Extreme fatigue
❖ Symptoms - Congestive Heart Failure

PPCM Dx & Treatment

❖ Echocardiogram
❖ CXR
❖ Bloodwork - BNP, renal function
❖ Medication - diuretics, beta blockers, ACE Inhibitors
❖ Risk for blood clots - heparin
❖ With EF < 35% - Lifevest or ICD
PPCM Outcomes

- Rule of Thirds
- Long term medical therapy
- Future Pregnancy
  - 2017 European Study - 34 women with SSP
  - Relapse 56%, 12% mortality

PPCM & Arrhythmia

- Higher risk for VT and SCD
- 2017 German study - 49 women, EF < 35% with WCD
  - EF 20-25%, Class III CHF - 12 % VF / VT
- European retro 2007-2012 - 18.7% hospitalization
  - VT most common, Cardiac arrest 2.2%
HIGH RISK PREGNANCY

- Pulmonary Hypertension
- Dilated Cardiomyopathy, EF < 40%
- Symptomatic Obstructive Lesions
  - Aortic Stenosis, Mitral Stenosis, Pulm. Stenosis
- Marfan Syndrome
- Cyanotic Lesions
- Mechanical Prosthetic Valves

MARFAN Syndrome

- Autosomal dominant connective tissue disorder
- Mutation of the fibrillin-1 gene
- Musculoskeletal deformities, Lens subluxation
- Aortic dissection & Aortic root aneurysms
- Beta blocker therapy - Ao < 4.5 cm (< 4.0 cm women)
Marfan Syndrome & Pregnancy

- Increased risk dissection during and post-partum
- if Ao > 4.2 cm, pre-pregnancy surgery with root replacement
- Continue beta blocker therapy
- High risk

MS and Risk of Dissection

- European cohort High Risk CV clinic 2006-15
- 31 pregnancies in 19 women, 8 preg. (4.0-4.6 mm)
- Increase > 1mm was dilation during pregnancy
- 68% pregnancies with beta blockers
- 2 post-partum dissections - 6.5% rate
- No maternal deaths, Cesarean section, 41% preterm delivery
MS and Risk of Dissection

❖ National Registry of Genetically Triggered Thoracic Aortic Aneurysms and Cardiovascular Conditions (GenTAC)
❖ 94 MFS women with 227 pregnancies
❖ 10.6% women had an aortic complication
  ❖ Four type A, Three type B, One Cor. artery
  ❖ Two Ao growth > 3mm

Thank You