“ACUTE MEDICAL ISSUES IN PREGNANCY FOR THE HOSPITALIST”
a.ka.

“She’s What?!”

Obstetric Medicine for Hospitalists
SGIM 2010

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Overview

- **Aim:** General and Practical Review/Intro
- **Background**
- **Faculty**
  - Met through SGIM
  - OB Med Interest Group
- **Review (MPC)**
  - Physiological Changes
  - Preeclampsia
    - a.k.a “PIH”
- **Groups for Cases**
  - 20 minutes each
- **Wrapup**
Birth of a Workshop...

- **Women’s Health Working Group 2007**
  - Became a Task Force 2008
  - Goal: Coordinate and Promote Women’s Health Programming
    - Workshop
      - Academic Hospitalist Task Force
      - Co-Chairs Vikas Parekh and Bradley Sharpe
    - 4th Annual SGIM Distinguished Professor in Women’s Health
      - Dr. Carolyn Clancy
      - Friday: 7:00-8:00 pm Keynote Address and Reception
      - “New Frontiers in Women’s Health and Health Care”
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<th>Bruce Johnson, MD</th>
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<th>Melody Mendiola, MD</th>
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<tr>
<td>Staff Physician</td>
<td>Assistant Professor of Medicine</td>
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<td>Departments of OB/Gyn</td>
<td>Section of Women’s Health</td>
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<td>and GIM</td>
<td>University of Pittsburgh</td>
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<td>Hennepin County Medical</td>
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Physiology of...Pregnancy!
Cardiovascular Changes

- Increases
  - Cardiac Output and Blood Volume increase by 50%
    - Begins early, peaks 28-32 weeks
    - Mitral stenosis
  - Increased Stroke Volume/ Contractility
  - HR up by 10-20%
Cardiovascular Changes

- **Decreases**
  - SBP drops by 20 mmHg, DBP by 10 mmHg
  - Nadir around 20 weeks, increases slightly after that

- **Hemodynamics essentially unchanged**
  - SVR Slightly lower

- **Vena cava compression during third trimester**
  - Wedge under right hip

- **Systolic Murmur in 96%**
  - Over Pulmonic Valve area, Quieter with inspiration
  - Pulmonic Arterial flow
Pulmonary Changes

Pulmonary

- Spirometry unchanged
- Functional Residual Capacity may be decreased
- *What is the normal PCO2?*
  - a) 25
  - b) 30 (28-32) mmHg
  - c) 40

*Why is the PCO2 lower?*
  - a) Progesterone increases the Respiratory Rate
    - b) The tidal volume is increased
  
  The Respiratory Rate should be 12.
Pulmonary

Not Preg

PREG

Maximal inspiratory level

Resting expiratory level

Maximal expiratory level

IRV

IC

ERV

TLC

RV

FRC

TLC

RV

FRC

PREG

Not Preg
Physiology: Summary

- Most stuff increases
  - Tidal Volume, O2 Consumption
  - Liver Synthetic Output
  - Heart Rate, Volume of Distribution
- The increase is usually 50%
  - C.O., GFR, Blood Volume
- Decreases usually due to an increase
  - PCO₂, O2 Reserve, FRC
  - Hemoglobin, Albumin (normal ~3 mg%)
Hypertension during...Pregnancy!
HTN in Pregnancy

1) Preeclampsia/Eclampsia
   1<sup>st</sup> pregnancies, >20 weeks
2) Chronic HTN
3) Preeclampsia/Eclampsia Superimposed on CHTN
4) Transient or Late HTN
   Risk for CHTN
Preeclampsia

- 10% of 1st pregnancies
- New BP >140/90 and proteinuria
- Abnormal Placentation and Endothelial abnormalities
  - HTN, Glomerular Endotheliosis, Low PLT's, Capillary Leak
  - Placental dysfunction
- Risks
  - 1st Pregnancy, New Paternity, Age <18 or >35, Obesity
  - Multiple gestation, Family History
  - Hydatidiform Mole, Hydrops fetalis, triploidy, CHTN, DM, Renal Dis, SLE, APLAb
Preeclampsia - Dx

- **New Onset HTN** (SBP>140, DBP>90)
  - 2 Readings 6 hours apart

- **Proteinuria**
  - ≥ +2 on Dip or ≥ 300 mg / 24 hours
  - Onset after 20 wks gestation
  - Edema is not reliable (but can be suggestive)
Preeclampsia Assessment

- **Maternal Symptoms**
  - Neuro (Headache/visual), Abd Pain, Hand/Face Edema

- **Maternal Exam**
  - BP. Retinal exam (spasm/edema)
  - Hepatic tenderness, Edema
  - DTRs (Clonus is not normal)

- **Maternal Labs**
  - CBC, CMP, 24 Hour Urine for Protein, U/A, Uric acid (eh)

- **Fetal Assessment**
  - Placental Assessment
    - Amniotic Fluid, Growth, Uterine Dopplers (notching?)

- **What’s the Differential**
  - Pregnancy Related Hypertensive Disorder vs. Medical?
Preeclampsia - Tx

- **Severe (Must consider delivery)**
  - >160/110, CNS, Pulmonary, Cardiac, Hepatic
  - Creatinine > 1.5mg%, Oliguria
  - Hemolysis, Low Platelets (HELLP)

- **Seizure Prophylaxis**
  - Magnesium 4 gram I.V. Load / 30min
  - 1-2 grams per hour
  - Blood level 4–7 mEq/L (2-3.5 mmol/L)
  - Monitor Levels, Reflexes, Respirations, Urine Output

- **Eclampsia**
  - Magnesium First
Preeclampsia - Tx

- Blood pressure control
  - Cautious lowering to safer level in increments
  - Aim for
    - Systolic <160
    - Diastolic <95 mm Hg
  - Hydralazine: 5mg I.V. q10 min (10,20,40)
  - Labetalol: 20mg I.V. q10 min (40,80)
- NO ACE inhibitors antepartum
  - Postpartum: OK

- Vaginal Delivery is OK
The Box is Placental Involvement
Final Pearls for... Pregnancy

- Healthy Fetus Depends on a Healthy Mother
- Sicker = Less Thought
- What if I don’t give the med / treatment / test?