The Alabama Department of Public Health and The March of Dimes Prematurity Summit

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Obesity and Pregnancy

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Disclosures

- Annie McCartney, MSN, WHNP-BC
  - Nothing to disclose
- Cheryl Robinson, DNS, MS, NNP-BC
  - Nothing to disclose

Objectives

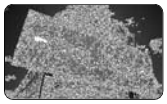
- By the end of this presentation, the learner should be able to:
  - Understand current definitions of obesity in non - pregnant and pregnant women
  - Recognize causes of increased risk of preterm delivery among obese pregnant women
  - Identify both maternal and neonatal complications related to obesity and pregnancy

Patient Myths

- More weight gain = healthier baby
- I'm eating for two
- It will easily come off after delivery
  - Especially if I am breastfeeding
- Its Unavoidable: expected part of being a mom
- There is no risk to baby

Provider Myths

- "Talking about weight will offend my patients"
- "My weight makes me uncomfortable. How can I counsel my patients on their weight if I struggle with mine?"
- There are too many other priorities that weight falls behind in importance



Defining Obesity

CDC Definitions of Obesity

Overweight	BMI 25 – 29.9
Class I Obesity	BMI 30 – 34.9
Class 3 Obesity (Morbid Obesity)	BMI ≥ 40

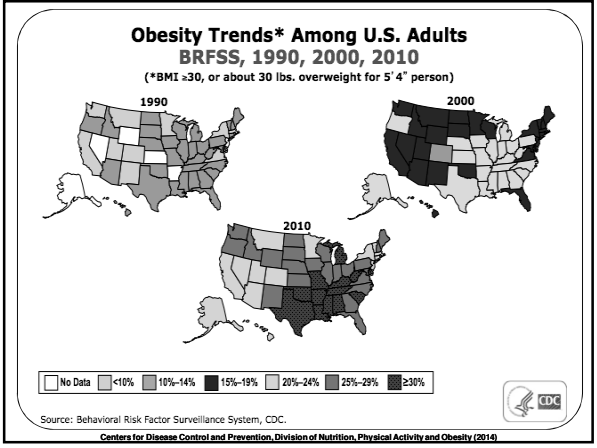
BMI = weight in kg / height in meters sq

Centers for Disease Control and Prevention, Division of Nutrition, Physical Activity, and Obesity (2012)

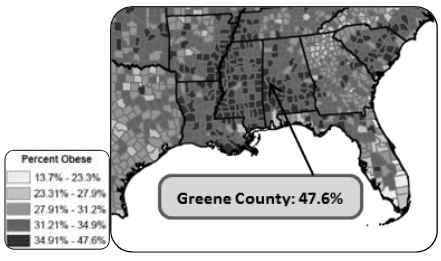
Incidence of Obesity

- In the US:
  - 56% of non - pregnant women of childbearing age are overweight
  - 30% of non - pregnant women of childbearing age are obese
- Worldwide:
  - 15 - 20% of women are obese

Flegal, Carroll, Kit, Ogden (2012)



Centers for Disease Control and Prevention, Division of Nutrition, Physical Activity and Obesity (2014)



- Mississippi, Alabama, Arkansas and Louisiana have the highest concentration of obese counties in the nation
  - In total, 35% of Alabamians weigh - in as obese
  - Greene county in central Alabama has the highest concentration of obese adults in the entire nation with a percentage of 47.6%

Robert Wood Johnson Foundation (2012).

Obesity in Alabama

- According to the CDC, 69% of adults in Alabama are considered overweight, with BMI of 25 or greater
  - 32 - 35% of these are classified as obese or morbidly obese with BMI of 30% or greater
- Estimated yearly medical costs for obese adults on average $1,429 higher than those of normal weight

Centers for Disease Control and Prevention (2010)

Obesity in Pregnancy

- Defined as pre - pregnancy BMI ≥ 30
- Increased incidence of both maternal and neonatal / fetal complications

American College of Obstetricians and Gynecologists (2013)

Obesity and Pregnancy

- Proposed etiology of increased complications in obese pregnant patients:

Obesity: state of chronic, low - grade inflammation.
Can account for increased incidence of diabetes and hypertension among other diseases

+

Pregnancy: state of altered immunity and inflammation.

=

Combined: leads to state of significant, chronic inflammatory response that can be harmful to both mother and fetus.

Madan, Chen, Goodman, Davis, Allan, & Dammann (2010)

Obesity and Pregnancy

- What does this mean?
  - Inflammation sets off a cascade of events which can lead to other complications
  - Often these complications lead to elective medically - indicated preterm induction / delivery
- What can we do?
  - Break the chain

Obesity and Pregnancy

Obese pregnant patients are at increased risk for:

- First trimester loss
- Recurrent pregnancy loss
- Gestational Hypertension
- Pre - eclampsia
- Gestational Diabetes
- Chorioamnionitis
- Elective preterm birth
- Stillbirth
- Higher rates of C - Section
- LGA and Shoulder Dystosia
- DVT / PE
- Anesthetic Complications

American College of Obstetricians and Gynecologists (2013)

Obesity and Preterm Delivery

- Spontaneous PTD: conflicting evidence
- Elective PTD: Most incidences of PTD in obese pregnant patients are elective, medically - indicated secondary to medical or obstetric complication(s)
- Accounts for up to 40% of all preterm births

McDonald, Hen, Mulla, & Beyene (2010) Torloni, et al. (2009)

Preterm Delivery

- US (2012): more than 450,000 babies born preterm
- Preterm birth accounts for up to 35% of all infant deaths
- Alabama (2012): Scored an "F" on MOD Preterm Birth Report Card with rate of 14.6%

Centers for Disease Control and Prevention (2010)
March of Dimes (2012)

Elective Preterm Induction

- Most common causes of elective preterm induction of labor:
  - Pre - eclampsia, fetal distress, SGA / IUGR, placental abruption
- These often occur as a result of hypertension or diabetes (whether pre - existing or gestational)
  - Both are more common in obese patients

Torloni, et al. (2009)

Miscarriage and Obesity

- First Trimester Pregnancy Loss
  - Data is inconclusive
- Study of approximately 30,000 patients:
  - Risk of Spontaneous Abortion (SAB)
    - 14% of obese patients
    - 11% of normal weight patients
      - OR 1.31, 95% CI

Boots & Stephenson (2011)
Yogev & Visser (2009)

Miscarriage and Obesity

- Risk of Recurrent SAB
  - 0.4% of obese patients
  - 0.1 % of normal weight patients
    - OR 3.51, 95% CI

Boots & Stephenson (2011)
Yogev & Visser (2009)

Hypertension

- One of the most common complications of pregnancy
  - Occurs in 10% of pregnancies
- 2 general categories:
  - Pre - existing (chronic) hypertension
  - Pregnancy - related Hypertension
    - Gestational Hypertension
    - Pre - eclampsia
    - Eclampsia

Jim, Sharma, Kebede, & Acharya (2010)

Pre - existing Hypertension

- Pre - existing (chronic) hypertension is more common among obese women
- Incidence: 3% of pregnant women
- More common in obese patients
  - 3 - fold increase in PTB prior to 35 weeks
- ~10 - 25% will develop superimposed pre - eclampsia
  - 2.7 fold increase in risk for severe pre - eclampsia

Jim, Sharma, Kebede, & Acharya (2010)

Gestational Hypertension

- Also known as Pregnancy - Induced Hypertension
  - Affects 5 - 10% of all pregnancies
- Obese patients 2.5 - 3.2 fold increase in risk
  - The higher the BMI the higher the risk of gestational hypertension
- Almost 50% of these women will go on to develop pre - eclampsia

Beckman, et al. (2014)
Jim, Sharma, Kebede, & Acharya (2010)

Pre - Eclampsia

- Affects 5% of all pregnancies
- Obesity increases risk of pre-eclampsia 3-fold
  - 30% of all patients with pre-eclampsia are obese
  - Central obesity creates much higher risk

Jim, Sharma, Kebede, & Acharya (2010)

Pre - Eclampsia

- Considered to be a systemic intravascular inflammatory response whose cure is delivery.
- Pre-eclampsia can lead to decreased placental perfusion which leads to medically-indicated preterm delivery secondary to fetal distress or IUGR in about 30% of all cases

Jim, Sharma, Kebede, & Acharya (2010)

Pre - existing Diabetes

- One of the two most common medical complications among obese pregnant women
  - CDC: occurs in 2 - 5 per 1000 pregnancies
  - Type 2 more common than Type 1

Beckman, et al. (2014)

Pre - existing Diabetes

- 2 - fold increase in pre - eclampsia
- Complications: pre - eclampsia, macrosomia, Miscarriage, IUFD, polyhydramnios, DKA
  - All of which can necessitate elective medically - indicated PTD

Beckman, et al. (2014)

Gestational Diabetes

- Prevalence: 3 - 15% and continues to climb
- Obese pregnant patients have 2.6 - 4.0 fold increase in risk for development of GDM
  - Obese patients: risk of 20% for GDM
  - Increases 0.92 % for every increase of 1 kg / m2

American College of Obstetricians and Gynecologists (2013)

Gestational Diabetes

- Control of GDM is affected by obesity
  - 2/3 of morbidly obese patients with GDM failed to achieve glycemic control and required treatment with insulin
  - Insulin treatment: 3 - fold risk for pre - eclampsia

American College of Obstetricians and Gynecologists (2013)

Chorioamnionitis

- More common in obese pregnant women
- Thought to be secondary to increased inflammatory and decreased immune state of obesity and pregnancy
- Implicated in pathogenesis of PROM, preterm birth, and increased neonatal mortality

Madan, Chen, Goodman, Davis, Allan, & Dammann (2010).

Risk of Stillbirth

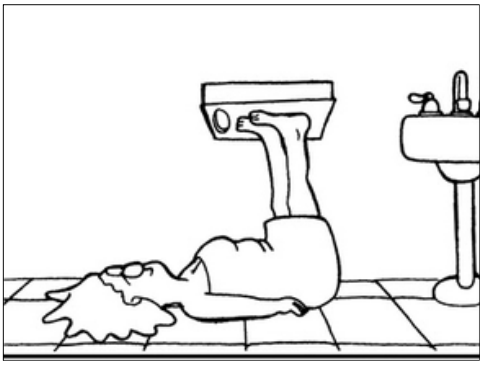
- Incidence of IUFD is 2 times more likely in overweight pregnant women
  - 2.5 times more likely in obese women
- Pathophysiology unknown
- Significant racial disparity:
  - Higher rates among African American women

Ehrenberg, et al. (2009)

Take Home Points

- Obesity is a modifiable risk factor
- Talk to your patients about their weight
- Work with your patients diligently to help them minimize their risk for preterm birth
  - Giving same emphasis to obesity as you do other disorders such as diabetes and hypertension

We've Been Doing It Wrong!



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