



# Metabolic Syndrome

AND

## GESTATIONAL DIABETES

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	NCEP ATP III
Hypertension	Current antihypertensive therapy and/or B/P > 130/85mmHg
Dyslipidemia	Plasma triglyceride level >150 mg dl and or HDL level <50 mg dl
Obesity	Waist circumference> 88cm
Glucose	Fasting Blood Glucose Level >110mg/dl
	Requirements: Any 3 of the above



# Consequences of Gestational Diabetes

- ▶ may develop metabolic syndrome within 36 mos of delivery...compared to 5% of women healthy during pregnancy; they fail to understand or apply the knowledge.....that long term consequences can be reduced by diet and exercise.
  - long term lifestyle
  - does not understand cause and effect
  - availability of bad food choices
  - no encouraging coach

# Pathophysiology: How pregnancy affects body glucose processing

As a review: In the non-pregnant woman.....

Food digests producing (glucose) sugar >

Enters bloodstream>

In response pancreas produces insulin >

Insulin is hormone helps move glucose from blood stream into body cells where it is used for energy.



# Glucose Metabolism in Pregnancy

- ▶ High levels of other hormones are produced in pregnancy which impair the action of insulin in the cells >>>>raising blood sugar
- ▶ As the fetus grows the placenta produces more and more insulin blocking hormones ?? (TNF: tumor necrosis factor, hPGH (human placental growth hormone) and possibly hPL (human placental lactogen))
- ▶ These factors cause rise in BS to levels affecting health of baby

# Risk Factors for Gestational Diabetes

- ▶ Age > 25 years
- ▶ Family or personal history
- ▶ Baby >9 lbs. (4.1kg)
- ▶ Unexplained stillbirth
- ▶ Excess weight (body mass index of 30 or >)
- ▶ Non-white race (Black, Hispanic, American Indian or Asian more likely)



# Breaking News: Endocrinology Advisor, January 29, 2016

- ▶ Early menarche may increase risk of gestational diabetes
- ▶ Nurses Health Study II

Early menarche was mediated by excessive adiposity before pregnancy.

Chen, et.al. Diabetes Care, 2016

# Complications Affecting Baby

- ▶ Greater birth weight > birth injuries > c- delivery
- ▶ Early preterm birth > immature lungs > respiratory distress syndrome
- ▶ Hypoglycemia in baby due to ^ insulin production > may cause seizures in baby
- ▶ Increased incidence of Type II diabetes in life



# Complications/risks to Mom

- ▶ C-delivery
- ▶ Hypertension
- ▶ Preeclampsia
- ▶ Type II diabetes

# Management: Treatment and Medications

- ▶ Monitor blood sugar 4-5 times a day (supplies costly)
- ▶ Must have monitoring, education and encouragement from diabetes educator and /or registered dietitian



# Healthy Diet/Exercise: This is the most difficult part of treatment

- ▶ Think about the times you were told to follow a specific diet with few fun foods. Then, add instructions to exercise. You might be a single parent with 2 more children. There might be a man in the house who is of no help.
- ▶ “Sure, I will follow your instructions, while feeding my family on limited income.” Fast food is so easy !!!! Plus I have coupons!

# Healthy Diet for Gestational Diabetes Management

- ▶ Right foods in right proportions
- ▶ Set weight gain goals/ Weight loss not recommended
- ▶ Dietary recommendations: Fruit, vegetables, whole grain foods high in nutrition....foods high in nutrition and fiber, low in fat and calories.
- ▶ Limit refined CHO, including sugar
- ▶ I suppose this means no chocolate frosty and Captain D's Oh my!!!!If



# Exercise

- ▶ Lowers blood sugar by stimulating glucose movement in body into cells>>where it is used for energy and burns calories.
- ▶ Increases cells sensitivity to insulin meaning the body needs to produce less insulin to transport sugar.
- ▶ If diet and exercise is not enough, may need to add insulin. 10% to 20% will need insulin to achieve goals.

# Make Sure Baby (fetus) is OK

- ▶ Repeated ultrasounds or other tests to evaluate fetal wellbeing



# Suggested Activities to Achieve Success

- ▶ Read recommended articles and/or books
- ▶ Join support group
- ▶ Ask questions of healthcare provider
- ▶ Do not listen or seek info from friends who are uninformed

# Prevention in Future Pregnancies

- ▶ Healthy diet
- ▶ Activity
- ▶ Lose excess weight before pregnancy