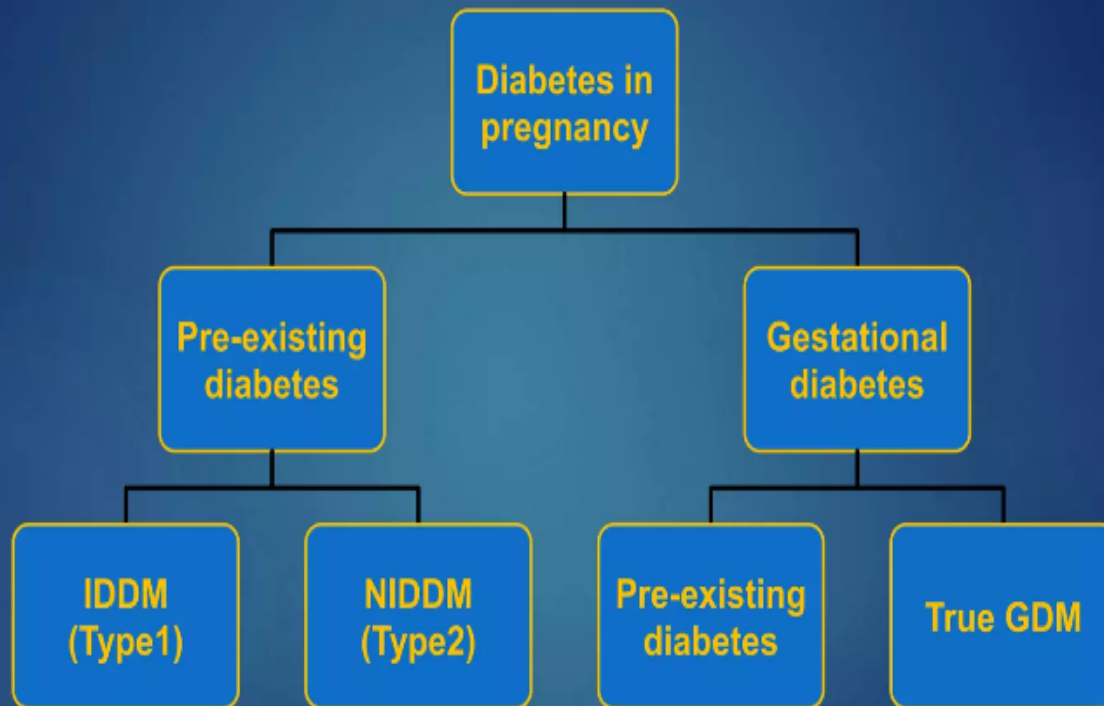




DIABETES IN PREGNANCY

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Gestational diabetes

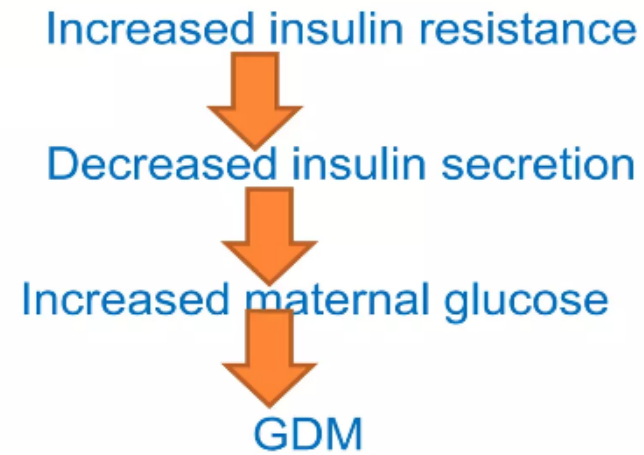
- Gestational diabetes is diabetes diagnosed for the first time during pregnancy (gestation). Like other types of diabetes, gestational diabetes affects how your cells use sugar (glucose). Gestational diabetes causes high blood sugar that can affect your pregnancy and your baby's health.
- Most of the time, gestational diabetes doesn't cause noticeable signs or symptoms. Increased thirst and more-frequent urination are possible symptoms.

PREGNANCY PATHOPHYSIOLOGY

- Glucose is a **teratogen** at high levels
- Crosses placenta readily while insulin cannot
- Insulin resistance occurs because hormonal changes associated with pregnancy partially block the effects of insulin
- Insulin resistance causes glucose to be **shunted from mother to the fetus** to facilitate fetal growth and development



- Subsequent increase in insulin resistance causes maternal glucose levels to increase 80% of non-pregnant women



- GDM disappears after pregnancy
- Useful physiologic process out of balance



Fuel metabolism in pregnancy

- ▣ Pregnancy greatly increases demand for metabolic fuels that are needed for growth and development of the fetus and its support structures including the placenta and uterus. The total gestation-related energy cost has been estimated at approximately 83,000 kcal.
- ▣ A normal weight, no diabetic woman gains approximately 13 kg during an uncomplicated pregnancy. Growth of the uterus and its contents accounts for about 6 kg, an increase in body fluid for about 3 kg, and fat accumulation for about 4.0 kg of this weight gain.
- ▣ The energy cost for the synthesis of fat has been estimated to be approximately 40,000 calories

- ❑ Pregnancy is characterized by a number of maternal metabolic modifications in order to meet the energy requirements of the growing fetus. A progressive alteration of maternal glucose homeostasis develops throughout gestation and becomes maximal during the last trimester.
- ❑ A relative hypoglycemia is observed during the post absorptive period despite an elevated plasma insulin concentration and an enhanced hepatic glucose production.
- ❑ In addition, the glucose utilization rate by peripheral maternal tissues is lowered in late gestation indicating that the mother supplies glucose to the fetus at the expense of her own tissues

Risk factors

- ▣ Risk factors for gestational diabetes include:
 - Being overweight or obese
 - Not being physically active
 - Having pre-diabetes
 - Having had gestational diabetes during a previous pregnancy
 - Having polycystic ovary syndrome
 - Having an immediate family member with diabetes
 - Having previously delivered a baby weighing more than 9 pounds (4.1 kilograms)

Fetal

❖ Fetal:

- Congenital abnormalities
- Increased neonatal and perinatal mortality
- Macrosomia
- Late stillbirth
- Neonatal hypoglycemia
- Polycythemia
- jaundice

Effects of diabetes on pregnancy

- ▶ **Abortion**
- ▶ **Preterm labour**
- ▶ **Infection**
- ▶ **Increase incidence of pre-eclampsia**
- ▶ **Polyhydramnios**
- ▶ **Maternal distress**
- ▶ **Diabetic retinopathy**
- ▶ **Diabetic nephropathy**
- ▶ **Diabetic ketoacidosis.**
- ▶ **Shoulder dystosia**
- ▶ **Prolong labour**
- ▶ **PPH**
- ▶ **Puerperal sepsis**

PROBLEMS OF GDM: MATERNAL

- Weight gain
- Maternal hypertensive disorders
- Miscarriages
- Third trimester fetal deaths
- Cesarean delivery (due fetal growth disorders)
- Long term risk of type 2 DM
- Progression of retinopathy: esp. severe proliferative retinopathy
- Progression of nephropathy: especially if renal failure +
- Coronary artery disease: Post MI patients → high risk of maternal death



GESTATIONAL DIABETES DIET

- Water foods are the main concentration. That means plants: vegetables, fruits, grains & legumes
- Only low-fat and non-fat dairy products
- Only the leanest cuts of meat with all excess fat trimmed
- Avoid saturated fats
- Strongly avoid Trans fats
- Avoid fast foods, processed foods, microwave foods, high-sugar foods, alcohol & high-sodium foods
- Drink plenty of fresh water every day
- Eat 5 or 6 small meals everyday
- Eat your meals at the same times every day



GESTATIONAL DIABETES Diet

- ▶ Diet- 30 kcal/kg - normal weight women, 24 Kcal/kg for overweight women, and 12 Kcal/kg for morbidly obese women.
- ▶ Diet should contain carbohydrate 50%, protein 20% and fat 25-30%. Usually three meal regimen, with breakfast 25% of the total intake, lunch 30%, dinner 30%.



THANK YOU

