# Diabetes in Pregnancy

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# *Types of Diabetes:*

1. ***Type I Diabetes:*** **Early onset insulin dependent**
2. ***Type II Diabetes:*** **Late onset insulin non dependent**
3. ***Gestational Diabetes:*** **Carbohydrate intolerance that occurs in pregnancy after the $24^{th}$ week of gestation**

# Carbohydrate Metabolism in Pregnancy

- Pregnancy is potentially diabetogenic
- Diabetes maybe aggravated by pregnancy
- Normal pregnancy is characterized by:
  1. Mild fasting hypoglycemia, ↑ insulin level
  2. Post-Prandial hyperglycemia
  3. Hyper-insulinemia
  4. Suppression of glucagon (role of glucagon in pregnancy is not fully understood)

# Diagnoses During Pregnancy

- Diabetes can be diagnosed for the 1st time during pregnancy.
- If diagnoses is prior to 24 weeks of gestation, this is overt diabetes and not gestational.
- Patients presenting with:
  a. Hyperglycemia
  b. Glucosuria
  c. Ketoacidosis

  Are easy to diagnose.

Patients with mild carbohydrate metabolic disturbance need to be screened early based on the following risk factors:

## *Can't.*

1. Strong family history of diabetes
2. History of giving birth to large infants
3. Obesity
4. Unexplained fetal loss
5. Glucosuria which does not always indicate impaired glucose tolerance, but rather ↑ glumular filtration rate, nonetheless the detection of glucosuria in pregnancy mandates further investigations.
6. Age
7. Previous history of GDM

## *Screening for Gestational Diabetes*

- 50 gm glucose challenge test between 24-28 weeks and a Plasma value of >7.8 or 140mg/Dl

# Diagnostic test for Gestational diabetes

*The 3hr 100 gm Oral Glucose Tolerance test after 8hrs of fasting*

| | |
|---|---|
| **FBS** | **5.8** |
| **1 hr** | **10.6** |
| **2 hr** | **9.2** |
| **3 hr** | **8.1** |

**At least 2 values have to be abnormal regardless of which ones they are.**

| | | |
|---|---|---|
| **75 g of glucose** | Fasting: | Less than 95 mg/dL or 5.3 mmol/L |
| | 1-hour: | Less than 180 mg/dL or 10.0 mmol/L |
| | 2-hour: | Less than 153 mg/dL or 8.5 mmol/L |

**1 or more values have to be abnormal regardless of which ones they are.**

- ***Screening Post Partum is done with 75 gm glucose at 6 weeks after delivery.***

- ***What are the effects of Pregnancy on diabetes:***

1. Insulin antagonism happens in pregnancy due to the action of HPL produced by the placenta as well as estrogen and Progesterone → difficulty in controlling diabetes.
2. ↑ Infection rate

## A. Maternal Effects:

1. Pre-eclampsia / eclampsia

↑ 4 folds, even in the absence of vascular disease

2. Infections
3. Injury to the birth canal 2° to macrosomia
4. ↑ Incidence of C/S
5. Hydramnios leading to cardiorespiratory symptoms
6. ↑ Maternal Mortality

## B. Fetal and Neonatal Effects:

1. ↑ risk of congenital anomalies especially cardiac and CNS
2. ↑ risk of abortion
3. ↑ risk of perinatal death
4. ↑ risk of preterm labor
5. ↑ neonatal morbidity e.g.
   - ⇨ birth injury – shoulder dystocia
   - ⇨ Brachial plexus injury
   - ⇨ RDS
   - ⇨ Metabolic such as hypoglycemia
6. Inheritance of diabetes or its predisposition

**It is to be noted that congenital anomalies and abortion are not a risks with gestational diabetes.**

## *Management of Diabetes in Pregnancy*

***If newly diagnosed:***

- Put patient on diet x 3 days
- 30-35 kcal /kg of ideal body wt.

40 – 50 % carbs
12 – 20 % proteins
30 – 35 % Fat

**Do BSS**

**if controlled → continue with monitoring**
**if not → start oral hypoglycemic (Metformin/Glucophage)**
**If oral hypoglycemic fails to control blood sugar → Insulin**

**2/3 am → 2/3 NPH, 1/3 Reg.**
**1/3 pm → ½ NPH, ½ Reg.**

**N.B oral hypoglycemics are no longer contraindicated in pregnancy.**

**-Frequent U/S scanning to assess growth + A.F.V. as well as fetal well being and to look for anomalies in cases of overt diabetes.**

## *Timing and Mode of Delivery:*

**-IOL at completed 38 weeks for diabetics on oral hypoglycemic/ insulin.**

**-IOL at term for diabetics on diet. Provided sugar is well controlled.**

**-C/S for obstetric indications**

# Management before conception:

- ⇨ Pre conceptual counseling ↗ ↓ Weight
  ↘ Exercise

- ⇨ Blood sugar control
- ⇨ HA1C
- ⇨ Early dating and FU of the pregnancy