DIABETES MELLITUS IN PREGNANCY

One of the endocrine disorders affecting pregnancy and its significant hormonal changes affect carbohydrate metabolism during pregnancy. Its complicate (3-4 per 1000) pregnancy.

- Path physiology: D.M is a syndrome in which hereditary. And environmental factors interact leading to inadequate insulin action.

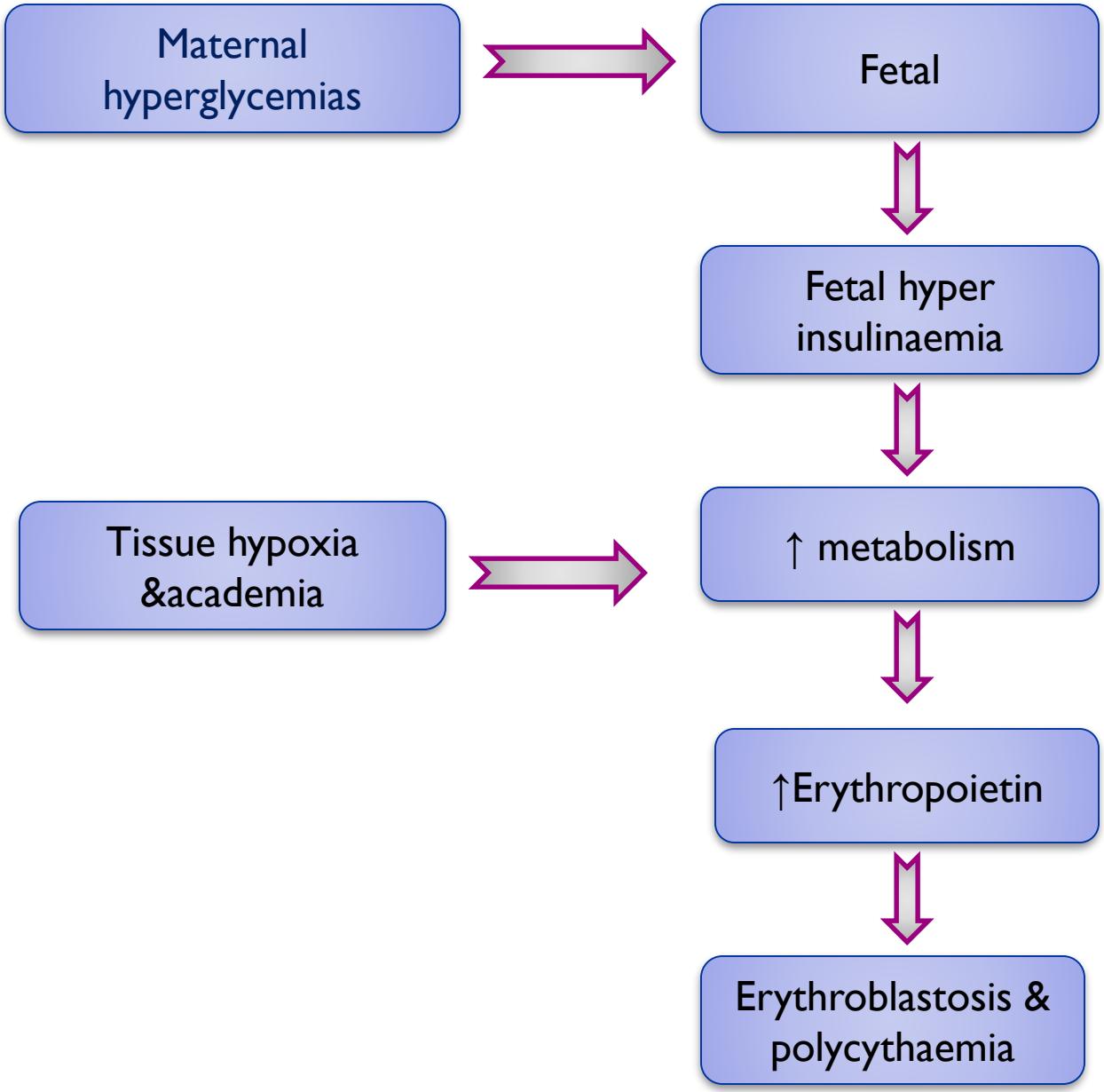
Pregnancy by its self had diabetogenic effects due to action of human placental lactogen, progesterone and estrogen.

In addition to rise in free cortical which leads to ↑ the insulin resistance especially in third trimester. Diabetes may complicate a pregnancy either because the women has

pre-existing insulin-dependent diabetes before her pregnancy begins or may develop impaired glucose tolerance during the course of her pregnancy.

Risk factors for the development of diabetes in pregnancy:

- Family HX.
- Previous baby > 4.5
- Previous unexplained still birth.
- Previous congenital a abnormality.


Maternal hyperglycemias
Fetal
Fetal hyper insulinaemia
Tissue hypoxia &academia
↑ metabolism
↑Erythropoietin
Erythroblastosis & polycythaemia

Indications of oral GTT:

- Family HX of DM in one 1st degree on two second degree relatives.
- Presence of significant glycosuria.
- Polyhydramnios.

- Macrocosmic infant in current pregnancy.
- Poor obstetric history (death of macrocosmic baby).
- History of repeated abortion.
- HX of Dm in previous pregnancy.
- HX of traumatic delivery.

- Unexplained IU.D
- HX of congenital abnormality in previous pregnancy.
- Obesity >90 Kg.
- Abnormal screening test.

Screening for Dm in pregnancy

- No single screening test has been shown to be perfect. Urinary glucose unreliable test and most screening test now rely on blood glucose estimation. Gold stander for screening for gestational diabetes as:

- 50g oral glucose challenge test to all pregnant women at (24-48 week) wont dietary preparation with 1 hour. Plasma glucose >7.8 mmol/L should have full oral GTT.

- Timed random blood glucose estimation at booking and at 28weeks gestation > 6mmol/L fasting state or 2hours after food

or >7mmol/L within 2hours of food full oral GTT should be offered. Always keep blood sugar between (4-6 mmol/L).

- Oral GTT:

Patients abnormal screening test should be given 3 hours glucose tolerance test if 1hour screening test produce plasma glucose >200 mg/dl (11 mmol/L).

should have fasting blood sugar, any patient with abnormal fasting blood sugar 120mg/dl or more is diabetic and not need 3hours GTT.

Preparation for glucose tolerance (3hours):

Should be instructed to consume daily diet containing 200gm of CHO for at least 3 days before the test to minimize the false positive results

Fasting	96 mg/dl	5.3 mmol/L
One hour	172 mg/dl	9.6 mmol/L
2 hour	156 mg/dl	8.49 mmol/L
3 hour	131 mg/dl	7.31 mmol/L

- If two or more of values are abnormal it's Diabetic.

Diabetic defined:

As either increases fasting blood sugar>7.8mmol/L (144mg/dl) or > 11mmol/L (200mg/dl) following 75g glucose load (after 1-2 hour).

Obstetric complications for gestational Dm:

- Polyhydramnios: caused by fetal diuresis due to maternal hyperglycemia that lead to fetal hyperglycemia.

And its feature of poorly controlled diabetes.

- Pre-eclampsia.
- Preterm labour.
- Repeated UTI.

Neonatal complication:

- Macrocosmic & traumatic delivery leads to brachial nerve injury &birth asphyxia.
- R.D.S
- Hypoglycemia.
- Hypo Mg.

- Polycythemia.
- Hyper bilirubinaemia.
- Complication of prematurity.

In post partum period:

- ↑risk of infection.
- U.T.I.
- Wound infection.
- Thromboembolic ¢
- Post partum hemorrhage

Complication for already diabetic mother before pregnancy:

- ↑ risk of vascular complication like Nephropathy & Retinopathy Or may because worse.
- More deterioration of hyper tension or become more sever and may affect renal function ended with renal failure

- ↑ risk of coronary artery disease.
- Associated more with congenital abnormalities of fetus like CVS abnormality, neural tube defect, skeletal, Genitourinary GIT.

- So that gestation DM → Macrosomia
- In already DM before pregnancy → Congenital abnormality

Antenatal management

Diabetic pregnant woman should be managed in joint clinic with an obstetrician and physician. Women ώ pre-existing diabetes should be

referred directly to this clinic at booking. The principal of R is to maintain the blood sugar level with mean profile of less than 6mmol/L.

* if the patient on oral hypoglycemia agents must stop it because may cause neonatal hypoglycemia and risk of IU.GR.

- in those patient should be controlled in pre-conception period in diabetic clinics. Most women can continue with their pregnancy insulin regimen.

This may involve 3 premeal injections of short acting insulin and single long acting insulin injection at bed time, also good control of many complication specially retinopathy& nephropathy.

By good assessment of renal function and ↑ B.P because if end stage renal failure or uncontrollable hypertension pregnancy is CI.

In gestational DM:

Treatment should be

- Dietary therapy: ώ appropriate caloric intake high fiber & complex carbohydrates.
  - (50-60) % CHO
  - 20% Protein
  - 25% Fat

- **Insulin therapy**: if initial blood glucose> 8mmol/L or remain above 6mmol/L in spite of good diet control its start single long acting injection at bed time. ώ frequent measurement of blood sugar (about 4-6

- **(Pre-prandial measurement)** if blood glucose results during the day remain about 6mmol/L its necessary to add 1-3 pre-prandial injection of **short acting insulin** until keep blood sugar between (4-6)mmol/L.

- Treatment of any complication like UTI, monila infection, regular check of B.P and anemia treating on any other type of infection or C.

- Obstetric MX. early trimester ULS by measurement of CR length to confirm gestational age, exclude congenital abnormalities

specially at 16weeks deepened on biparietal diameter specially neural tube defects assess ant of CVS system at (19-20 weeks) by ULS to exclude cardiac defects.

- Serial measurements of fetal head &abdominal circumferences to identify growth of fetus and early detection of macrosomia.

- Assessment of fetal well beings in third trimester by ULS & CTG done weekly or twice weekly from 36weeks gestation. Doppler ULS is required if there's element of IU.GR (which occur in Dm associated ώ sever PET).

- Deal of complication like PET, preterm labour polyhydramnios. Tocolytic like salbutamol are diabetogenic effects and Elevate blood sugar. So its CI , prefers other types like adalate & Mg sulphate.

timing of delivery our aim to achiever vaginal delivery between (38-40 weeks) ώ optimal diabetic control to reduce the ¢ of prematurity and improve the chances of spontaneous labour.

If patient need early delivery before 34 weeks due to badly controlled Dm or other complication start 12mg dose of (Dexamethasone / 12 hours).

Interval into 2 doses to improve lung maturity. Delivery after 40weeks ↑risk of macrosomia & trumatic delivery due to shoulder Dystocia.

- **MX. OF LABOUR:**

spontaneous vaginal delivery is a primary goal in the modern MX of pregnant diabetic women.

INDICATION OF ELECTIVE C/S:

1. mal presentations.
2. Fetal weight >4.5Kg .
3. Previous scar.

OUT TIME OF MANGE

1. adequate analysis because pain ↑ catecholamine release and hyperglycemia.
2. Continuous monitoring of FHR and uterine contractions.

- Keep blood sugar during labour between4-6 mmol/L this achieved by intravenous insulin.
- Emergency C/S may be needed if true elements of fetal distress.
- Start a:b following both emergency & elective C/S to ↓risk of wound infection.

Post natal care: after delivery insulin dose should be halved because rapid ↑in insulin sensitively occurs after placental separation, encourage breast feeding.

TYPES OF CONTRACEPTION:

1. POP : preferable ώ no effects on CHO metabolism.
2. Progesterone injection → insulin resistance that need ↑insulin dose.
3. Mirena IU.CD prefer.
4. For women complicate her family sterilization.