King Saud University Medical City
Department of Obstetrics & Gynecology
Course 482

DIABETES IN PREGNANCY

- Significant hormonal changes affects carbohydrate metabolism during pregnancy .
- This happens because of the increase of human placental lactogen HPL and cortisol both of which are insulin antagonist.
- These changes are most marked during the 3rd trimester .
- To balance these changes maternal pancreas secret increased amount of insulin to maintain carbohydrate metabolism

- Glucose cross the placenta by facilitated diffusion and fetal blood level closely follows the maternal level .
- Diabetes complicates pregnancy either the woman has pre existing diabetes which can on diet , oral hypoglycemic agents or insulin ,
- Or may develop the diabetes during the course of the pregnancy , gestational diabetes GDM.
- 1-2% of women will develop gestational diabetes during pregnancy

- Risk factors for development of diabetes in pregnancy .
- Obesity .
- Family history of DM .
- History of delivering big babies .
- History of unexplained intrauterine fetal death .
- History of delivering babies with congenital anomalies.
- Positive screening tests for DM.

- Screening of diabetes in pregnancy .
- No single test proved to be perfect.
- Urinary glucose is completely unreliable.
- A full glucose tolerance test is would be ideal but is expensive and time consuming .
- Random blood sugar of 5.8 mmol, has only 60% sensitivity .
- Glucose challenge test GCT is using 50 gm glucose without fasting and measure the blood glucose after one hour and should not be greater than 7.8 mmol , the sensitivity is improved by 80%

Definition of diabetes

- WHO has defined diabetes as either fasting blood glucose of 7.8 mmol/l or more than 11mmol/l 1-2 hours following 75 grams of oral glucose load.
- A good glycemic control during pregnancy or even before is needed because of the direct relationship between the blood glucose level and the fetal and maternal complications.
- Any diabetic woman who plan to get pregnant should insure that their diabetes is optimally controlled to reduce the risk of obstetrical complications.

Fetal and neonatal complications of diabetic pregnancy

- There is increase risk of .
- A-Miscarriage in early pregnancy .
- B-Congenital fetal abnormality which include
- 1-Congenital heart disease , VSD , ASD .
- 2- neural tubal defect , spina befida .
- 3- caudal regression, syndrome rare complication
- Congenital abnormality is the most important cause of mortality and morbidity in diabetic pregnancy , seen 2-4 time more often than in normal pregnancy.

- Cont.
- Mechanism of the congenital anomalies is not fully understood but hypoglycemia at the time of organogenesis may be the underlying cause.
- 4- fetal macrosomia and its associated traumatic birth and shoulder dystocia and therefore possible hypoxia ,
- Accelerated fetal growth occurs in late second and third trimester due to poorly controlled diabetes

- 5-sudden unexplained late stillbirth in poorly controlled diabetes especially with those with vascular disease ,cause of the death is possible due to chronic hypoxia.
- 6- polyhydramnios

INFANT OF A DIABETIC MOTHER

Maternal morbidity and mortality in diabetic pregnancy

- Maternal mortality is rare , those at most risk are women with coronary heart disease .
- Maternal morbidity , generally related to severity of diabetic related disease preceding the pregnancy .
- Renal nephropathy and have particular risk to develop pre-eclampsia .
- Diabetic retinopathy with the risk of progression of the disease .
- Infection , urinary tract infection , fungal infection , chorio amnionitis ,

- Cont.
- Sever hypo and hyper glacemia , diabetes is becoming difficult to control during pregnancy .
- Increase operative delivery rate and thrombo embolic disease .

Neonatal complications

- Morbidity is less with good glycemic control.
- Babies of diabetic mothers should be cared on especial care baby unit for the first 24-48-hours of there life .
- Infant of diabetic mothers may have the following .
- 1-Macrosomic with birth asphyxia and traumatic birth injuries e.g. brachial nerve injury .
- 2-Respiratory distress syndrome

- 3-Hypoglycaemia.
- 4-Hypocalcaemia and hypomagnaesemia .
- 5- Polycythaemia .
- Hyperbilirubinaemia .

- Diabetic pregnant women should be managed in a joint clinic with an obstetrician and physician .
- The principal of treatment is to maintain the blood sugar level within the normal range with the mean of 24 hours profile around 5mmol/l , using the blood sugar series BSS.
- According to BSS we can adjust the dose and frequency of the insulin , oral hypoglycaemic agent are not used in pregnancy , may cause fetal anomalies .

- Long term control may be checked using glycosylated hemoglobin Hb A1c .
- An input from dietician is also important to help to adjust the diet .

- Obstetric management .
- Appropriate screening tests .
- Detailed ultrasound anomaly scan and fetal echocardiography .
- Serial growth scan for macrosomia and polyhydramnios .
- Fetal surveillance with biophysical profile BPP.
- Doppler ultrasound .
- Cardio tocography CTG .

- Management would attempt to achieve vaginal delivery between 38-40 weeks .
- Diabetes alone is not an indication for caesarian section .

- Management in labor .
- During labor either induced or spontaneous normoglycemia should be maintained using sliding scale of insulin administration .
- Blood glucose level should be tested at two hourly intervals.
- Continuous fetal monitoring is advised .
- Fetal scalp blood sampling should be taken in case of abnormal CTG .
- Following delivery the insulin requirement rapidly fall in established diabetes .
- In case of gestational diabetes to stop insulin after delivery .