Diabetes in pregnancy

metabolic disease result from underproduction of insulin which effect CHO , fat &protein metabolism

During pregnancy

1.preexisting

2.gestational

Pathophysiology

1-Insulin resistance due placental secretion of

Anti insulin hormones

2-Maternal hepatic glucose production by 15% to meet fetal demand

3-Pancreatic B cells dysfunction due to

- genetic , autoimmunea

Homeostasis during pregnancy

NP - FBS maintained 4-5 mmol/l

-insulin level double to maintained in the 2-3rd trimisters

- preg is insulin resistant state

-causes of resistant

a. placental hormones

b. changes in periphrel insulin receptors

Glucose cross the placenta by facilitated diffusion

Gestational Diabetes

State of glucose intolerance which occurs at the end of second trimester or early third trimester met WHO criteria for diabetes and revert to normal after peurperium

prevalence :

22 million women between 20-39 years have diabetes 2010 data

Expected to rise by 20% in next 10 year

WHO criteria

	fasting	2hr postprandial
Diabetic	>=8mmol	>=11mmol \ L
Normal	<8mmol	<11mmol \ L

screening

- No single test has been shown to be perfect
- Aim of screening is to identify asymptomatic patients with high propability
-

GTT high risk or potential diabetic

- h\o 1 st degree relative or 2 nd

-poor obstetrical history

-glycoseuria on two occasion first in the morning

-polyhydramnias

-macrosomic infant

-obese mother

-advance maternal age

GTT on low risk group cannot be justified

- Glucose challenge test
- HbA1C
- Glycosylated protein
- Glucoseuria
- Standard meal test

Effect of diabetes on pregnancy

Feta & neonatal complication

- miscarriage
- 2nd trim. Fetal death
- congenital fetal abnormalities – 3 times
- PIH
- Fetal macrocosmic
- Unexplained still birth
- Polyhydramnia & preterm labour

Neonatal : hypoglycemia , polycythemia ,

hyperbilirubinemia

RDS

birth asphyxia & trauma

hypocalceamia&magnesemia

maternal

Maternal mortality &morbidity

MMR improved after insulin

-nephropathy

-retinopathy

-PE

-Infection : UTI , moniliasis ,chest infection

-Sever hypo & hyperglycemia

-operative delivery : 50%

Effect of pregnancy on diabetes

--Difficulty in control

-- lower renal threshold ,

-- nausea and vomiting of early pregnancy

--diminish sensitivity to insulin as pregnancy advance

- Nephropathy may worsen
- Retinopathy previous proliferative retinopathy was contraindication for pregnancy

Management issue :

- education
- Medical nutrition
- Pharmacological therapy
- Glycemic control
- Fetal monitoring
- Plan delivery
- Postnatal care
    1. Required diabetic team
    2. Strict metabolic control before and during pregnancy
    3. Primary management :dietry changes and exercise

To achieve euglycemia

-Diet 1800 calories should be prescribe i.e30-35kcl \kg if ideal body weight + 300kcl to anticipate wt gain during pregnancy

-50-60 % CHO complex

-18-20% as protein

-25% as fat (important to have bed time snaks)

Insulin

- Insulin should be first line treatment
- If uncontrolled uses of metformin
- 50% of women initially treated with diet only required insulin (must be individualized)

-better to use combination 2\3th in the morning And 1\3th in the evening,

with ratio 1:2 sort to intermediate or long acting

-Short acting +intermediate in two divided dose

-long acting rarely used

Special formula to calculate insulin requirment:

unit insulin = Bwt ×0.6 1st trimester

= 0.7 2nd

= 0.8 3rd

Dosage and schedule

2/3 in the morning , 1/3 in the evening

A.M 2/3 intermediate + 1/3 short acting

P.M ½ intermediate + ½ short acting

Aim : is to keep blood sugar pre-prandial < 6mmol/l i.e less than 100mg/dl , FBS 60-90 mg

exercise should be encourage 1/2hr after meal

Antenatal obstetrical management

Surveillance should be maintained to avoid risk of maternal and fetal complication

Detailed USS at1st trimester dating scan ,nuchal translucency , biochemical screening ,

uterine artery Doppler to detect early PE, middle cerebral artery to detect early IUGR 16-20weeks

then 28-32weeks (biophysical profile)

Fetal ECHO

- 2ND scan to detect anomaly at 19 weeks , triple marker , amniotic fluid index and fetal echo at 22 wks
- 3rd at 28,32 assess growth, AFI, non- stress
- Fetal monitoring
- Baseline USS , cong. Mal, fet. Echocardiogram
- At 26 growth and liquor

-Serum alfa fetoprotein

-maternal : renal ,cardiac , ophthalmic ,function are monitor

- glycosylated (hba1c) monthly

Timing of delivery

-maternal state is stable

- Blood glucose level is euglycemic
- Fetal growth is satisfactory

Wait until term (38-40wks) not beyond, if condition not met so intervention

Intrapartum

Need to keep the mother glycemic in labor

CTG , ARM

- Continues infusion 5%- 10% dextrose + 0.5-2 unit of insulin
- Measure blood glucose every 2hrs AIM : 80-120 mg, adjust insulin accordingly aim is to keep level 80-100mg/dl
- Fetal scalp electrode, continouse monitoring
- 2nd stage anticipate –shoulder dystocia , assisted vaginal delivery
- 3rd stage –active management---PPH atonic
- Aim is vaginal delivery unless there is obstetrical complications
- c/s rate 50%
- Postpartum
- After delivery of placenta insulin requirment drops sharply
- 1st 48hrs most pt do not require insulin
- After depend on sliding scale
- Encourage breast feeding with addition of 70 calories
- Counsel about contraception

Barrier better

Combine pills risky

Progesterone only pills failure rate

IUCD infection

Sterilization with advance vascular involvement

1.