

Pregnancies complicated by diabetes

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Two types

- Pre gestational
- Gestational diabetes
- Both types are on the increase
- Pre conception work up is imperative for women with pre gestational

Effects of poor control prior to pregnancy

- 3 months prior and up until the end of the 1st trimester of pregnancy most crucial period for developing embryo
- Organogenesis nearly complete by 8 weeks gestation

Poor control in 1st trimester

- Increases rates of miscarriage
- Increased rates of congenital anomalies
- Congenital heart defects
- Renal agenesis
- Caudal regression syndrome
- Neural tube defects
- (directly related to the level of maternal hyperglycaemia in embryonic stage)

Poor control in second and third trimester

- Increased risk of macrosomia
- Pre eclampsia
- Shoulder dystocia
- RDS
- Stillbirth

Macrosomia

- Above 4kg or above the 90th centile for gestational age
- These babies have larger shoulder and extremity circumferences
- Decreased head to shoulder ratio
- Increased body fat
- Directly related to maternal-fetal transfer of glucose via the placenta
- > fetal hyperinsulinaemia
- > storage of excess nutrients

Perinatal mortality

- Not all babies will make it safely
- Perinatal mortality rate is falling, mainly due to stricter glycaemic control, improvements in obstetric/midwifery and neonatal care
- Pre insulin era – fetal death rate was 50%

Risk of developing diabetes

- Father type 1 1:17
- Mother type 1 1:25 if mo dx <25
- If both parents type 1 1:10
- Type 2
- If Dx prior to 50 1:7
- If dx after 50 1:13
- Both parents 1:2

1:100 if mo dx > 25

- Evidence strongly suggests that hyperglycaemia during pregnancy with type 1, 2 or GDM can impose metabolic changes on the fetus and promote obesity and metabolic syndrome as a young adult.
- “Barker’s hypothesis” (fetal programming hypothesis)

Maternal Issues

- Retinopathy – if present prior to pregnancy, can worsen with stricter control even though this is beneficial to the fetus
- Worsening retinopathy thought to be mediated by:
 - Closure of small retinal blood vessels, decreased bsl's lowers plasma volume and puts vessels at risk
 - Hypertension, smoking and hyperlipidaemia also ass with acceleration of retinopathy.
- Rx laser can be used in pregnancy

Nephropathy

- Presence and acceleration are a concern to mother and fetus
- Microalbuminuria and overt nephropathy lead to: an increased rate of pre term birth
- Pre eclampsia
- \uparrow BP and pre eclampsia can lead to fetal and maternal death
- Women with renal disease most at risk of permanent decline in renal function are ones with \uparrow creatinine prior to pregnancy

Worsening Hypertension and pre eclampsia

- These complications are related to pre gestational hypertension and vascular disease
- Insulin resistance appears to increase risk of PE
- Poor control increases risk of PE

Peripheral and autonomic neuropathy

- If present, women more at risk of:
- Hyperemesis
- Hypo unawareness
- Urinary retention
- Carpal tunnel syndrome

Risks to offspring

- Birth injuries
- Neonatal hypoglycaemia
- Respiratory distress syndrome
- prolonged jaundice
- Obesity, metabolic syndrome and type 2 diabetes as children

Recommendations

- Women with pre existing diabetes should have pre conception diabetes review
- Once pregnant seek multidisiplinary care to maximize control
- Minimize weight gain and maintain tight blood glucose control for better maternal and fetal outcomes

THANK YOU