

## Pre-Conceptional Hyperglycemia and Pregnancy

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The prevalence of type 2 diabetes is on the rise across all regions in the world. In the last few decades, type 2 diabetes in pregnancy has increased substantially in Europe and North America. Although reliable data is not available, it is believed that the rates of type 2 DM in pregnancy are also increasing significantly in countries such as China and India.

The causes of type 2 diabetes are not completely understood but there is a strong link with overweight and obesity, and increasing age, as well as with ethnicity and family history [1]. The increased insulin resistance and the need for beta-cell adaptation to deal with it make even a normal pregnancy a potent "metabolic stressor" [2,3]. In women with type 2 DM, pregnancy-induced insulin resistance adds to the preexisting insulin resistance, and the preexisting pancreatic beta-cell defect compromises the ability to enhance insulin secretion during pregnancy, leading to marked hyperglycemia [4].

Hyperglycemia in pregnancy can be as either gestational diabetes Mellitus (GDM) or diabetes in pregnancy (DIP) [5,6]. GDM develops during pregnancy, however, the risk of developing GDM in a subsequent pregnancy is high as compared to pregnant women with normal glucose levels. Diabetes mellitus in pregnancy (DIP) is a more severe form of hyperglycemia in pregnancy (HIP). The diagnostic glucose levels of the HIP are the same as those used for non-pregnant adults [4].

Hyperglycemia significantly increases the risk of maternal complications in pre-pregnancy, during pregnancy, and in the puerperium [7,8].

The diagnostic criteria for GDM vary and remain controversial. WHO and International Federation of Gynecology and Obstetrics recommend two-hour oral for the detection of Impaired glucose tolerance and Impaired fasting glucose [9]. An Oral Glucose Tolerance Test is recommended for the screening of GDM between the 24<sup>th</sup> and 28<sup>th</sup> week of pregnancy, but for high-risk women, the screening should be conducted earlier in pregnancy [7].

HbA1c is not a reliable marker for diabetes control during pregnancy and must be supplemented with other measures like self-monitoring of blood glucose (SMBG), and continuous glucose monitoring. The SMBG helps achieve glycemic control to reduce pregnancy complications [10].

Regular measurement of weight and blood pressure at each planned antenatal visit is necessary to record gestational weight gain and early detection of hypertension and preeclampsia. The main goal of treatment is to ensure good metabolic control to prevent occurrence or progression of diabetes and pregnancy-related complications in the mother and survival, normal growth, and development of the fetus. The most important factors for attainment of this goal are normalization of glucose without undue hypoglycemia throughout pregnancy and during labor and delivery, preventing excess gestational weight gain, preventing preeclampsia and treating comorbid hypertension [4].

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