

## Diabetes in Pregnancy

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Diabetes is now a global epidemic. In 2015, an estimated 415 million people, corresponding 1 in 11 worlds' adult population had diabetes. The number is expected to grow to 642 million by 2040, corresponding to 1 in 10 adult populations.<sup>1</sup>

Diabetes can be hard on women. Studies have shown that the burden of diabetes on women is unique because the disease can affect both mothers and their unborn children. Diabetes can cause difficulties during pregnancy such as a miscarriage or a baby born with birth defects. Women with diabetes are also more likely to have a heart attack, and at a younger age, than women without diabetes. For women who do not currently have diabetes, pregnancy brings the risk of gestational diabetes. Ante-partum and intra-partum complications, rate of caesarean section (CS), maternal and peri-natal mortality are more common among pregnant diabetic women.<sup>2</sup> Unfortunately, unplanned pregnancies occur in about two-thirds of women with diabetes, precluding adequate preconception care and leading to a persistent excess of malformations in their infants.

In addition to Type 1 and T2DM, the condition of gestational diabetes mellitus (GDM) also constitutes a cause of major public health concern in both developed and developing countries. Recent data have shown that the GDM prevalence has increased by 16% to 27% in several race/ethnicity groups during the past 20 years.<sup>3</sup> This is particularly more in Asian women.

GDM accounts for 90% of all cases of diabetes in pregnancy. Unrecognized and Untreated GDM leads to serious health problems for mothers and their children. Higher prevalence was observed in the higher age group, higher gravidity, higher BMI, and those with hypertension and family history of diabetes. The history of abortion, neonatal death and stillbirth were found higher among GDM mothers than non-GDM mothers.

It is well known that women with undiagnosed or poorly

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managed GDM as well as their infants are at increased risk of developing type 2 diabetes and other cardiometabolic diseases including obesity, hypertension and coronary artery diseases<sup>4,5</sup> and therefore good sense to do preconception counselling and care earlier. Based on the physiological mechanisms, screening of GDM has been advocated between 24-28 weeks. However, this has a potential to miss many cases of diabetes predating pregnancy and early onset GDM. By knowing the insulin insensitivity at the beginning of pregnancy, strategies should be planned to aim for the early normalization of the intrauterine metabolic environment at a critical period for foetal metabolic imprinting. Evidences also show that in modern era achieving healthy maternal and child outcomes are possible in all pregnancies if someone plans it properly and uses the up-to-date management facilities including preconception care, antenatal care and regular check-ups throughout pregnancy. International Diabetes Federation has given particular importance on "Life Circle" approach to prevention and care of diabetes- a continuum beginning from preconception, pregnancy, infancy and childhood to adult life in an integrated manner. But still a care gap exists between "desired" and "real" prepregnancy care. The suggested reasons for this gap include socioeconomic deprivation, ethnic differences in the risks and lack of competencies within the health system, use of the health care system, or difficulties with health literacy. These findings should be given particular importance to develop capacity in terms of human resources, well formulated policies, standardized protocols, and culturally sensitive awareness/advocacy campaigns to initiate screening programme before and during antenatal period and also to prevent GDM.

Women with previous GDM constitute an ideal group for the development, testing, and implementation of clinical strategies for primary diabetes programme. Various randomized clinical trials (RCT) have shown that both lifestyle and drug intervention strategies can prevent or delay the progression to T2DM in women with history of GDM. In the TRIPOD (Troglitazone in the Prevention of Diabetes) trial, treatment with Troglitazone reduced the incidence of T2DM by over 50%.<sup>6</sup> Subgroup analysis among DPP (Diabetes Prevention Programme) women with history of GDM demonstrated that intensive lifestyle

intervention and metformin both reduced the risk of T2DM by 50%.<sup>7</sup> The interim report of 2 years of intervention from the TGDMP (Tianjin Gestational Diabetes Mellitus Prevention Programme) clearly indicates that lifestyle intervention is feasible and effective in women with GDM.<sup>8</sup>

In conclusion, it is clear that a global pandemic of GDM has emerged and will continue to do so at a very fast rate. In the absence of effective and affordable (particularly for developing nations) interventions, the frequency will escalate worldwide, with the main impact being seen in developing nations and the disadvantaged minorities in developed nations. To minimize the occurrence of devastating malformations, standard care for all women at risk for GDM should include

- 1) Pre-pregnancy counseling about the risks associated with unplanned pregnancies and poor metabolic control
- 2) Screening for diabetes before and during pregnancy which certainly initiate early steps in management.
- 3) Ensure that pregnant women with GDM have access to the essential medications, self-management education and information they need to achieve optimal pregnancy outcomes.
- 4) Health care professionals including specialists and general physicians, nurses, midwives, even traditional birth attendants (especially in developing nations) should be trained in the identification, treatment, management and follow up of GDM.

An urgent priority in health policy, as articulated in the Dhaka Declaration,<sup>9</sup> is needed both at global as well as national level to reverse these developments. The scientific community is aware of the importance of genetic predisposition, behavioural and environmental factors responsible for the unnecessary sufferings but we need to translate our knowledge into practice.

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