





Gestational diabetes – an update from India

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In recent decades, more women of a reproductive age have diabetes, and more pregnancies are complicated by pre-existing diabetes especially in low- and middle-income countries (LMICs). Also of concern is gestational diabetes mellitus (GDM) - the type of diabetes that is first recognized during pregnancy and affects up to 15% of women worldwide.

Gestational diabetes mellitus (GDM) refers to any degree of glucose intolerance with onset or first recognition during pregnancy. Uncontrolled GDM increases the risk of complications both in the mother and baby. Moreover, women with GDM are seven times more likely to develop type 2 diabetes in later life compared to women who have not had GDM.

Approximately 15% of all pregnant women worldwide develop GDM.

As a result of the global trend of increased maternal obesity, it is estimated that approximately 15% of all pregnant women worldwide develop GDM.¹ Comprising around 90% of all cases of diabetes in pregnancy, GDM left undetected or uncontrolled is a formidable threat to the health of the mother and her unborn child.

In low- and middle-income countries (LMICs), where maternal and child mortality are highest, GDM is likely to go undetected and undiagnosed because of poor screening standards and resources. Infants born to mothers with GDM are often characterised as large-for-gestational-age (LGA), a condition that includes greater risk for problems during delivery and a higher risk of future obesity and type 2 diabetes for the child, thus perpetuating the cycle of diabetes for another generation. Most tragically, perinatal mortality is increased around four-times by complications of GDM.

International agreement on the clinical criteria and method of detection of GDM has been elusive. In 2009, the results of a multinational study designed to clarify risks of adverse outcome associated with less severe glucose intolerance during pregnancy – the HAPO (Hyperglycaemia and Adverse Outcomes in Pregnancy) study - made it clear that a change in policy was needed in order to save lives.² Today some guidelines for diagnosing GDM recommend screening for previously undiagnosed type 2 diabetes at the first prenatal visit in women with observable risk factors, and using a 75 g OGTT at 24–28 weeks of gestation for all women not known to have prior diabetes.³

GDM can be managed with oral drugs as well as insulin if required, but Medical Nutrition Therapy is an essential component of the treatment plan for GDM. Best prescribed by a qualified nutritionist or dietician, food plans should be culturally relevant, and propose lifestyle interventions tailored to meet the needs of the patient in order to achieve glycaemic control.⁴ It is critical that pregnant women who develop GDM

sustain normoglycemia in order to minimize complications. Irrespective of treatment, blood glucose usually returns to normal after delivery but the risk of developing diabetes in the future should prompt continued surveillance.

GDM in India – a country with a heavy diabetes burden

India has the second largest number of people with diabetes in the world – currently estimated at 63 million. Not surprisingly therefore, the prevalence of GDM in India is also alarmingly high. Indian women are more likely to develop GDM compared to Caucasian women.⁵ Estimates of the prevalence for GDM in India vary greatly; from low figures in the northern region of Jammu,⁶ to higher figures reported in the southern state of Tamil Nadu.⁷ These widely ranging statistics may reflect a true variation in GDM prevalence throughout the subcontinent, but may also be partially accounted for by discrepancies in protocols for screening and diagnosis, and access to care or changes in risk factors in different geographic regions.

Although India offers many central government sponsored vertical national health programmes implemented by the state government through the primary health system, the Government spends only 1.2% of GDP on healthcare. Hence, ‘out of pocket’ spending on health in India is about four times greater than government contributions.⁸

Health service in the government sector is delivered as a three tier system: primary health care centres (PHCs), and community health care centres (CHCs) are the first points of access for care. District hospitals are the next level and the medical college hospitals are tertiary referral centres. In most cases, district level hospitals manage all health needs. However, a vast majority of individuals utilize services in the private sector where diagnostic and treatment modalities vary considerably.

The prevalence of GDM: 16.2 % in urban areas and 9.9% in rural areas.

Tamil Nadu – a state with a plan for GDM

Tamil Nadu is one of the southern states of India and also one of the best performing states in terms of health indicators. It has a well-structured public health care system and a dedicated professional cadre to deliver the services with good public–private partnerships. Diabetes is one of the health burdens receiving increased recognition in recent years. The seminal work of Dr. V. Seshiah and colleagues has



Photo taken in one of the primary health centres in rural Tamil Nadu.

revealed the prevalence of GDM to be 16.2 % in urban areas and 9.9% in rural areas.⁹

Responding to these results, Tamil Nadu adopted the universal screening of all pregnant women for gestational diabetes from 2008.¹⁰ Though this policy is a major step towards prevention of GDM related complications, issues remain relating to its implementation at the point of health delivery. A milestone was achieved in 2011 when the Indian Ministry of Health introduced free screening for GDM among the five services offered to pregnant women below the poverty line in the National Rural Health Mission (NRHM) program.

Awareness and knowledge about GDM is very poor even among health care professionals.

Nevertheless, many challenges remain

Unfortunately problems arise at the outset for maternal health. There is insufficient focus on prevention, and a lack of preconception planning for mothers who are at risk of GDM. Despite the adoption of the government screening policy by public health centres, there is a lack of uniformity in screening criteria, diagnosis and management of GDM in private hospitals and clinics, leading to discrepancies in the care offered by different providers.¹¹ In addition, there is a lack of interdisciplinary coordination at the health system

level. More generally, awareness and knowledge about GDM is very poor even among health care professionals. Though trained in nutrition during pregnancy, they have no specific training in GDM nutritional management.

Barriers of care for the women themselves are mainly related to cost and lifestyle. Cost of treatment, particularly insulin, and general care are both high and unaffordable for the majority of those who need it, leading to limited access for mothers diagnosed as having GDM. Furthermore, advocating dietary modification for pregnant women is not always culturally accepted. Most often, it is the woman who cooks for the whole family and the following of dietary advice specifically tailored to her needs is often not feasible.

With regard to postnatal care, the fact that women often deliver in centres near their homes before returning to their families after delivery renders continuing contact after birth difficult if not impossible. Care is further complicated by the fact that a very limited number of primary health centres are equipped to be able to offer insulin treatment. Therefore, many of these cases are referred to higher centres. The woman continues her pregnancy at these higher centres and is not followed up after delivery. In cities, support from the family for the pregnant women is often limited. These factors often result in a lack of long term monitoring of both mother and child.

How to improve care for GDM in India

A multi-pronged approach is needed to improve GDM care in India. As GDM is a 'silent' disease, universal screening of pregnant women should be carried out. While the International Association of Diabetes in Pregnancy Study Group's (IADPSG) criteria for diagnosis of GDM have been validated in many populations, obtaining three blood samples as required by these criteria might pose a huge challenge in rural areas of India. Hence although the IADPSG criteria may be useful in urban areas and in bigger hospitals, in rural areas and PHCs or CHCs, the older WHO criteria (which require only a single 2 hr post glucose load value of 140 mg/dl (7.8 mmol/l) or more for diagnosis of GDM) may be appropriate. This has also been recently validated against the IADPSG criteria.¹¹ Improved care of GDM will necessitate large scale training of health care providers, doctors, nurses and village health workers. Also, wherever indicated insulin should be made available free or at subsidized rates so that good control of GDM can be achieved.

What are the best strategies for the future?

While GDM is a formidable threat to both maternal and child health, and is therefore a barrier to the realization of Millennium Development Goals four and five, it is potentially preventable. The following are some of the key targets in combating GDM:

- the development of evidence based, simple, cost effective and accessible models of care for women diagnosed with GDM to prevent short and long term complications in the mother as well as the newborn;
- the integration of these models of care into the existing maternal and child health services both in state and private health centres;
- increasing the capacity of health care professionals for screening, diagnosis and management of GDM and its complications;
- improving the awareness and knowledge of health care professionals and expectant mothers about preventing and recognizing GDM and its complications.

To achieve these objectives, the identification of a point of entry to the system is crucial to integrate a unified, feasible and effective GDM model of care into existing services. Logically, such an entry point should be the primary health centre. Also, Village Health Nurses, Accredited Social Health Activists and other volunteer groups in the rural area should be targeted for training on nutritional education and awareness activities. In the state of Tamil Nadu, occasions such as maternity picnics

and bangle ceremonies conducted at primary health centres could be utilized for group counselling and other educational activities on GDM for pregnant mothers.

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