

Gestational diabetes mellitus: A window of opportunity

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As the pandemic of diabetes mellitus, including gestational diabetes, continues unabated,^[1] more and more research is taking place in the field of preventing diabetes.

Much work has been done, using both non-pharmacological and pharmacological intervention strategies, to prevent type 2 diabetes. Non-pharmacological methods of prevention, such as diet and physical exercise, have been proven to be successful in the prevention of diabetes.^[2] However, these methods are successful only if accompanied by intensive lifestyle counseling. This requires trained manpower and time, both of which are difficult to access and are expensive. Non-pharmacological preventative therapy may not always be possible because of age, presence of various diabetic complications (hypertension, heart disease, retinopathy), and comorbid conditions (osteoarthritis, obesity).^[3]

Lack of appropriate environment for exercise (walking paths, playgrounds, gymnasiums, parks) and a social environment which may not always be conducive for outdoor activity (lack of safety for women, children) also limit the widespread acceptance of physical activity as a preventive measure for diabetes mellitus in various parts of the world. People find it difficult to follow suggested dietary regimes as they are surrounded by an environment full of difficult-to-resist high-calorie foods.^[4] Both diet and exercise are associated with a high index of intrusion into the patient's lifestyle. This limits the utility of these methods of prevention and leads to a high rate of discontinuation.

Pharmacological preparations, such as metformin, orlistat, voglibose, acarbose and thiazolidinediones, have also been used as preventive therapy for type 2 diabetes.^[5-9] Some of these drugs, such as sibutramine and rosiglitazone, have been banned because of significant adverse effects. The other drugs have shown limited efficacy, a high dropout rate, and are linked with the same adverse effects that are noted when they are in a population with an established diagnosis of type 2 diabetes. No post use benefit is noted when these drugs are used for a short period of time. The lack of this "metabolic memory" or "legacy effect" prevents acceptance of preventative pharmacotherapy, both amongst physicians and patients alike.

There is, therefore, a need to find alternative strategies for the prevention of type 2 diabetes mellitus.

In parallel with type 2 diabetes pandemic, the incidence of gestational diabetes mellitus (GDM) has risen rapidly.^[1] GDM has been found to occur in 12–21% of Indian women.^[10-12] Though few authors report a low incidence of GDM in select populations,^[13] there is no doubt that the incidence of this condition is rising.

GDM provides a unique model in which treatment for a medical condition (GDM) acts as prevention for another condition (future diabetes mellitus in the mother) and also acts as prevention for condition in another person (future diabetes mellitus in the unborn child).^[14] GDM, therefore, is a perfect window of opportunity for prevention of diabetes. The opportunity provided by GDM can be utilized only if optimal medical and obstetric care is provided to the antenatal patient with GDM. This, in turn, will be possible if GDM is detected as early as possible. Going with importance of detecting and managing GDM in prenatal period, we have included three articles in this issue on the subject, one is a review article on GDM and two are original articles.

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Two articles, one each from India^[15] and Pakistan,^[13] present contrasting pictures of the GDM epidemic in the South Asia. While a high prevalence is reported from southern India, a low prevalence of GDM in young, lean, primigravidae has been reported from the Punjab province of Pakistan. In the article by Seshiah *et al.*, a cost-effective, single-step strategy is described to diagnose gestational diabetes. This would be a welcome addition to the already existing methods^[16] to diagnose gestational diabetes in resource-poor settings. Given the poor reproducibility of the oral glucose tolerance test (OGTT) in pregnancy, the high inter-assay and intra-assay variability in biochemical analysis of “single” blood glucose values, and the uncertain quality control in rural laboratories, the chance of misclassifying gestational diabetes is high.^[17,18] Adverse pregnancy outcomes in patients with gestational diabetes diagnosed by the International Association of Diabetes and Pregnancy Study Groups (IADPSG) criteria are well known,^[19] while adverse outcomes in pregnancies with GDM defined by the 1-hour post-glucose Diabetes in Pregnancy Study Group India (DIPSI) criteria^[20] are less well characterized.

In the study by Jawa *et al.*,^[13] GDM was diagnosed based on two abnormal values using the IADPSG criteria. The original guidelines recommended that one or more of the values need to be exceeded to make a diagnosis of GDM.^[16] It would be interesting to know the number of patients in this study who exceeded the single blood sugar cut-off criteria proposed by IADPSG. It would be also be interesting to know the pregnancy outcomes in this cohort of Pakistani women. It is surprising to see that both groups of patients of similar age and belonging to the same subcontinent have widely different prevalence of GDM. It is possible that other confounders like body mass index, family history and selective screening of patients in the second and third trimesters made the difference in the Indian cohort. The Pakistani cohort was limited to primigravida and to a smaller number of patients. It is also possible that the diagnostic criteria used in these studies may also have played a part in this very different prevalence reported in these studies. Further work on the screening, early detection, and management of GDM, as well as long-term fetal and maternal outcomes, is necessary in order to blunt the impact of the diabetes pandemic.

A third article, a comprehensive review by Magon, after bringing out the relevance of GDM in India tries to study the issue of screening and diagnosis of GDM. It analyzes the screening methods used previously, as well as the ones recently recommended by IADPSG based on the HAPO study. A clear picture is presented regarding the standard of care in screening and diagnosis of GDM, and the

alternatives available for resource challenged communities. The review concludes by calling on all stake holders in perinatal care to aggressively and efficiently screen all pregnant women for GDM and manage it, not only for the sake of present generation, but also for generations to come.

Effective diagnosis and treatment of GDM may be the best preventive therapy that we have for diabetes. GDM may well be viewed in future as an open window of opportunity for prevention, rather than a closed door of bleak outcomes.

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