

Integrating GDM management in public health: Pakistan perspective

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Abstract

Pakistan is a developing country with diverse social, economic and cultural dimensions along with limited resources. Non communicable diseases (NCDs) including diabetes are highly prevalent compromising the already challenged health care system. Gestational diabetes mellitus (GDM) with its associated maternal and foetal complications is increasing with rapidly changing lifestyle pattern. Since Pakistan has limited resources and other health issues compete strongly with gestational diabetes initiatives, the most feasible strategy will be the horizontal integration. This will work with the existing primary health care system integrating NCD control programmes with Maternal and Child health (MCH) programmes. Utilizing the existing health care system is the only implementable cost effective strategy. Antenatal screening and treatment of GDM alone is not sufficient but Post-partum screening (PPS) of women with GDM is an important strategy for prevention of diabetes as the conversion rates of GDM to type 2 diabetes are high. Furthermore, instead of perceiving GDM as a temporary reversible clinical entity, it should be considered as a trans-generational prevention of diabetes that needs to be addressed as a public health issue in order to improve maternal and foetal health.

Keywords: Gestational diabetes mellitus, Public health, National action plan, Maternal and child health.

Introduction

Diabetes is a major public health problem globally, Pakistan being no exception. According to the International Diabetes Federation (IDF) Pakistan has an estimated 6.7 million people affected with diabetes and this number is expected to increase to 12.8 million by the year 2035 if no preventive measures are taken.¹ Women in the reproductive age group are increasingly affected by diabetes and many pregnancies are complicated by pre-existing diabetes. Added to this is the burden of gestational diabetes, which is first recognized during pregnancy. Undiagnosed and uncontrolled diabetes during pregnancy may lead to

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several complications not only for mothers but their unborn child as well.² The reported frequency of maternal complications are; pre-eclampsia (19%), polyhydramnios (4.6%), and threatened abortion (3.4%). Foetal complications of macrosomia (13.1%), intrauterine growth retardation (7.1%), and intrauterine deaths (5.3%) were noted in a study conducted at a tertiary care centre of Pakistan over a period of five years.³

Burden of GDM in Pakistan

Pakistan faces diverse social, cultural and economic issues. To worsen the situation further, there is scarcity of resources. Public expenditure on health represents 0.7-0.8% of GDP and 3.5% of total government expenditure.⁴ On one hand it is struggling to combat infectious diseases, such as Tuberculosis, polio, Dengue, hepatitis etc and on the other hand non-communicable disease (NCDs) namely cancer, cardiovascular disease, chronic respiratory disease and diabetes are increasing at an alarming rate. The impact of these diseases in women is tremendous and affects the whole family. One way to prevent this rising epidemic is to focus on the issue of gestational diabetes. Women with GDM and their child are at increased risk of developing type 2 diabetes later in life if no preventive measures are taken.^{2,5}

The prevalence rate of GDM is mostly unknown in Pakistan. Small hospital based studies have shown a prevalence of 3.2% in 1991 to 17% in 2013.^{3,6} However the true prevalence of GDM is expected to be much higher than reported. Our neighbouring country India with similar geographical, ethnic and genetic background has reported prevalence of 9.9 to 17.8%.⁷ Socio demographic factors like rapid urbanization, changing diets, decreasing physical activity, and epidemic of obesity are some of the factors responsible for the development of GDM.⁵

Maternal obesity and malnutrition are closely linked to various complications seen during pregnancy, the consequences of which extend for generations to come. Malnutrition among pregnant mother is still very high in Pakistan. Maternal mortality rate (MMR) and low birth weight (LBW) are reported to be 27.6% and 26% respectively, reflecting the state of maternal nutrition in our country.⁸ This may predispose the infant to Intrauterine growth retardation (IUGR)^{8,9} with

a risk of developing T2DM in future. Infants born to mothers with diabetes are often large for gestational age (LGA) which may lead to complications during delivery and a high risk for future obesity and diabetes, thus developing a vicious cycle of NCDS for generations to come.

Studies have shown that it is possible to prevent or delay the onset of type 2 diabetes in high-risk individuals including women with a history of GDM.^{10,11} Therefore GDM presents a unique opportunity for early intervention in order to reduce the future burden of type 2 diabetes and thus makes a strong case for primary prevention and resource allocation.

In resource constraint countries like Pakistan, with one of the highest maternal and child mortality rates, GDM is likely to remain under diagnosed because of poor screening standards and adherence to diagnostic and management protocols. Furthermore, most of the guidelines based on risk factors criteria score poorly in detecting GDM and may not be applicable to our country. The International Association of Diabetes and Pregnancy study group published recommendations for diagnosis of GDM in March 2010 based on randomized controlled trials as well as Hyperglycaemia and Adverse Pregnancy Outcome (HAPO) study which clearly highlighted the importance of treating gestational diabetes in order to improve the maternal and foetal outcomes.^{12,13} These recommendations are adopted by many countries of the world. However there are limitations for its widespread use at community level in a country like Pakistan. With the limited availability of trained laboratory personnel and facilities, there is a pressing need to identify a simple and practical screening method for diagnosing GDM. Universal antenatal screening of all pregnant women on their first antenatal visit, irrespective of the presence of risk factors for gestational diabetes should be implemented in order to prevent the maternal and foetal complications.

GDM addressed in National Action Plans

Various national programmes have been rolled out to identify, prevent and manage NCDS in order to limit the consequences associated with these diseases including diabetes. A few years back National Action Plan (NAP) was formulated by the Ministry of Health (MOH), with the contribution of WHO and Heart file, a nongovernmental organization¹⁴ for development and implementation of a National Action Plan for Prevention and Control of Non-Communicable Diseases and Health Promotion in Pakistan (NAP-NCD). However, it could not be implemented because of the lack of political will and

conflict of interest of various stakeholders. Although diabetes was part of this NAP-NCD, Gestational diabetes mellitus (GDM) has never been given a priority in Pakistan and largely remains invisible to policy makers. In March 2014 Health Ministry of Pakistan launched Pakistan Diabetes Leadership Forum (PDLF) in collaboration with World Health Organization (WHO), IDF, WDF, DAP, BIDE, SIDER, PIMS and PES. The forum will help in formulating National Diabetes Action Plan and policy document for Pakistan. This forum highlighted the importance of capacity building at all levels of care, utilizing lady health workers (LHW) for primary prevention initiatives as well as sensitizing the policy makers and politicians ensuring a holistic rather than fragmented approach to NCDS in general and diabetes along with gestational diabetes in particular.¹⁵

Realizing the grim situation, the Baqai Institute of Diabetology and Endocrinology (BIDE) recently launched a GDM project with the collaboration of World Diabetes Foundation (WDF). The main objectives of this 3 years project is to create awareness in the country regarding GDM and to train the health care professionals in prevention, screening, diagnosis and management of GDM. The project also aims to Institutionalize GDM screening by organizing integrated GDM services and to train doctors, midwives and paramedics involved in obstetric care.¹⁶ Development of "GDM Reference Manual" for Pakistani population is in its early stages and will help to formulate various diagnostic and management protocols. An advocacy board has also been developed under this project comprising leading gynaecologists, diabetologists, media personnel and other stakeholders which will help in highlighting the cause of GDM in Pakistan. Another project focusing GDM in rural areas has also been launched by Diabetes Association of Pakistan (DAP) in collaboration with WDF.

Challenges Regarding GDM in Pakistan

There are multiple challenges at various levels regarding GDM in Pakistan, some of them can be summarized as Table-1.

Table-1: Problems regarding GDM.

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- ◆ Lack of knowledge regarding GDM among general population as well as Health Care Professionals.
 - ◆ Lack of preconception planning for mothers who are at risk of developing GDM.
 - ◆ High prevalence of malnutrition and obesity in women of reproductive age group.
 - ◆ No uniformity in screening and diagnostic method regarding GDM.
 - ◆ Lack of trained laboratory personnel and other facilities required for GDM management.
 - ◆ Lack of interdisciplinary coordination among health care providers.
 - ◆ Lack of post-partum screening among women diagnosed with GDM.
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Strategies Needed for Integration

Since Pakistan has limited resources and other health issues compete strongly with gestational diabetes initiatives, the most feasible strategy will be the horizontal integration with existing primary health care system by integrating GDM control programmes with Maternal and child health (MCH) programmes. Utilizing the existing health care system is not only cost effective but will also be implemented easily. This high risk population needs intervention at two levels simultaneously. One is to prevent the development of GDM and the other is to take steps in order to decrease the incidence of type 2 DM in this high risk group.

There is a well-established network of lady health workers (LHW) and trained birth attendants (TBAs) working at primary care level which can effectively be used for antenatal as well as post partum screening, diagnosis and management of GDM. They can be trained for promoting healthy lifestyle, monitoring weight, blood glucose testing as well as monitoring blood pressure. Seventy five Gm oral glucose tolerance test (OGTT) is considered the gold standard test which is recommended for screening and diagnosis of GDM, however this facility is not available everywhere in Pakistan. The fasting venous sample can be obtained for blood glucose estimation where feasible and future work is needed to ascertain the sensitivity and specificity of this recommendation.

Antenatal screening and treatment of GDM alone is not sufficient but Post-partum screening (PPS) of women with GDM is an important strategy for prevention of diabetes as the conversion rates of GDM to type 2 diabetes are high and one-third of the women with type 2 diabetes mellitus have history of gestational diabetes mellitus.^{5,10,11} PPS can also easily be integrated in existing national health programmes.

Future Steps to combat GDM as a Public Health Issue

Increasing awareness regarding GDM is the key to success regarding GDM in Pakistan. We should specially focus on young girls and women of reproductive age group to assess the translation of lifestyle modification which will go a long way in fighting the rising prevalence of diabetes in general and GDM in particular. Targeting malnutrition found in young women of child bearing age, children and adults is a promising cost effective strategy for Pakistan. Women should be made aware of progression of GDM to type 2 diabetes and it should be reinforced during the postpartum period (Table-2).

Table-2: Steps needed to address GDM.

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- ◆ National surveys to identify the true prevalence of GDM in Pakistan
 - ◆ Promotion of Educational material and awareness for sustainable behavioural changes
 - ◆ Use of print and electronic media for dissemination of knowledge Linking GDM with MCH programmes.
 - ◆ Structured and supervised training of HCPS at all level of care especially at primary care
 - ◆ Implementation of easy, practical and cost effective screening and diagnostic strategies at the community level. Collaboration between government and nongovernmental organizations.
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Conclusion

The high prevalence of diabetes including GDM and their huge impact on the economics of developing countries like Pakistan, makes integrating GDM in primary health care necessary. There is an urgent need to establish a screening procedure and diagnostic criteria for GDM which are simple, clearly understandable, feasible and can easily be used at the community level. Effective intervention requires universal antenatal screening for GDM, optimal treatment and adherence, and rigorous postpartum follow-up and preventive care. There is a need for creating social awareness, training manpower, and sensitizing policymakers to make GDM testing and management mandatory during pregnancy. When addressing GDM, it is important that instead of perceiving it as a singular clinical issue, it should be considered as a trans-generational prevention of diabetes that needs to be addressed as a public health problem in order to improve maternal and foetal health.

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