

## **Paradiagm shift in diabetes care: to rural, pregnant women. Indian rural diabetic females should also be aimed at.**

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It is a well known fact that heart diseases affect men more than women. 'Affection by heart disease is equal in post menopausal women and men' is also known to all. However, difference due to gender in incidence of diabetic complications and their prognosis is less talked of. According to International Diabetic Federation (IDF), 1 in 10 women are living with diabetes and 1 in 7 births are affected by gestational diabetes. Hence, the WHO theme for World diabetes day 2017 - 'Women and diabetes - our right to a healthy future' was a well thought of and needed theme.

'Diabetes is worse in women on an average, than men.' This inequality was revealed in a study published in 2007 which reported that in the thirty years following 1971 i.e; till 2000, death rates for women with diabetes remained same although they actually reduced for men with diabetes.<sup>1</sup> It also showed that the average life span of men with diabetes was 7.5 years lesser than that of men without diabetes. While among women the difference was of 8.2 years. After this more studies poured in with data on difference in behavior of diabetes in men and women.<sup>1</sup> In later studies it was reported that heart attacks were more often fatal for women with diabetes than they were for men with diabetes. Data also show that women with diabetes are more likely than men with the disease to have poor blood glucose control, obesity, renal involvement, high blood pressure and unhealthy cholesterol levels.<sup>2</sup>

Many theories have been proposed as a reason for this gender difference. It is reported that although chest pain or discomfort in the upper body is the commonest sign of myocardial infarction in both males and females, women are more likely than men to experience only nausea, shortness of breath and back or jaw pain during a heart attack. If a woman experiences these but doesn't recognize them as heart attack warning signs, she may not seek treatment, lowering her chances of recovery. It has also been speculated that although HDL cholesterol is normally higher in women than men; with diabetes, the high triglycerides drive down HDL levels in women more and the combination of high triglycerides and low HDL leads to a greater risk of heart disease.<sup>3</sup> Other reasons might be 1) less aggressive treatment and delay in attention to symptoms in females in view of the thought that females are at lesser risk of heart attack. 2) Greater physical inactivity among women as compared to men. (It has been reported that in all WHO regions and across all country income groups 27% of women and 20% of men were insufficiently physically active). 3) Females themselves take lesser care of themselves as compared to other family members.

Gestational diabetes mellitus(GDM) is another area of concern in women. The term "Gestational Diabetes" was first used by O'Sullivan in 1961. It is defined as glucose intolerance of varying severity with first recognition during pregnancy. Under this definition, all different categories are included namely - true GDM, pre-existing pre diabetes worsening during pregnancy, previously undiagnosed type 2 and type 1

diabetes.

It is estimated that on an average more than 60 million women in the reproductive age group have type 2 diabetes and around 15% of all pregnancies worldwide are complicated by GDM. The prevalence of GDM in India has steadily and steeply risen from around 2% in the 80's to 16.55% in 2002.<sup>4,5</sup>

Since insulin resistance develops early during the second trimester of pregnancy, diabetes diagnosed during the first trimester usually indicates pre-existing type 2 diabetes. Although various guidelines (WHO, DIPSI, IADPSG) are available for diagnosis of GDM, firm consensus on recommended diagnostic protocol is still lacking. DIPSI guidelines are widely accepted and recommended in the Indian scenario.

Obesity, metabolic syndrome, diabetes in first degree relative, previous macrosomic baby, polycystic ovarian syndrome etc. have conventionally been considered to be risk factors for GDM. It is also associated with many maternal and foetal complications like pre-eclampsia, polyhydramnios, operative delivery, perineal trauma, foetal macrosomia, birth trauma, prematurity, neonatal metabolic complications and risk of future diabetes. Hence, universal screening of all pregnant women for diabetes must be done starting from the first antenatal visit.

A multidisciplinary approach involving obstetrician, diabetologist, paediatrician, dietician and psychologist is the best method for achieving best possible maternal and foetal outcomes. The management strategies include preconception counselling and optimal glycemic control, MNT as first line therapy followed by pharmacotherapy wherein insulin is the treatment of choice. SMBG (self monitored blood glucose) is the cornerstone of diabetes management in pregnancy and must be strongly recommended to all GDM patients. Most GDMs revert back following delivery, however they need a follow up after six weeks and lifelong observation as risk for subsequent development of type 2 diabetes remains as high as 50 % within 10 years.<sup>6</sup> Thus, GDM offers a priceless opportunity for primary prevention of not only diabetes, but also obesity and metabolic syndrome in the next generation through proper education regarding healthy lifestyle to the offspring of GDM mothers.

Hence, while biology is important, there are modifiable factors like physical activity, cholesterol levels and personal care which can be taken care of to improve health. However, women especially in rural areas may have lesser time and fewer resources to participate in physical and leisure-time activity exposing them to greater risks of heart disease, fatal MI and higher rate of complications of diabetes. It's clear that women need support from other family members as there is this extra responsibility on them to take care of themselves by taking on physical activity, regular check ups and proper antenatal care to prevent diabetes and related complications from appearing in themselves as well as in the future generation.

This discussion becomes even more important in India as here, a paradigm shift of disease burden is seen from communicable diseases to non-communicable diseases and as India is experiencing epidemic of diabetes in recent years.<sup>7</sup> This paradigm shift in diabetes prevalence in India has also been reported to be from urban to rural.<sup>8</sup> As per WHO theme, the shift is also seen in terms of gender; diabetes being more harsh on females. Hence, if we are looking for healthy future, Indian rural diabetic females should also be aimed at, is our humble proposition.

## REFERENCES

1. Gregg EW, Gu Q, Cheng YJ, Narayan KV, Cowie CC. Mortality Trends in Men and Women with Diabetes, 1971 to 2000 Mortality Trends among US Persons with Diabetes. *Annals of internal medicine*. 2007 Aug 7;147(3):149-55.
2. Dale AC, Nilsen TI, Vatten L, Midthjell K, Wiseth R. Diabetes mellitus and risk of fatal ischaemic heart

disease by gender: 18 years follow-up of 74 914 individuals in the HUNT 1 Study. *European heart journal*. 2007 Oct 18;28(23):2924-9.

3. Legato MJ. Dyslipidemia, gender, and the role of high-density lipoprotein cholesterol: implications for therapy. *The American journal of cardiology*. 2000 Dec 21;86(12):15-8.
4. International Diabetes Federation. *Diabetes Atlas*, 4<sup>th</sup> edition, 2009
5. International Diabetes Federation. Policy Briefing. *Diabetes in Pregnancy: Protecting Maternal Health*. IDF. Brussels, 2011.<http://www.idf.org/diabetes-pregnancy-protecting-maternal-health>
6. Kim C, Newton KM, Knopp RH. Gestational diabetes and the incidence of type 2 diabetes. *Diabetes care*. 2002 Oct 1;25(10):1862-8.
7. Kaveeshwar SA, Cornwall J. The current state of diabetes mellitus in India. *The Australasian medical journal*. 2014;7(1):45.
8. Pandya H, Lakhani JD, Patel N. Obesity is becoming synonym for diabetes in rural areas of india also an alarming situation. *Int J Biol Med Res.* 2011 Apr 30;2(2):556-60.