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Original Research Article

Socio demographic profile of GDM using 75 gm OGCT

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ABSTRACT

Background: The aim of this study was to study the prevalence of GDM in a tertiary care centre based on 75 gm OGCT and to analyse the socio demographic and clinical profile of GDM using 75 gm OGCT in a tertiary care centre.
Methods: This study was conducted in the antenatal OPD of Tirunelveli Medical College Hospital from October 2014 to July 2015, a period of 10 months on 300 antenatal women. The mothers were screened using 75gm 2-hour OGCT once during each trimester and the results analysed.
Results: The prevalence of GDM in this study was 3.4%. Out of this 47-50% of women with GDM were of the age group 26-30 years. 6% of the women had BMI of >25 kg/m^2. The incidence of GDM was found to be high in multigravidas and 70% belonged to class V socioeconomic status. Using the 75 gm OGTT 20%, 40% and 40% were diagnosed during the I, II and III trimesters respectively. 90% of the women delivered at term and total caesarean section rate was 30.6%. Mean birth weight of the babies was 2.9 kg. 70% of the diagnosed GDM women were treated using Medical Nutrition Therapy (MNT).
Conclusions: 75gm OGCT recommended by WHO can be used to detect significant number of cases of GDM.

Keywords: 75 gm OGCT, GDM, WHO criteria

INTRODUCTION

Gestational diabetes mellitus is defined as carbohydrate intolerance of variable severity with its onset or first recognition during the present pregnancy.

According to Norman Frienkel "Fetus is a continuously feeding boarder in an intermittently eating host-mother". The metabolic adaptations during pregnancy occur in such a way as to accommodate the growing foetus.

Though diabetes mellitus is a disease known since ancient times recognition of diabetes in pregnancy is a relatively recent phenomenon. It was in 1909 that Williams described the concept of pre-existing diabetes (overt diabetes) and diabetes after conception (gestational diabetes).[1]

By routine screening during pregnancy an opportunity is provided for the care providers to reduce maternal and perinatal morbidity. Every woman has to be assumed to have diabetes and tests are being done to reassure her that she doesn't have it. There is an eleven-fold increased propensity in Indian women to develop glucose intolerance during pregnancy due to ethnicity.

Inspite of many screening tests available 75 gm 2hour GCT would be ideal for a country like India where a large population needs to be screened with limited resources.

A study done in 2001 observed that the plasma glucose concentration 2 hour after administration of 75g of oral glucose to a woman who has not fasted identifies the subjects with GDM.[2] The adverse outcomes for the

mother and her offspring were predicted by the non-fasting 75 g 2-hour post glucose concentration.

Philips et al found that the time after a meal or time of the day in a normal glucose tolerant non-pregnant woman does not affect the plasma glucose value when the glucose challenge test was performed.[3]

First three International workshops on GDM and ACOG in 1992 recommended screening with 50 gm oral glucose challenge test (OGCT) after which confirmation with OGTT using 100 gm glucose is done. ADA (American Diabetes Association) suggested screening test which is 50 gm OGCT with a cut off of 130 mg/dl and confirmation by 75gm or 100 gm GTT.[4]

In some countries over a period of seven years, at 15 centres, an International epidemiological study, Hyperglycemia and Adverse Pregnancy Outcomes (HAPO) study was conducted by using 75gm OGCT directly without screening in a diverse group of 23,325 antenatal women and the relationship between maternal glucose level and neonatal outcomes was observed.[5] Based on this study IADPSG (International Association of Diabetes and Pregnancy Study Group) recommendations were made in 2010.[6]

GDM is diagnosed by WHO criteria when the plasma glucose at 2 hours with 75 gm oral glucose is ≥140mg/dl.[7]

A study done in 2001 observed that the plasma glucose, 2 hours after 75gm oral glucose given to women who have not fasted identified the subjects with GDM and the adverse maternal and foetal outcomes were predicted by this test.

In India, Diabetes in Pregnancy Study Group India (DIPSI) recommended 75 gm oral glucose and 2-hour plasma glucose was estimated of venous sample - a single, simple, economical and feasible test which is useful in diagnosing GDM. Balaji V used this test with a cut off of ≥140mg/dl and evidence of GDM was found to be 16.96%.[8] Anjalakshmi C et al performed this 75 gm OGCT and compared it with 75 gm GTT and found statistically no significant difference.[9]

Seshiah et al in 2005 recommended this one step 75 gm OGCT in diagnosing GDM with 2-hour PPG ≥140mg/dl as per WHO criteria.[10]

METHODS

300 pregnant women attending ANOPD of Tirunelveli Medical College Hospital were screened using 75 gm glucose challenge test that is 75 gm oral glucose in 300 ml of water is given and 2 hr plasma glucose is estimated in venous sample irrespective of last meal. The test was done in each trimester and the mothers were followed till delivery. A cut off of >140mg/dl was taken. Women diagnosed as GDM were put on MNT and if not controlled on insulin. All women with no history of diabetes mellitus were included.

RESULTS

Of the total 300 screened women 10 could not be followed up so the number reduced to 290 women. The incidence of GDM was 3.4%. Among women labelled as GDM 20.3% belonged to 26-30 years of age group.

Table 1: Age distribution.

Age group	No GDM	GDM	Total
16 to 20 years	37	0	37
21 to 25 years	159	1	160
26 to 30 years	54	5	59
31 to 35 years	30	3	33
36 to 40 years	0	1	1
Total	280	10	290

Among 10 GDM cases 8 (80%)of them had their BMI >25kg/m^2 and 2 cases (20%) were with BMI 18-25 kg/m^2.

Table 2: BMI range.

BMI range	No GDM	GDM	Total
<18 kg/m^2	10	0	10
18 to 25 kg/m^2	250	2	252
>25 kg/m^2	20	8	28
Total	280	10	290

Out of 10 cases 7 (70%) cases belonged to class V socio economic status and 3 (30%) cases belonged to class IV socioeconomic status.

Table 3: Socio economic status.

	No GDM	GDM	Total
Class 4	83	3	86
Class 5	197	7	204
Total	280	10	290

Out of the 10 cases 8 (80%) were second gravida and above. Only 2 cases (20%) were primi.

Table 4: Parity.

Parity	No GDM	GDM	Total
Primi	213	2	215
2nd gravida	52	5	57
3rd gravida	11	2	13
4th gravida	4	1	5
Total	280	10	290

The total caesarean section rate was 30.6% (89 out of 290 mothers) were delivered by caesarean section. Among the GDM mothers 6 were delivered by caesarean (60%).

Table 5: Mode of delivery.

	No GDM	GDM	Total
Labour natural	184	4	188
Assisted vaginal delivery	13	0	13
Caesarean	83	6	89
Total	280	10	290

Mean birth weight of babies was around 2900 gms. The prevalence of macrosomia among GDM was 10%. As far as management is concerned among 10 GDM mothers 7 (70%) were put on MNT and only 3 (30%) required insulin for a glycaemic control. Majority of the mothers were managed with MNT.

DISCUSSION

This study was conducted to analyze the socio demographic profile of GDM using 75 gm OGCT. It was carried out in AN OPD of Tirunelveli Medical College Hospital.

The study group comprises of 300 antenatal women. Out of this 10 mothers could not be followed and the number reduced to 290. 75 gms OGCT was performed once in each trimester for the 290 women.

In this study the prevalence of GDM was found to be 3.4%. It was also noted that with advancing age the incidence of GDM also increases with the highest prevalence of GDM in women between the age of 25 and 30 years. It was also observed that with an increase in BMI there was an increase in GDM prevalence especially when BMI was >25kg /m^2.

The prevalence was found to be more in the second gravid and low socioeconomic status that is class IV and V. Majority of GDM mothers were delivered at term by LSCS. The mean birth weight of babies was 2.9 kg. There was no significant difference in macrosomia among mothers with GDM and without GDM.

CONCLUSION

Using 75 gm OGCT as a screening and diagnostic test the prevalence of GDM was found to be 3.4% and the incidence of GDM increases with increase in age and BMI. According to this study the prevalence of GDM was high in class IV and V Socioeconomic status. Also, there is an increased rate of caesarean section in GDM mothers. To conclude 75 gm OGCT is a single, simple, economical and feasible test which is useful in diagnosing GDM.

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Ethical approval: The study was approved by the Institutional Ethics Committee

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