

Rates of Postpartum Glucose Testing after Gestational Diabetes Mellitus

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Abstract: *OBJECTIVE: To estimate rates of postpartum glucose tolerance testing in women diagnosed with gestational diabetes mellitus (GDM) and to assess factors associated with testing. METHODS: This was a retrospective cohort study of 108 women with GDM who received prenatal care for a period of 1 year, October 2016 to September 2017 at the Department of Obstetrics and Gynaecology at Father Muller Medical College, Mangalore, Karnataka. Rates of postpartum glucose testing were estimated from hospital, clinic, and laboratory records. Demographic, clinical (obstetric history, antenatal, and delivery), and health care information was obtained from chart review. RESULTS: Less than one half (45%) of women with GDM in our cohort underwent postpartum glucose testing - 18 women (40 %) had abnormal results; this included 10 (22.7%) with persistent glucose intolerance and 8 (18%), diabetes mellitus. After adjusting for clinical and health care characteristics, the patients from urban areas were more in the postpartum visited group (significance of <0.001). The socioeconomic status of the patient doesn't affect the rates of postpartum visit. The patients who were on treatment with either OHA or INSULIN came for follow up compared to patients who were on MNT. Patients who underwent LSCS for came for follow up compared to Vaginal delivery patients with statistical significance of p value <0.001. Postpartum testing was strongly associated with attendance of the postpartum visit. CONCLUSION: Since high numbers of patients (40%) have abnormal results in the postnatal visit postpartum testing for glucose intolerance is of vital importance. Risk factors associated with decreased test rates include patients from rural area, low education status of the husband. So these social issues should be addressed effectively to increase the number of postpartum visits and improve the health status of women.*

Keywords: postpartum Glucose monitoring, Gestational Diabetes Mellitus

1. Introduction

GDM is defined as "carbohydrate intolerance with recognition or onset during pregnancy" irrespective of the treatment with diet or insulin.¹

It is seen as a result of lack of beta cell function that makes the patient unable to overcome the action of anti-insulin hormones released in pregnancy.¹

Offspring exposed to GDM face risks both in the short term (e.g., macrosomia and birth trauma) and the long term (eg, diabetes and hypertension). Consequently, most obstetric care providers screen all pregnant women with the belief that diagnosis and treatment of GDM improves neonatal outcomes.^{2,3}

Consequently, both the American Diabetes Association and the American College of Obstetricians and Gynecologists (ACOG) recommend postpartum glucose tolerance testing in women diagnosed with GDM.⁴

However, only a fraction of eligible women get tested. In this article, we examine the factors associated with testing, specifically the demographic, clinical, and health care characteristics that may influence testing.

2. Objective

To estimate rates of postpartum glucose tolerance testing in women diagnosed with gestational diabetes mellitus (GDM) and to assess factors associated with testing.

3. Materials and Methods

- 1) Design
Retrospective cohort study for a period of 1 year, October 2016 to September 2017
- 2) Place of audit
Department of Obstetrics and Gynaecology at Father Muller Medical College, Mangalore, Karnataka. All patients diagnosed as cases of Gestational Diabetes Mellitus by OGTT were identified from biochemistry laboratory records were considered for the study.

All GDM patient counseling and education was uniform and language-specific. It addressed healthy dietary practices, weight management, exercise, lifetime risk of diabetes, and the need for a 6-weeks postpartum and periodic reevaluation of glucose tolerance.

The primary outcome measure was postpartum glucose testing after hospital discharge. To be considered as tested, the patient either underwent a 2-hour, 75-g oral glucose tolerance test or fasting plasma glucose.

To explain the variability in postpartum testing we considered factors that might influence the patient's willingness to return for testing and factors that might influence the provider's perceived need for testing (eg, the patient's risk of persistent glucose intolerance as measured by the magnitude of the antenatal glucose abnormality). Demographic factors plausibly related to testing included maternal age, rural/urban, socioeconomic status, husband's education level, Data pertaining to the demographic factors were extracted from the prenatal record and hospital computer system. Clinical factors plausibly related to testing included, prior history of GDM, body mass index, and mode

of delivery. Other evaluated clinical factors included infant birth weight. These data were obtained from the prenatal record, hospital delivery record, and hospital computer system.

Group Statistics					
	Postpartum Visit tested	N	Mean	Std. Deviation	Std. Error Mean
Rural/Urban	No	63	.22	.419	.053
	Yes	44	.84	.370	.056
Se Status	No	63	2.13	.707	.089
	Yes	44	1.86	.905	.136
Husband's Education	No	63	.24	.429	.054
	Yes	44	.86	.347	.052
Treatment for GDM	No	63	1.9206	.93845	.11823
	Yes	44	2.3409	.88772	.13383
Age	No	63	30.03	3.162	.398
	Yes	44	28.64	4.024	.607
Birth Weight	No	63	3.16825	.342583	.043161
	Yes	44	3.33725	.474904	.071594
Delivery	No	63	1.33	.475	.060
	Yes	44	1.59	.497	.075
BMI	No	63	22.70	4.485	.565
	Yes	44	24.86	3.534	.533

Levene's Test for Equality of Variances	t-test for Equality of Means		
F	t	df	Sig. (2-tailed)
Rural/Urban	2.722	0.102	-7.878
			-8.055
Socioeconomic status	11.736	0.001	1.689
			1.617
Husband's education	7.498	0.007	-8.005
			-8.311
Treatment for GDM	1.113	0.294	-2.33
			-2.353
Age	5.573	0.02	2.006
			1.923
Birth Weight	2.737	0.101	-2.139
			-2.022
Delivery	2.172	0.144	-2.707
			-2.685
BMI	0.428	0.515	-2.673
			-2.788

4. Results

Of the 108 women included in the study, only 44 (45%; 95% confidence interval [CI] 40–50%) underwent postpartum glucose testing. The tests were performed at a mean of 7.5 weeks postpartum (interquartile range 5.1 to 8.4 weeks). Of the 44 women tested,

18 women (40%.) had abnormal results; this included 10 (22.7%) with persistent glucose intolerance and 8 (18%), diabetes mellitus.

The patients from urban areas were more in the postpartum visited group (significance of <0.001). the socioeconomic status of the patient doesn't effect the rates of postpartum visit. The patients who were on treatment with either OHA or INSULIN came for follow up compared to patients who were on MNT. Patients who underwent LSCS for came for follow up compared to Vaginal delivery patients.

5. Discussion

Women with GDM are at increased risk of persistent glucose intolerance after delivery, and yet, many are not retested postpartum. More than one third of those tested in our study had persistent glucose intolerance, which is consistent with other reports. We set out to define factors associated with successful testing. We found that only attendance at the postpartum visit was strongly associated with testing.

The patients from urban areas were more in the postpartum visited group (significance of <0.001). the socioeconomic status of the patient doesn't effect the rates of postpartum visit. The patients who were on treatment with either OHA or INSULIN came for follow up compared to patients who were on MNT. Patients who underwent LSCS for came for follow up compared to Vaginal delivery patients.

Other studies designed to explore the risk factors for persistent glucose intolerance after GDM have similarly identified few predictors of testing. In one such study, an association between patient health care access and lack of postpartum testing was inferred. Greenberg et al reported that failure to return for the six-week postpartum visit and loss of health insurance coverage contributed to patient noncompliance with postpartum 2-hour, 75-g oral glucose tolerance testing.

6. Conclusion

Since high number of patients (40%) have abnormal results in the postnatal visit postpartum testing for glucose intolerance is of vital importance. Risk factors associated with decreased test rates include patient's from rural area, low education status of the husband. So these social issues should be addressed effectively to increase the number of postpartum visits and improve the health status of women.

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