



OUTCOME OF GESTATIONAL DIABETES AND WEIGHT LOSS.

Dr Smita Sarangi	MD (Obs & Gynae) Assistant professor, Dept of Obs & Gynae Hi-Tech Medical College and Hospital, Bhubaneswar, Odisha,
Dr Rabindranath Behra*	MBBS, MD, FICMCH, FBIOH (Italy), FINEM Assistant professor & head ART & MIS unit, Dept of Obstetrics and Gynaecology, PG Institute, Hi-Tech Medical College and Hospital, Health Park, Pandara Bhubaneswar Odisha, -751025.*Corresponding Author
Dr Krishna Priyambada	MD (Obs & Gynae) Assistant Professor, Dept of Obs & Gynae Kalinga Institute of medical science, Bhubaneswar, Orissa.
Dr Amrit Patojoshi	M.B.B.S., M.D, DPM. Professor, Dept of psychiatry Hi-Tech Medical College and Hospital, Bhubaneswar, Odisha,
Dr. Ajay Kumar Bakhla	M.B.B.S., M.D, DPM. Associate Professor, Department of Psychiatry Rajendra Institute of medical sciences, Ranchi, Jharkhand, India-834009

ABSTRACT

Aim : We aimed to compare post partal weight loss of gestational diabetes mellitus and post partal diabetes mellitus.

Methods : It was a short duration observational study. All subjects were enrolled at their admission for delivery with a diagnosis of gestational diabetes. They were assessed for inclusion – exclusion criteria, and on qualification they were requested to fill up Socio-demographic data sheet or asked verbally and filled up by investigators. The blood was collected for measurement of Hb1Ac at the time of diagnosis and after 3-4 months of post partal duration.

Results: Out of total sample size of 42 patients 13 patients (30.95 %) had higher Hb1Ac above 6.5 after 3 months post partum. There was significantly minimal weight loss among post partal diabetes mellitus in comparison to gestational diabetes mellitus ($1.86 \pm .68$ vs $3.65 \pm .76$; $t = -7.201$, $p = .000$).

Conclusions— This study finds that among patients of post partam diabetes there is less weight loss, in comparison to women of gestational diabetes.

KEYWORDS :

INTRODUCTION

Significant weight gain is quite common during pregnancy, whereas Prevalence of gestational diabetes during pregnancy ranges from 2.4 to 21 per cent of all pregnancies [1-3]. Average weight gain during pregnancy depends on BMI of the women, which may range from 5 to 18 kgs. [1]. Women are expected to lose their weight significantly following the birth of baby, but retention of pregnancy weight or loosing very little weight is one of the major problem that may leads to development of diabetes later in life [4].

In a follow up study of gestational diabetes over many years [5], diabetes was present in 61% of those who were obese prior to pregnancy, 42% of those who had gained weight since pregnancy and only 28% of those who were not obese prior to pregnancy. In yet another study it was found that post-partum weight gain of 4.5 kg was independently associated with a twofold increase in the risk of developing diabetes [6].

Hence we plan this study to explore the outcome of gestational diabetes in our population in relation to weight gain after three months of post partal period.

MATERIALS AND METHOD

The aim of the present study was to assess the prevalence of antenatal anxiety and depression. This study was conducted at Ante natal out patients department at Hi-Tech Medical College and Hospital, Bhubaneswar, which is a tertiary care medical college hospital of Odisha, India. The study protocol was approved by the institutional review board of Hi-Tech Medical College and Hospital, Bhubaneswar. It was a cross-sectional study carried out over a four months period. All consenting women who attended this hospital for confinement and diagnosed as gestational diabetes were

recruited. All recruited subjects who satisfied the inclusion criteria for the study, presence of any major co morbid medical or other illness was kept as exclusion criteria. Included patients were examined clinically after taking detailed history and their socio demographic variables. They were requested to complete a questionnaire about their socio-demographic data sheet and advised for a blood test for Hb1Ac. Details of family history of diabetes, history of previous pregnancies and the socio-economic status were obtained.

Tools

Socio-demographic Data Sheet: The socio demographic data sheet included age, religion, occupation, education and clinical information like duration of pregnancy and other obstetric history.

Procedure: It was a cross sectional observational study. All subjects were assessed for inclusion – exclusion criteria, and on qualification they were requested to fill up Socio-demographic data sheet or asked verbally and filled up by investigators. The lab reports were recorded in tabulated form.

Statistical Analysis:

The collected data of all patients was statistically analyzed, using Statistical Package for Social Sciences (SPSS, Inc., Chicago, Illinois) version 10.0. Data analysis included means and standard deviations for complete sample. Frequency analysis was used to determine the prevalence of GDM. Data analysis included means and standard deviations for each group, and clinical subgroup of the sample. The parametric t-test was used to determine if differences existed between the groups. Statistically significant levels are reported for p values less than or equal to 0.05. Highly significant levels are p values less than .001.

RESULTS

Initially a total of 240 subjects were screened during antenatal period, which revealed 42 subjects (17.5%) suffering from Gestational diabetes mellitus. Further for this study these 42 diagnosed cases were followed up 3 to 4 months and their weight difference measured along with repeated Hb1Ac testing. The mean age of the sample was 25.83 years (± 4.96 years) with minimum age of 18 years to a maximum age of 33 years in our sample. The mean education years for the sample were found to be 10.66 ± 2.43 years (Table-1).

Among the total sample size of 42 patients 13 patients (30.95 %) had higher Hb1Ac above 6.5 after 3 months post partum. We categorized the data diagnosed as Post Partum Diabetes (PPD) (n=13) and GDM (n=29) the mean weight reduction after 3 months post partum was $1.86 (\pm .68)$ Kgs and $3.65 (\pm .76)$ Kgs respectively. Means of weight reduction were compared for these two groups by independent t test. Result shows significant minimal weight change for PPD group, whereas GDM group lost significantly higher weight loss ($1.86 \pm .68$ vs $3.65 \pm .76$; $t = -7.201$, $p = .000$) [Table -2]

DISCUSSION

This is a phase two study of our earlier study on prevalence of gestational diabetes, published elsewhere [7], which reported a 17.5% of prevalence of GDM, among 240 pregnant subjects. We were able to maintain a zero drop out of 42 patients, with lots of efforts for communication and investigation after 3 months of delivery.

It is found to in accordance with an earlier study [8], which concluded that a 1-kg increase in weight was significantly associated with increases in fasting and 2-hour glucose during pregnancy and during post partal period weight loss 2 kg or greater could favor glucose metabolism to keep a low plasma sugar and possibly delay the development of Type 2 diabetes in women with gestational diabetes. Similarly yet another studies reported that post-partum weight gain of 4.5 kg was independently associated with a twofold increase in the risk of developing diabetes [6]. The association and weight / BMI and type 2 diabetes mellitus are well known, which may have a post partal onset. These findings thus emphasizing the need for awareness and effective interventions through weight control for diabetes prevention, specially in women with a recent pregnancy affected by gestational diabetes.

The major limitation of this study is the small size of the sample. In future we need larger samples size, along with a matched control group, and some other relevant variables like other metabolic variables, measurement of insulin level and a long duration follow up outcome of GDM. There may be other unmeasured dietary, metabolic or psychological factors like stress that may be influential, could be measured in future research.

CONCLUSION

This study finds that weight reduction among women of gestational diabetes is higher, who do not develop post partum diabetes.

Table 1. Sample characteristics and mean Hb1Ac measurements

	Mean \pm SD	Min	Max
age	25.83 \pm 4.96	18	33
Years of education	10.66 \pm 2.43	6	15
Mean Hb1Ac ANC period	6.09 \pm 0.64		
Mean Hb1Ac ANC period (n=42)	7.30 \pm 0.51		
Mean Hb1Ac PP 3 months (n=42)	6.12 \pm 0.46		

Table 2. Comparison of mean weight loss according to grouped as Below and above Hb1Ac of the patients after 3 months of delivery.

	Below 6.5 (n=29)	Above 6.5 (n=13)	t	df	Sig. (2-tailed)
mean weight loss	3.65 ($\pm .76$)	1.86 ($\pm .68$)	-7.201	40	.000

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