

Gestational Diabetes and Dietary Management with Split Meal Technique

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ABSTRACT

Gestational diabetes and dietary management with split meal technique was studied with 90 sample which were collected through purposive sampling. Among 90 GDM patients were categorized into 2 equal groups I.e, Experimental group and control group. Control group consists of (n=45) and Experimental group also consists of (n=45). Anthropometric measurements, Biochemical assessment, and Diet survey were taken as parameters. Positive results were obtained in Experimental group. Significant decrease observed in weight, BMI, blood sugar and urine sugar in Split meal technique group. The results were decreased (from 160.11 to 133.36 mg/dl in fasting blood sugar, 2.25 - 0.35 mg/dl urine sugar, 67.58- 64.11 kg in body weight).

Keywords: *Gestational diabetes, Biochemical assessment, Anthropometric measurements, Dietary survey, Split meal technique shoulder dystocia and macrosomia.*

INTRODUCTION

Gestational diabetes is a condition characterized by high blood glucose levels discovered during pregnancy. Gestational diabetes is the result of reproductive hormonal changes that occur in all women during pregnancy. Increased levels of reproductive hormones made in the placenta interfere with the ability of insulin to manage glucose. This condition is called “insulin resistance”. As placenta grows larger during pregnancy, it provides more hormones and increases this

insulin resistance. Usually the mother’s pancreas is able to produce more insulin (about three times the normal amount). to overcome the insulin resistance. If the pancreas cannot produce enough insulin to overcome the effect of the increased hormones during pregnancy, glucose levels will rise resulting in gestational diabetes. Gestational diabetes is not an indication for primary cesarean section. However, because of shoulder dystocia is more likely with macrosomic infant of diabetes mother (Seshaiah, 2008).

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Gestational diabetes mellitus (GDM) accounts for approximately 90-95 % of all cases. GDM is defined as carbohydrate intolerance of variable severity with onset or first recognized during pregnancy. It has been demonstrated that good metabolic control maintained throughout pregnancy can reduce maternal and fetal complications in diabetes (BazBaz, 2015).

The diet goal is to eat a balanced, portion control meal that will allow our body on an even calorie throughout the day as the components of each meal hit the system. Eating every two to three hours is best, five to six small meals being recommended, and light exercise after each meal will help to the digestive system and prevent to increasing blood sugar levels (Pinney, 2012).

Nutritionally sound diet that meets women needs and their baby needs. Remembering of dieting and severely cutting back on weight gain may increase the risk of delivery prematurely. As with any pregnancy, it is important to eat proper foods to meet the nutritional needs of the mother and fetus. An additional goal for women with gestational diabetes is to maintain a proper diet to keep blood sugar levels as normal as possible (Landon, 2009).

Fiber is the edible portion of foods of plant origin that is not digested (eg skin, membrane, seeds, and bran). Food with high fiber contains whole grains cereals, fruits, vegetables and legumes. Fiber aids digestion and helps prevent constipation (Metzger, 2007).

Split breakfast and selecting low GI foods, low intake of CHO foods and following regular diet regimen effectively reduce the PPBS levels in type II diabetes. Splitting meal has positive effect in decreasing PPBS levels.

Objectives of the study:

- 1) To identify and assess the prevalence of diabetes in pregnant women (gestational diabetes) at gynecology department in St Joseph's Hospital Guntur, General Hospital (GGH).
- 2) Conduct a biochemical assessment to the pregnant women.

- 3) To see nutritional status of GDM patients.

- 4) To see the effect of split meal technique on GDM patients.

HYPOTHESIS

The following hypothesis was stated for this study.

Hypothesis

There will be a statistically significant difference on the effect of dietary management in Gestational Diabetes and outcome of pregnancy.

Null Hypothesis

There will be no significant difference on the effect of dietary management and split meal technique in Gestational Diabetes and outcome of pregnancy.

Gestational diabetes mellitus has multiple causes centering around an imbalance between hormone and energy out (calories, expanded in the basal metabolic rate and physical activity). Gestational Diabetes more likely results from an interaction of genetic factors, eating habits, physical activity, endocrine factors, age, obesity. In addition lack of exercise, excess dietary fat and lifestyle habits that adversely influence insulin resistance, such as smoking and certain drugs, could have an important influence.

MATERIALS AND METHODS

Selection of subjects:

A sample of 90GDM patients was selected purposively from Government General Hospital in Guntur, A.P. The sample were identified and categorized into Experimental group and control group. Experimental group i.e, split meal technique group (n=45) and control group (n=45).

Assessing the nutritional status of the GDM patients:

Height and weights of the GDM patients were accurately recorded, before and after the period of 4 months. Anthropometric measurements recorded in the study were height and weight and BMI was calculated as per the formula.

Body Mass Index (BMI) = weight in kg / height in m²

Conduct of diet survey:

A formulated questionnaire was prepared to collect the information about dietary pattern, frequency of food intake, likes and dislikes of the different foods were noted. 24 hour recall method was used to know the respondent had eaten on a day, before the day. Information regarding family size, type of family and occupational status was collected from the subjects. Effect of split meal technique in controlling obesity from both the groups 1 and 2 were collected. And information regarding psychological, social and emotional problems of the subjects are also collected.

Biochemical Parameters:

Biochemical tests are considered as the most effective objective measures for assessment of the nutritional status of individual. Blood sugar and urine sugar before and after experimental period had done.

The experimental group was carefully monitored for ensuring the split meal technique throughout the experimental period. The effect of split meal technique was evaluated through assessment of blood sugar and urine sugar levels using suitable biochemical parameters namely glucose tolerance test for blood sugar and benedicts test for urine sugar.

Split meal technique:

ANTHROPOMETRIC MEASUREMENTS:

The split meal technique suggested for experimental group. Group counselling sessions was conducted for weekly ones and duration of 30 minutes. Individual counselling also given for subjects for the first counselling. The split meal technique suggested for these pregnant women are small meals in small intervals.

RESULTS AND DISCUSSION

Back ground information:

The prevalence rate was high in middle income women between 16-25 years age. Prevalence of GDM women was high in nuclear families in both 16-25 years and 26-35 years in 2 groups. About 20 percent of GDM women were having grade 1 obesity in 2 groups between 16-25 years. More than 40 percent of GDM women in 2 groups were living sedentary life style between 16-25 years and 15 percent in 26-35 years About 45 percent were having family diabetic history in the age of 16-25 years and 11 percent in 26-35 years. Prevalence of GDM is high in women having family diabetic history compare to none family diabetic history. More than 20 percent GDM women were not doing any yoga or exercise in 2 groups in two age groups.

Table 1: The means of weight were compared before and after intervention

Groups	Mean/std deviation	Before weight	After weight
Control	Mean	68.60	66.13
	Std deviation	7.901	8.047
Experimental	Mean	67.58	64.11
	Std deviation	13.011	12.844
total	Mean	66.86	63.33
	Std deviation	11.3	11.419

Table 2: BIO CHEMICAL PARAMETERS

Groups	Mean/std	Before FBS	After FBS	Before Urine sugar	After urine sugar
Control	Mean	161.33	138.78	2.578	0.711
	Std deviation	27.038	16.161	0.5834	0.7575
Experimental group	Mean	160.11	128.27	2.289	0.200
	Std deviation	17.004	9.519	0.694	0.4045
Total	Mean	159.66	133.92	2.506	0.439
	Std deviation	20.58	12.62	0.59	0.50

Bio chemical parameters like blood sugar and urine sugar of the selected subjects are indicated in Table no 3.

Blood sugar

Split meal technique brought about the significant improvement in blood sugar level of experimental group. The statistical analysis revealed that there was mean difference in the decrease of blood sugar in experimental group.

Urine sugar:

Urine sugar levels were highly mean difference in experimental group when compared to control group.

SUMMARY AND CONCLUSION

Risk factors associated with GDM include age, genetic back ground, ethnicity and number of previous pregnancies recently, a shore stature has been identified as an independent variable. A modifiable known risk factor is obesity, in addition lack of exercise, dietary fat and life style habits that adversely influence insulin resistance, such as smoking and certain drugs, could have an important influence.

From the results, it is clear that Split meal technique is best method to reduce the risk of GDM patients. A period of 4 months brought about significant, improvement in bio chemical profile like blood sugar and urine

sugar levels. And it is also significant to control abortions and safety out comes of pregnancy.

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