Perinatal Diabetes Management Initiative Program at a Family Health Center

HELPS TO IMPROVE NUTRITION KNOWLEDGE AND ADHERENCE TO BLOOD GLUCOSE MONITORING

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ABSTRACT

A Perinatal Diabetic Management Initiative was implemented at a university hospital for indigent, multicultural patients at risk for diabetes during and after pregnancy. There is a vital need for this at risk population to receive medical nutrition therapy (MNT) and guidance to control their glucose levels to optimize pregnancy outcomes. The program offered patients with pre-existing diabetes and gestational diabetes mellitus, three prenatal and one postpartum MNT sessions with a Registered Dietitian Nutritionist (RDN). MNT sessions emphasized managing diabetes during pregnancy and preventing future diabetes. Aptitude of diabetes nutrition knowledge was measured in a cohort of pregnant diabetic patients (N=407) from 2010-2014. This was assessed by a multiple choice test consisting of the same six questions given at the initial and third prenatal sessions. Patients were supplied with glucometers and test strips and instructed to self-monitor blood glucose (SMBG) four times per day. Meters were downloaded to determine the average number of times per day patients were testing. Results showed a significant increase in test scores of 16% in the patients' enrolled (p<.001). Adherence to SMBG showed patients tested 3.3 times per day (N=231) as compared to another research study which reported adherence of 2.08 times per day. Results of this initiative suggest enrollment in a RDN taught diabetes management program during and after pregnancy is effective to improve nutrition knowledge related to diabetes and SMBG adherence. This increase in knowledge and monitoring adherence may lead to healthier maternal and fetal outcomes and decrease the risk of future diabetes.

INTRODUCTION

Our program addresses the issue of diabetes, a chronic disease on the rise. We target indigent, underserved pregnant women with pre-existing diabetes and women who develop gestational diabetes. The Perinatal Diabetic Management Services Initiative at Saint Peter's University Hospital was initiated for the purpose of ensuring a continuum of care for indigent perinatal patients at risk for diabetes during and after pregnancy. Services are delivered at Saint Peter's University Hospital's Family Health Center which includes women's health, adult health and pediatrics allowing for a more centralized approach to serving patients. Prenatal patients with pre-existing diabetes and gestational diabetes are offered three prenatal and one postpartum nutrition counseling sessions with a RDN in Women's Health. At the first prenatal nutrition session, patients are given a pre-test and at the third session patients are given a post-test to assess knowledge gained. Patients without prescription drug coverage are provided with a free glucose meter and test strips to remove the financial burden of purchasing supplies. At the third prenatal session, patients without a Primary Care Physician or a Pediatrician are referred to our Adult Health and Pediatric Clinics to allow for continuity of care after delivery. **(see Figure 1, other side)** After delivery, patients are mailed a reminder card to make a postpartum appointment, along with an infant bib. At the postpartum appointment, patients meet with an RDN for a nutrition visit and receive an infant gift basket, and are also provided with a script for a 2 hr (75g) Oral Glucose Tolerance Test (OGTT). Patients who pass the OGTT are referred to a "Preventing Diabetes Class" with an RDN in the Adult Clinic. Patients who do not pass the OGTT are referred for individual nutrition counseling with an RDN in the Adult Clinic. **(see Figure 2, other side)**

SAINT PETER'S UNIVERSITY HOSPITAL

A MEMBER OF SAINT PETER'S HEALTHCARE SYSTEM

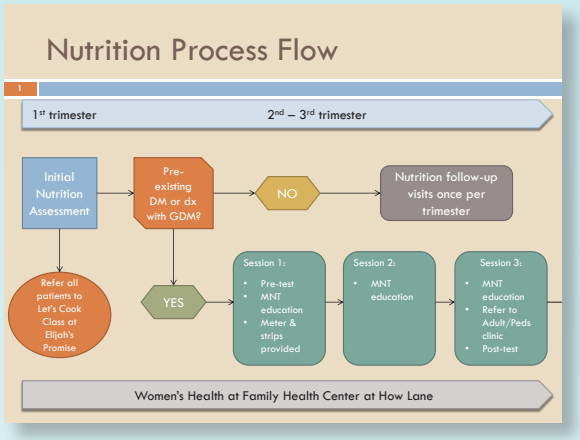


Figure 1

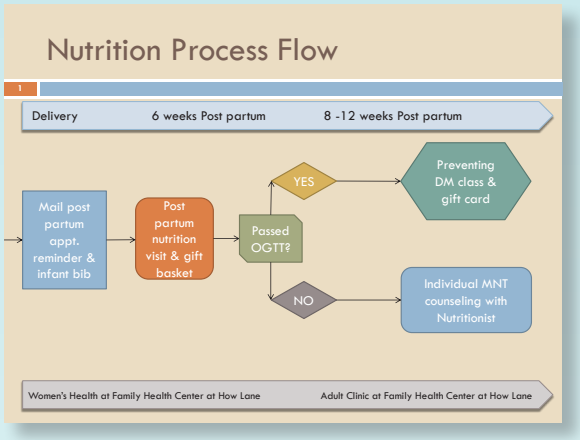


Figure 2

METHODS

PARTICIPANTS

Pregnant women with pre-existing diabetes or gestational diabetes at a perinatal ambulatory care clinic.

DATA COLLECTION

From 2010-2014, prenatal clinic patients with diabetes (N=407) were given a multiple choice test **(see Figures 3 & 4)** consisting of the same six questions at their initial and third nutrition session. From 2011-2014, prenatal clinic patients with diabetes without prescription drug coverage (N=231) were provided with a glucometer and strips and returned to download their meters. Meters were downloaded using the meter's software program to determine the average number of times per day patients were testing their blood sugar.

ANALYSIS

For each question, the mean was calculated from the pre and post test scores, and a paired samples test was performed. In addition, the average number of times per day patients were testing blood sugar was recorded from the meter's software program into a spreadsheet. Then the mean was derived.

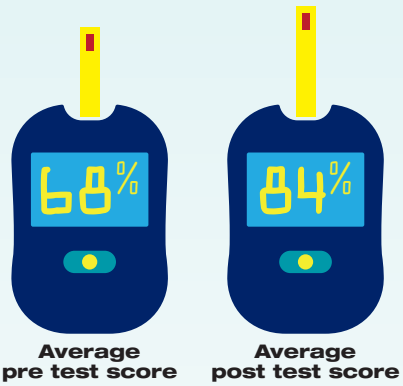


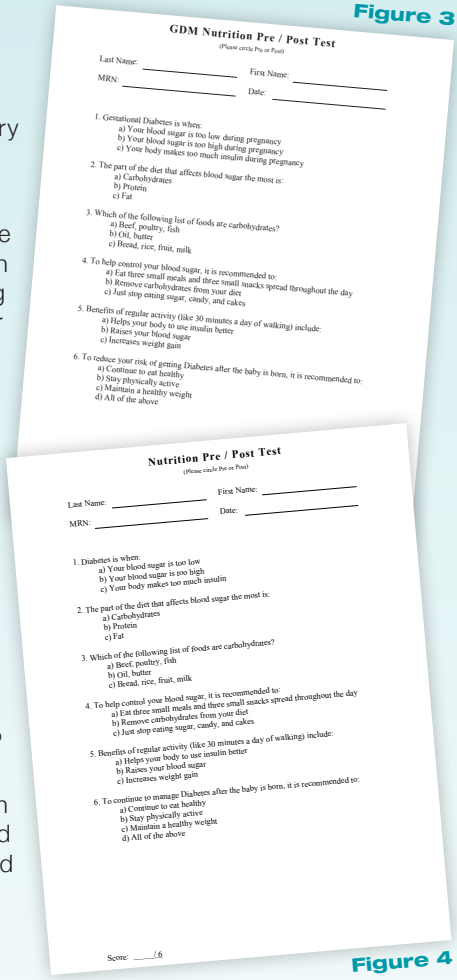
Figure 5

RESULTS

407 prenatal patients with diabetes completed both the pre and post test. The average pre test score was 68% and the average post test score was 84% **(see Figure 5)**, showing an increase in test scores of 16% among participants (p<.001).

231 prenatal patients with diabetes were provided with a free glucometer and strips and returned to download their meters. Downloaded meters showed patients tested their blood glucose an average of 3.3 times per day.

Figure 3



GDM Nutrition Pre / Post Test

(Please circle Pre or Post)

Last Name: _____ First Name: _____

MRN: _____ Date: _____

1. Gestational Diabetes is when:
   a) Your blood sugar is too low during pregnancy
   b) Your blood sugar is too high during pregnancy
   c) Your body makes too much insulin during pregnancy

2. The part of the diet that affects blood sugar the most is:
   a) Carbohydrates
   b) Protein
   c) Fat

3. Which of the following list of foods are carbohydrates?
   a) Beef, poultry, fish
   b) Oil, butter
   c) Bread, rice, fruit, milk

4. To help control your blood sugar, it is recommended to:
   a) Eat three small meals and three small snacks spread throughout the day
   b) Remove carbohydrates from your diet
   c) Just stop eating sugar, candy, and cakes

5. Benefits of regular activity (like 30 minutes a day of walking) include:
   a) Helps your body to use insulin better
   b) Raises your blood sugar
   c) Increases weight gain

6. To reduce your risk of getting Diabetes after the baby is born, it is recommended to:
   a) Continue to eat healthy
   b) Stay physically active
   c) Maintain a healthy weight
   d) All of the above

Nutrition Pre / Post Test

(Please circle Pre or Post)

Last Name: _____ First Name: _____

MRN: _____ Date: _____

1. Diabetes is when:
   a) Your blood sugar is too low
   b) Your blood sugar is too high
   c) Your body makes too much insulin

2. The part of the diet that affects blood sugar the most is:
   a) Carbohydrates
   b) Protein
   c) Fat

3. Which of the following list of foods are carbohydrates?
   a) Beef, poultry, fish
   b) Oil, butter
   c) Bread, rice, fruit, milk

4. To help control your blood sugar, it is recommended to:
   a) Eat three small meals and three small snacks spread throughout the day
   b) Remove carbohydrates from your diet
   c) Just stop eating sugar, candy, and cakes

5. Benefits of regular activity (like 30 minutes a day of walking) include:
   a) Helps your body to use insulin better
   b) Raises your blood sugar
   c) Increases weight gain

6. To continue to manage Diabetes after the baby is born, it is recommended to:
   a) Continue to eat healthy
   b) Stay physically active
   c) Maintain a healthy weight
   d) All of the above

Score: ____/ 6

Figure 4

DISCUSSION

CONCLUSIONS

Results from the pre and post test showed a significant increase in nutrition knowledge among participants after completing three nutrition counseling sessions with a RDN.

Average SMBG testing times per day were higher than those reported in another research study. These results suggest removing the financial burden of purchasing a meter and strips increased testing compliance.

RECOMMENDATIONS

Prenatal women with pre-existing diabetes or gestational diabetes should receive MNT with a RDN for a minimum of three prenatal nutrition sessions and postpartum counseling to increase nutrition knowledge, foster healthy lifestyle changes, and reduce the risk of future diabetes and/or diabetes complications.

Prenatal women without prescription drug coverage should receive free blood glucose testing supplies per program funding capability. Otherwise, women should be educated on where and what types of low cost meters and strips are available to purchase.

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