International Journal of Reproduction, Contraception, Obstetrics and Gynecology
Baradia P et al. Int J Reprod Contracept Obstet Gynecol. 2024 Oct;13(10):2826-2831
www.ijrcog.org
pISSN 2320-1770 | eISSN 2320-1789

DOI: https://dx.doi.org/10.18203/2320-1770.ijrcog20242818

Original Research Article

Improving outcomes by effective communication with would-be mothers with gestational diabetes at tertiary care center

Pooja Baradia[1]*, Narmada Prasad Patel[2]

[1]Department of Medicine, Mahaveer College of Medical Sciences and Research, Bhopal, MP, India
[2]Department of Medicine, L N Medical College and J. K. Hospital, Bhopal, MP, India

Received: 16 August 2024
Revised: 15 September 2024
Accepted: 16 September 2024

***Correspondence:**
Dr. Pooja Baradia,
E-mail: Poojabaradia03@gmail.com

ABSTRACT

Background: Gestational diabetes mellitus (GDM) is a metabolic disorder characterized by carbohydrate intolerance detected for the first-time during pregnancy. It may result in various complications in both the mother and child. The purpose of this study was to assess their knowledge about diabetes, doubts about safe pregnancy and misconceptions regarding treatment. It helped us in creating awareness amongst patients, their caregivers and of fellow doctors involved in patient care.
Methods: Each patient was started on a treatment protocol and compliance of medical nutrition therapy (MNT) in patients and calorie requirement were recorded. They were counselled regarding the care they need to execute and provided sample diet chart modified according to their needs, as per the guidelines laid down by ministry of health and family welfare, government of India 2018.
Results: Majority of the GDM women were obese (65%). Majority of the patients had calorie requirement of 2080 (37.50%) followed by 1750 (25%) and 2580 (22.50%). The compliance of MNT in present study was 68.33%.
Conclusions: Patients were unaware about diabetes, had fear for their unborn child, of a safe pregnancy and delivery. Patients were educated about gestational diabetes, its consequences, and how we can together prevent them. The guidelines for gestational diabetes care and assessment during ANC checkup has to be inculcated at grass root level. Patients, their care takers, nursing staff, doctors have to be involved as a team in providing care and implementing these guidelines.

Keywords: GDM, MNT, Diabetes in pregnancy, Education counselling, Nutritional counselling

INTRODUCTION

Gestational diabetes mellitus (GDM) is a metabolic disorder characterized by carbohydrate intolerance detected for the first-time during pregnancy.[1] GDM is said to hamper the course of pregnancy, resulting in various complications in the antenatal, intra-natal, perinatal and postnatal period including recurrent abortions, congenital anomalies, preeclampsia, still births, macrosomia, preterm labor and emergency caesarean section. Further, it also causes long term complications on both the mother and child, by predisposing them to increased risk of type 2 diabetes mellitus.[2]

Another key modifiable risk factor for GDM is physical inactivity. In pregnancy, it is a common practice to restrict physical activity and exercises owing to preventing uterine contractions. However, studies have demonstrated that only 10% of the pregnant women perform recommended levels of physical activity. It was further observed in a study that woman with GDM often restricted to sedentary activity compared to those without GDM and this

increased the GDM risk by four folds. With increasing tendency to remain sedentary during pregnancy, especially beyond the third trimester, there is a decrease in the energy expenditure, resulting in abnormal glucose tolerance and thereby increasing the incidence of GDM.[3]

The most crucial component of healthy lifestyle is the diet. GDM being a metabolic disorder predominantly involving carbohydrate metabolism is significantly influenced by the diet. A healthy diet constitutes adequate meal planning, with appropriate portion size, qualitatively enhanced with food of high nutritive value. In specific focus to GDM, it is important to plan for foods with low glycemic index, and high fiber content, in order to facilitate optimal functioning of pancreas and insulin secretion.[4]

The current study seeks to provide care and motivation to would-be mothers with gestational diabetes by educating them on diet and exercise.

The purpose of this study was to assess their knowledge about diabetes, doubts about safe pregnancy and misconceptions regarding treatment. To recognise and address them, and counsel the patients. Patients were provided with sample diet after calculating their calorie requirement as per MOHFW guidelines. They were counselled that diet modification is easy, were motivated to adhere to the diet plan. Care was provided to ensure safe pregnancy.

The purpose was to inculcate the guidelines laid by government into practice and to understand problems at root level. This study helped us in creating awareness amongst patients, their caregivers, community awareness through them and of fellow doctors involved in patient care.

METHODS

It is an observational, cross-sectional study done at L. N. medical college and research centre, J. K., hospital, Bhopal for a duration of 2 years (December 2019-December 2021).

Inclusion criteria

Patients with age above 18 years, pregnant women diagnosed with gestational diabetes were included.

Exclusion criteria

Patients with age<18 years, consent not given and pregnant women already known case of diabetes before conception were excluded.

Methodology

Each patient was started on a treatment protocol and compliance of MNT in patients and calorie requirement were recorded. They were educated about GDM, counselled regarding the care they need to execute and provided sample diet chart modified according to their needs, as per the guidelines laid down by ministry of health and family welfare, government of India 2018 sample diet charts of MoHFW were provided along with the food exchange list.[5]

Statistical analysis

All the data were analyzed using IBM SPSS ver. 25 software. Data was summarized using frequency distribution and descriptive analysis. Chi square test was used to find the association of categorical variables. The $p<0.05$ is considered as significant.

RESULTS

A total of 120 GDM patients were taken in this study.

Out of 120 patients, majority of the GDM patients did moderate physical activity level (65%) followed by 41 (34.2%) women who did sedentary physical activity and only 1 (0.8%) patient did heavy physical activity level (Table 1).

Table 1: Physical activity level of patients.

Physical activity level	N	Percent (%)
Heavy	1	0.8
Moderate	78	65.0
Sedentary	41	34.2
Total	120	100.0

Majority of the GDM women were obese (65%). There were 25 (20.8%) overweight women whereas 3 (2.5%) were underweight. (Table 2 and Figure 1).

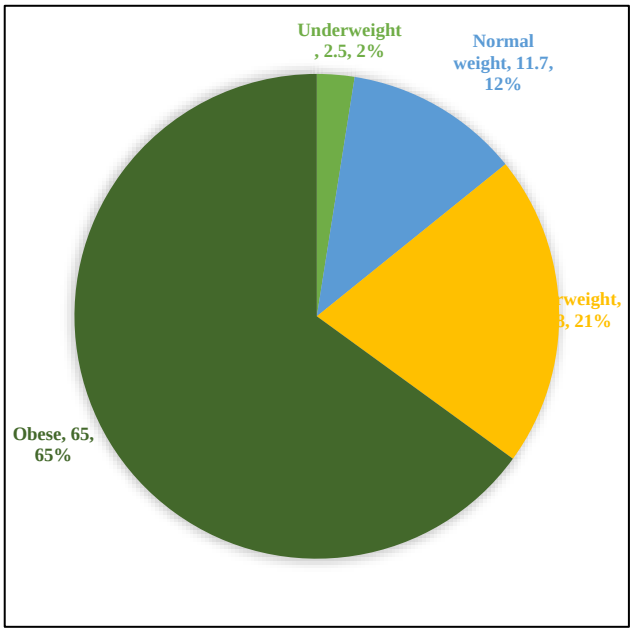

Figure 1: BMI according to pre-pregnancy weight.

Table 2: BMI according to pre-pregnancy weight.

BMI groups	N	Percent (%)
Underweight	3	2.5
Normal weight	14	11.7
Overweight	25	20.8
Obese	78	65.0
Total	120	100.0

Calorie requirement was calculated using pre pregnancy weight and BMI. Majority of the patients had calorie requirement of 2080 (37.50%) followed by 1750 (25%) and 2580 (22.50%) (Table 3).

The patients were counselled individually on the following parameters (Figure 2 and 3).

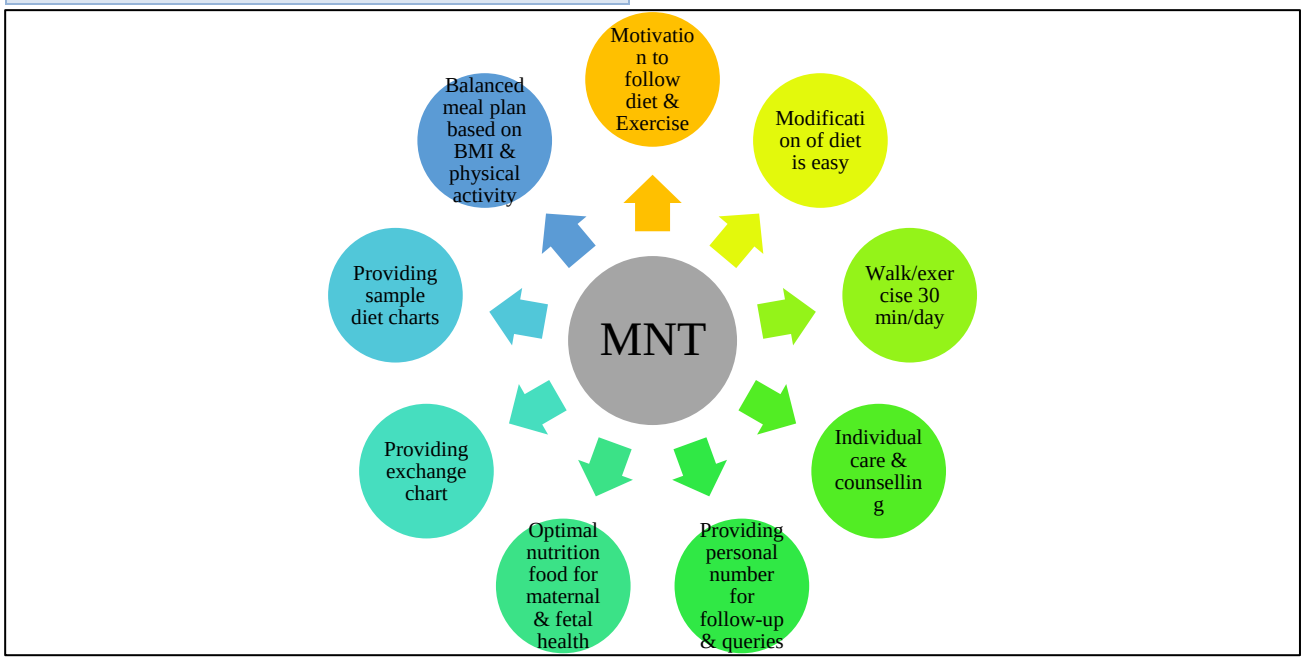

Figure 2: MNT counselling parameters.

Figure 3: Counseling and care parameters.

Table 3: Distribution according to calorie requirement.

Calorie requirement	N	Percentage (%)
1750	30	25.00
2080	45	37.50
2230	3	2.50
2250	12	10.00
2580	27	22.50
2700	1	0.83
2750	1	0.83
3080	1	0.83

MNT, 82 (68.33%) GDM patients had followed it. Compliance of MNT in present study was 68.33% (Table 4).

Table 4: Compliance of MNT in patients.

Parameters	N	Percentage (%)
MNT offered to	120	100
MNT followed by	82	68.33

Sample diet charts of MoHFW were provided along with the food exchange list.

DISCUSSION

Impaired glucose tolerance with onset or first recognition during pregnancy is called as gestational diabetes mellitus. It is linked to a slew of issues that might occur during pregnancy and have a negative impact on the health of both the mother and the foetus.[1]

Care and motivation to would-be mothers and counselling: our experience

Patient attitude at the beginning

It was seen that almost all of the patients were unaware about gestational diabetes. They had queries regarding the cause because of which they acquired diabetes, query regarding high sugar levels and its repercussions and whether it would affect the fetus. Even the educated mothers had no prior knowledge about the disease. It was also seen that women from rural backgrounds were accompanied by senior family members and hesitated in asking queries, more often a male member or husband would participate in interactions rather than the patient herself. Some patients were only interested in knowing the well-being of their newborn rather than understanding the disease and its consequences on pregnancy. In a study conducted in district Hoshangabad, it was observed that either husbands or mothers-in-law accompanied most pregnant women visiting the facilities. In both cases, there was resistance to wait 2 hours for test results. While the husbands did not want to lose their daily wage, the mothers-in-law felt it wasted their time away from household work. Additionally, women previously tested negative for GDM were reluctant to sit through the two hours the second time.[6] In a study by Morampudi et al similar challenges were faces, where patients were there were social taboos, lack of adherence and awareness in patients.[7]

Fellow doctors' attitude at the beginning

It was seen that lot of junior doctors were not aware of guidelines laid by government of India for management for patients with gestational diabetes. Universal screening method using single step testing was still not implemented. They were less aware about the medical nutritional therapy and it's benefits and were reluctant to spend more time in patient care and counselling. As observed by Carolan et al patients have difficulty in adhering to instructions by their health care workers, also they fear to ask questions leading to a poor doctor-patient interaction.[8]

Medical nutritional therapy and physical exercise

All patients were started on medical nutritional therapy as soon as they were diagnosed. It was seen that these mothers were not motivated enough to change the diet plan and believed it would be difficult. They were counselled that diet modification is easy. The type of carbohydrate, quantity of protein, fiber and their dietary benefits were explained. They understood that a balanced meal will promotes optimal nutrition for maternal and fetal health, provide adequate energy for appropriate gestational weight gain, and will achieve normoglycemia. They were explained about spreading the meals into short portions leading to less rise of blood sugar levels. Patients were motivated to adhere to the diet plan. They were counselled that minor changes in food habits can create a huge difference. They understood that by slight modification of their current diet they can achieve controlled sugar levels. In study by Carolan et al it was seen that dietary management was difficult for women, the food values, social eating also caused a hindrance.[8] In study by Ghaffari et al patients had difficulty in adhering to strict meal timings and consumed snacks in between.[9] A positive attitude change was seen in patients after they understood that it is easy to control the sugar levels. Patients were also encouraged to walk/ exercise for 30 minutes a day. It was seen that women had less effective physical activity in research by Kim et al.[10] On analyzing social support and physical activity it was seen that social support from friends lead to increased hour of physical activity although it was more of leisure time rather than walking itself.[10]

ANC visit and personal care

All patients were educated about importance of antenatal checkups, fetal scans, ultrasound. Those with uncontrolled blood sugars were advised and motivated to have more frequent antenatal visits. They were closely monitored for complications. Patients were provided support and care in each visit. Personal phone number was given to all patients

to use for any of their doubts. Post-delivery follow up: Mothers were educated about signs and symptoms of hypoglycemia and to monitor their newborns for same. Patients were advised to get sugar test 6 week postpartum and follow up with doctor. They were counselled about warning signs, importance of healthy timing and spacing of pregnancy to avoid GDM associated risk in next pregnancy. Pre-conception care and counselling: All these patients were counselled about BMI and blood sugar estimation before next pregnancy. She was asked to consult doctor as soon as she misses her period. It was seen that majority of patients agreed for this. In a study by Morampudi et al importance is laid on need of frequent counselling and education regarding diet, exercise, treatment, self-care and complications of GDM.[7]

Awareness in patients

Through our study it was seen there was significant difference in patient knowledge and attitude towards diabetes. They underwent timely sugar tests, were compliant towards medical nutritional therapy, medical therapy. Patients were in constant contact and had multiple visits for checkup. Admitted patients were aware of their sugar levels and would constantly ask about further plan from doctors.

Awareness amongst doctors

Fellow resident doctor's attitude and knowledge increased throughout the course of this study. They understood the in depth need for providing care and motivation, nutritional therapy and medical therapy in having better maternal and fetal outcomes. The role of counselling at every step of pregnancy is crucial, this was understood and brought in practice by gynecology and medicine residents involved in patient care. They are more confident in managing sugar levels and not hesitant to prescribe insulin when needed. As per a study by Berg it was seen that women had bad experiences with their care providers, distrust in the professionals.[11] it was seen that women were not satisfied with care providers who had limited experiences.[12]

Short term and long-term benefits achieved

Through this short we achieved some short- and long-term benefits. We were able to achieve safe pregnancy and delivery. Optimal nutrition maintained through diet and consequently euglycemia. Complications were avoided in majority of patients. Amongst the long-term benefits, through counselling we encouraged patient for healthy lifestyle, to prevent risk of future diabetes and thus decrease disease burden.

Patients' experiences

One of my patients was diagnosed with GDM in 2nd pregnancy while she had complications in previous pregnancy. When she understood that those complications might have been due to GDM, as she never got tested for that then, she was worried about current pregnancy outcome. She was counselled and motivated to adhere to the treatment advice. Patient was compliant and had a safe delivery. Another patient was accompanied by around 5-6 family members, and was hesitant in giving history. All conversation was done by husband. She was then approached again next day at a time when relatives were not present. It was seen that she was more comfortable in conversing, more so she asked lot of doubts that were in her mind. Carolan et al did a qualitative study on women's experiences and found that there were several barriers like time constraints, social issues and they needed educational support.[8] A similar experience was seen in a study by Bandyopadhyay et al where it was seen that before diagnosis of GDM, knowledge regarding it was poor, they had different food habits are per their culture and exercise in pregnancy also raised issues.[13]

What more can be done

All opportunities and channels of communication should be used to create awareness and care. Mass media activities like radio, television should be used more to provide messages on GDM programs. Posters, wall hanging, billboards should be displayed at important roads, markets. Health camps should be organized by medical teams, front line workers, ASHA workers to provide knowledge and testing. It is a team effort of religious leaders, teachers, social activists to spread knowledge to women their families and communities. The sensitization regarding health should start at school itself, where children are made aware about adapting a healthy lifestyle through folk theatre, street shows, books by including chapter on maternal health. Together as a team, we can strive towards building a strong health care system for mother and her child leading to a healthy family. Similarly in a study by Hoppichler et al repeated counselling is required for better management and educational programs were made as per cultural eating habits.[14] Lavender et al suggested pregnancy care programs, psycho-social support, online websites that offer professional support through chats might be helpful.[15]

The study's limitations were that data gathering was constrained by conditions and time. Changes in BMI throughout pregnancy, nutritional consumption, pregnancy exercise, and long-term prognosis after childbirth, for example, could not be reliably determined. Because of the restricted time and researchers, this study had small sample size, which may have harmed the stability of the research conclusions. Low sample size was also due to the unprecedented pandemic of COVID-19.

CONCLUSION

MNT was the most common treatment approach for GDM patients. Improved screening, treatment, and prevention techniques for gestational diabetes mellitus are required to

improve mother and child health. There is still unawareness about diabetes, fear for their unborn child, of a safe pregnancy and delivery among patients. They are unaware about diet modification and that it is easy to control blood sugar levels. Through personal counselling and education, we can together prevent them. The guidelines for gestational diabetes care and assessment during ANC checkup has to be inculcated at grass root level. Patients, their care takers, nursing staff, doctors have to be involved as a multidisciplinary team in providing care and implementing these guidelines. Educational programs to create awareness amongst community for frequent antenatal checkups, for maintaining healthy lifestyle are the key to better motherhood, and building a strong healthcare system.

Funding: No funding sources
Conflict of interest: None declared
Ethical approval: The study was approved by the Institutional Ethics Committee

REFERENCES

1. Choudhury AA, Rajeswari VD. Gestational diabetes mellitus-A metabolic and reproductive disorder. Biomed Pharmacotherapy. 2021;143:112-83.
2. Fadl H, Magnuson A, Östlund I, Montgomery S, Hanson U, Schwarcz E. Gestational diabetes mellitus and later cardiovascular disease: a Swedish population based case-control study. BJOG. 2014;121(12):1530-6.
3. Anjana RM, Sudha V, Lakshmipriya N, Anitha C, Unnikrishnan R, Bhavadharini B, et al. Physical activity patterns and gestational diabetes outcomes-The wings project. Diabetes Res Clin Pract. 2016;116:253-62.
4. Koivusalo SB, Rönö K, Klemetti MM, Roine RP, Lindström J, Erkkola M, et al. Gestational Diabetes Mellitus Can Be Prevented by Lifestyle Intervention: The Finnish Gestational Diabetes Prevention Study (RADIEL): A Randomized Controlled Trial. Diabetes Care. 2016;39(1):24-30.
5. Ministry of Health and family Welfare. Maternal Health Division. Diagnosis and Management of Gestational Diabetes Mellitus. Technical and Operational Guidelines. 2018;1-100.
6. Winning strategies to address diabetes in pregnancy. An antenatal care approach. Available at: https://www.jhpiego.org/wp-content/uploads/2018/03/GDMPhotobook_Low-resolution.pdf. Accessed on 5 February 2024.
7. Morampudi S, Balasubramanian G, Gowda A, Zomorodi B, Patil AS. The Challenges and Recommendations for Gestational Diabetes Mellitus Care in India: A Review. Front Endocrinol (Lausanne). 2017;8:56.
8. Carolan M, Gill GK, Steele C. Women's experiences of factors that facilitate or inhibit gestational diabetes self-management. BMC Pregnancy Childbirth. 2012;12:99.
9. Ghaffari F, Salsali M, Rahnavard Z, Parvizy S. Compliance with treatment regimen in women with gestational diabetes: living with fear. Iran J Nurs Midwifery Res. 2014;19(7-1):S103-11.
10. Kim C, McEwen LN, Kieffer EC, Herman WH, Piette JD. Self-efficacy, social support, and associations with physical activity and body mass index among women with histories of gestational diabetes mellitus. Diabetes Educ. 2008;34(4):719-28.
11. Berg M, Sparud-Lundin C. Experiences of professional support during pregnancy and childbirth - A qualitative study of women with type 1 diabetes. BMC Pregnancy Childbirth. 2009;9:27-35.
12. King R, Wellard S. Juggling type 1 diabetes and pregnancy in rural Australia. Midwifery. 2009;25(2):126-33.
13. Bandyopadhyay M, Small R, Davey MA, Oats JJ, Forster DA, Aylward A. Lived experience of gestational diabetes mellitus among immigrant South Asian women in Australia. Aust N Z J Obstet Gynaecol. 2011;51(4):360-4.
14. Hoppichler F, Lechleitner M. Counseling programs and the outcome of gestational diabetes in Austrian and Mediterranean Turkish women. Patient Educ Couns. 2001;45(4):271-4.
15. Lavender T, Platt MJ, Tsekiri E, Casson I, Byrom S, Baker L, et al. Women's perceptions of being pregnant and having pregestational diabetes. Midwifery. 2009;26(6):589-95.

Cite this article as: Baradia P, Patel NP. Improving outcomes by effective communication with would-be mothers with gestational diabetes at tertiary care center. Int J Reprod Contracept Obstet Gynecol 2024;13:2826-31.