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Short Communication

Initiative for self-control of blood sugar-diabetes in pregnancy

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ABSTRACT

Our aim was to empower underprivileged women to self-control their blood glucose during pregnancy so that optimum blood glucose values and its monitoring can be achieved as outpatient care. A dedicated clinic was established for women with diabetes in pregnancy (DIP), that was focused on diabetes education and training of women. It was conducted by a team of a nutritionist, a trained midwife and residents. The challenges of unaffordability and language barrier were addressed. DIP clinic helped us cut down the cost of inpatient care. Awareness about DIP and its consequences on the baby motivated women to comply with medical nutrition therapy (MNT) and self-monitoring of blood glucose (SMBG). The women attained ownership and the feeling of fulfilment by taking charge of their blood glucose control for the benefit of their babies. This was a practical, cost-effective and successful health practice initiative of attaining glycemic targets in a lower middle-income population.

Keywords: DIP, SMBG, MNT, Gestational diabetes mellitus

INTRODUCTION

Diabetes in pregnancy (DIP) is a major public health problem. Approximately 20.4 million (15.8%) of live births in 2019 had some form of hyperglycemia in pregnancy. Southeast Asia had the highest age-adjusted comparative prevalence of 27%. Achieving glycemic targets in pregnancy is of prime importance.[1] The South Asian federation of endocrine societies (SAFES) published guidelines in 2018 to combat the alarming situation and provided a model for management of DIP in low middle income countries (LMICs).[2]

We observed DIP in almost one in five women who registered for delivery. In women with uncontrolled diabetes mellitus, in spite of inpatient care, the glucose targets were not maintained in most women once they were discharged. They were not able to adhere to MNT and lifestyle modifications at home due to lack of education, motivation and compliance. Moreover, standard monitoring in pregnancy requires a fasting and three post meal glucose values. Therefore, laboratory dependent monitoring functions suboptimal. We took this initiative to empower women for their glycemic control through education, training and supervision in outpatient facility.

METHODS

The program was implemented through July to December 2016. To implement this, a protocol of DIP was developed in Sheikh Saeed campus of Indus hospital and health network (IHHN) in accordance with international standards. A DIP clinic was initiated and run by a trained team including an obstetrician, nurse, nutritionist and trainee residents of family medicine and OB/GYN specialties. Glucose meters, strips, lancets and oral anti-diabetic drugs (OADs) were arranged. The women were given diabetes education and training in SMBG and maintaining SMBG charts, with the help of pictorial education material and power point presentations in easy local language as shown in Figure 1.

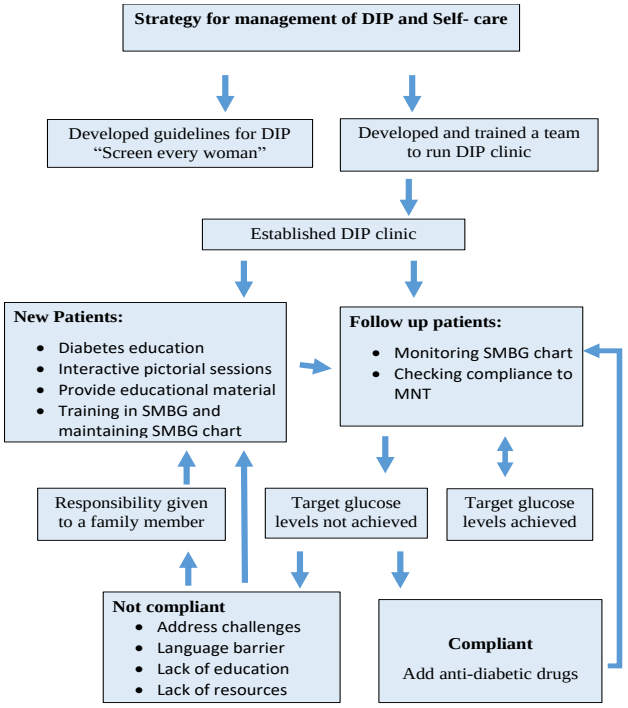

Figure 1: Program implementation.

RESULTS

According to the IHHN guidelines for DIP, all pregnant women are screened for diabetes at registration. At less than 24 weeks of gestation, fasting blood glucose (FBG) is used as early screening-cum-diagnostic tool. Women who first presented after 24 weeks of gestation and those who were screened negative at their first screening, were screened again at 24-28 week with 2-hour 75 gm oral glucose tolerance test. Diagnosis was based on international association for DIP study group (IADPSG) 2010 criteria.[3] For our women, we recommended four-times a day monitoring once a week for those controlled on MNT and twice a week for those controlled on medication, throughout pregnancy. This was possible only with SMBG. It saved the cost of laboratory testing, transport and inpatient care. The responsibility and care of monitoring DIP were shared with the women.

Hospital registration cards of women diagnosed with DIP were coded with pink mark for identification. This helped reception and paramedic staff to identify women with DIP and to direct them to DIP clinic without unnecessary waiting and ensuring that none of them missed the visit to the designated clinic. In the DIP clinic, on an average about five women with newly diagnosed DIP and twenty-five for follow up were consulted per day, six days a week. Women in DIP clinic were categorized into; (i) newly diagnosed DIP, (ii) those for follow up with target glucose values and (iii) those for follow up with uncontrolled glucose values. These women were directed to individual or group sessions, as indicated. The sessions were interactive, ensuring that the women received and understood what was taught. Women were motivated by sensitizing them about the adverse effects of hyperglycemia on their babies and how they could contribute in achieving good glycemic control for the benefit of their babies. To achieve compliance and glycemic targets, repeated education sessions with the help of education material, were required individually and as well as in groups.

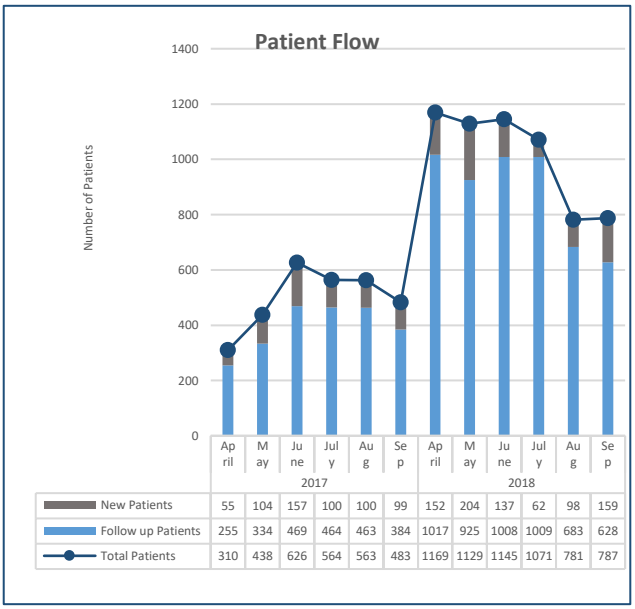

Figure 2: Performance of DIP clinic in 2nd and 3rd quadrant of 2017-2018.

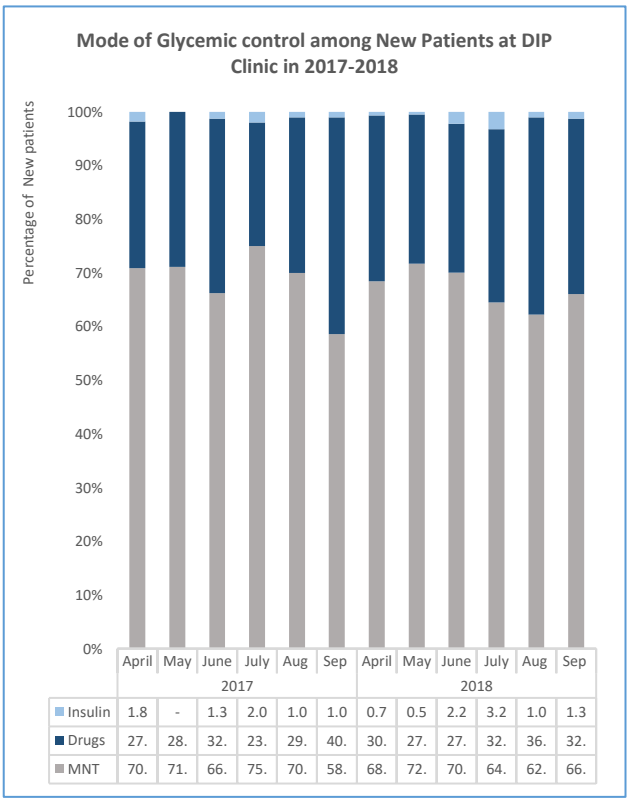

Figure 3: Mode of glycemic control among new patients at DIP clinic in 2017-2018.

DISCUSSION

In the DIP clinic, an individualized pocket friendly diet plan was provided by the nutritionist. Training on SMBG was given by the midwife who randomly verified the glucose values from glucose meter memory, on subsequent follow ups. To ensure compliance, wrappers of used glucose strips and medicines were checked before the issue of further supplies. The residents supervised pharmacotherapy and dose adjustments with the help of senior faculty and diabetologist, when required. Physical activity and exercise were promoted as part of MNT.[4] There is evidence of 24 -39% reduction in GDM in high-risk women with these measures. The women in-group sessions were encouraged to interact.[5,6] Women with good glycemic control took opportunity to share their stories and motivate others.

Two significant challenges were encountered and addressed; (i) glucose meters, strips and medications were provided to women who could not afford to buy them, till the time of childbirth, (ii) illiteracy, compliance and language barrier issues were addressed by involvement and education of a family member who was given responsibility to help the woman to comply with MNT and SMBG.

We successfully incorporated this program into our healthcare system. Figure 2 illustrates the number of women who benefited from DIP clinic services that gradually increased in 2018 compared to 2017.

Almost 68% of women with GDM (excluding pre-existing and overt diabetes) were able to achieve blood glucose targets through MNT (Figure 3), comparable to studies that suggest that 70-85% of women diagnosed with GDM under Carpenter-Coustan/ national diabetes data group (NDDG) criteria control GDM with lifestyle modification alone.[4]

In February 2021 we reviewed data of the DIP clinic that showed that on an average basis, the clinic is serving 5 new and 34 follow up women per day. Our study published in January 2020 revealed that the frequency of DIP at Karachi campus of IHHN was 21.8% of which GDM was 81.2%, overt diabetes 16.8% and preexisting diabetes 2%.[7] We would like to emphasize that by sharing care with women, we successfully manage this burden of DIP in outpatient department, with quality and standard outcomes. These women can be a potential source for primary prevention through dissemination of knowledge and be advocates at the community level for promotion of healthy lifestyle habits to prevent obesity and gestational diabetes mellitus.

CONCLUSION

Empowering less educated and the less privileged women to take ownership of their glycemic control was an enlightening experience and a successful implementation of a health practice.

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REFERENCES

1. Saeedi P, Petersohn I, Salpea P. Global and regional diabetes prevalence estimates for 2019 and projections for 2030 and 2045: Results from the International Diabetes Federation Diabetes Atlas, 9th edition. Diabetes Research Clin Practice. 2019;157:107843.
2. Raza SA. SAFES guidelines. J Pak Med Association. 2008;58(3):S1-24.
3. Weinert LS. International Association of Diabetes and Pregnancy Study Groups Recommendations on the Diagnosis and Classification of Hyperglycemia in Pregnancy: Comment to the International Association of Diabetes and Pregnancy Study Groups Consensus Panel. Diabetes Care. 2010;33(7):e97.
4. American Diabetes Association. Management of Diabetes in Pregnancy: Standards of Medical Care in Diabetes-2018 in Diabetes Care. 2017;41(1):S137-43.
5. Nasiri-Amiri F, Sepidarkish M, Shirvani MA, Habibipour P, Tabari NSM. The effect of exercise on the prevention of gestational diabetes in obese and overweight pregnant women: a systematic review and meta-analysis. Diabetol Metabolic Syndrome. 2019;11(72):1-14.
6. Koivusalo SB, Rönö K, Klemetti MM. Gestational Diabetes Mellitus Can Be Prevented by Lifestyle Intervention: The Finnish Gestational Diabetes Prevention Study (RADIEL). Diabetes Care. 2015;39(1):24-30.
7. Wali AS, Rafique R, Iftikhar S, Ambreen R, Yakoob MY. High proportion of overt diabetes mellitus in pregnancy and missed opportunity for early detection of diabetes at a tertiary care centre in Pakistan. Pak J Med Sci. 2019;36(1):S38-43.

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