Can J Diabetes 39 (2015) 451–456

Contents lists available at ScienceDirect

Canadian Journal of Diabetes

journal homepage: www.canadianjournalofdiabetes.com

Original Research

Increasing Timely Postpartum Oral Glucose Tolerance Test Completion in Women with Gestational Diabetes: A Quality-Improvement Initiative

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ARTICLE INFO

Article history:
Received 26 March 2015
Received in revised form
9 June 2015
Accepted 9 June 2015

Introduction

Gestational diabetes (GDM) is defined as hyperglycemia that is first recognized during pregnancy. It affects 5% of pregnancies, and higher rates occur in certain ethnic minorities (1). GDM increases the risk for the development of type 2 diabetes and other metabolic complications later in life. Of women with GDM, 4% will be diagnosed with type 2 diabetes, and 20% of women with GDM will have developed type 2 diabetes within 10 years postpartum (2). Within the first 6 months after delivery, upwards of 25% of women will have persistent abnormalities in their postpartum glucose levels in the form of impaired glucose tolerance (IGT), which is detectable only by a formal 2-hour 75 g oral glucose tolerance test (OGTT) (3). Identification of IGT prior to a subsequent pregnancy is important because these women experience dysglycemia with the onset of pregnancy and require ongoing monitoring and treatment. The Canadian Diabetes Association guidelines recommend a 75 g OGTT 6 weeks to 6 months postpartum; however, the rates of compliance with this guideline are less than 20% (4). Diabetes and its complications are a major financial burden on the healthcare system and are associated with major morbidity for patients. Screening programs in this population have been shown to be cost saving and to improve quality of life (5).

There is high-level evidence that intensive lifestyle interventions can prevent the development of diabetes in patients with impaired glucose tolerance (6). The diabetes-prevention program showed that in women with histories of GDM and IGT postpartum, 5 women would need treatment by means of lifestyle changes or metformin to prevent 1 case of type 2 diabetes over 3 years (7). Therefore, increasing adherence to postpartum screening guidelines for women with GDM would identify women with IGT and type 2 diabetes and would allow for earlier initiation of interventions aimed at preventing dysglycemia and its complications in subsequent pregnancies and for the mothers' long-term health.

In Canada, most women do not see endocrinologists postpartum; rather, they see their obstetricians and family physicians, who rarely order screenings by OGTTs (4). Patients also report the numerous challenges of undergoing OGTT screening, including time pressures (55%), followed by lost requisitions (20%) and lack of knowledge (5%) of the importance of completing the test (8). Thus, even when providers counsel patients about the importance of the testing, women do not prioritize this aspect of their health in the postpartum period.

In a randomized control trial of reminders sent to Canadian patients, to providers, to both, or when no reminder was sent, OGTT completion rates were significantly higher in the physician/patient reminder group (49/81 women; 60.5%); OGTT rates were significantly higher in the patient-only reminder group (42/76 women; 55.3%); and OGTT rates were significantly higher in the physician-only reminder group (16/31 women; 51.6%) when the rates were compared to those in the no-reminder group (5/35 women; 14.3%; $p<0.05$) (9).

The goal of this quality-improvement initiative was by July 1, 2014, to increase the rates of women with GDM completing their 75 g OGTT screening test (within 6 months postpartum) from 30% to 60% by using 3 interventions: 1) improvements in physicians' dictations; 2) patient-directed e-mail reminder systems and 3) family

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1499-2671/$ – see front matter
http://dx.doi.org/10.1016/j.jcjd.2015.06.004

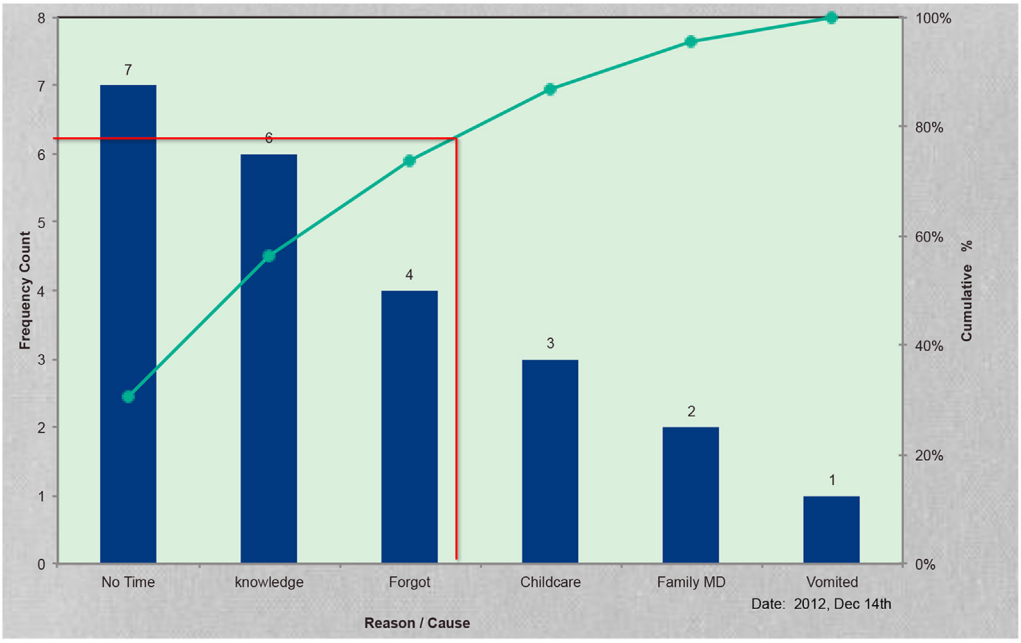

Figure 1. Pareto chart for reasons women do not complete an OGTT by 6 months postpartum.

physician-directed fax reminder systems. Based on the literature and our own local context, a target of 60% completion by 6 months postpartum was chosen. The timeframe of 18 months was selected for the project because there is a 6- to 8-month delay between diagnosis of GDM and appropriate completion of the OGTT.

Methods

The Model for Improvement is a quality-improvement framework made popular by the Institute for Health Care Improvement. There are 3 fundamental components: 1) develop a specific and timely aim; 2) choose a family of outcomes, processes and balancing measures (process measures assess the fidelity of a given intervention to determine whether it was implemented as intended; balancing measures look for costs or unintended consequences of the intervention) and 3) select interventions that focus on the underlying causes of the gap in care targeted for improvement. The interventions are refined by using a continuous process of developing and conducting small tests of change (Plan-Do-Study-Act or [PDSA] cycles) (10).

Settings and local problems

Sunnybrook Health Sciences Centre is a large urban tertiary care institution with a high-risk obstetric program. The Endocrine in Pregnancy Clinic at Sunnybrook Health Sciences Centre sees women diagnosed with GDM as well as women with pre-existing type 1 and type 2 diabetes. During the first visit, all women with GDM are provided a requisition for a postpartum 75 g OGTT and a follow-up appointment for 6 months postpartum. Consult notes should be sent back to the referring physicians and family doctors. Patients are reviewed in the clinic every 1 to 2 weeks until delivery. They then see their obstetric care provider at 6 weeks postpartum. These various patient-physician interactions were all potential areas for reinforcement of the importance of OGTT screening postpartum. The baseline rate of OGTT completion within 6 months postpartum was 31%, with a monthly range of 11% to 45%; 44% of women completed the OGTT within 12 months postpartum. The 12 women who did not complete the OGTT or attend follow up were interviewed. The most common reasons cited were lack of time, lack of knowledge, or knowing but having forgotten (Figure 1). The following is a quote from 1 of the patients:

> Diabetes detection is important to me, but I completely forgot, and a reminder would have really helped. Now that you mention it, I recall being told (I needed to follow up), but after the pregnancy was over and I saw my OB postpartum, I thought it was gone and everything was fine.

The family physicians of patients who did not attend follow up were surveyed by fax, and 4 of 7 physicians responded. Of them, 3 did not know their patients had GDM but all 4 felt it was their responsibility to screen for diabetes postpartum.

In-depth interviews were conducted with 2 interested family physicians. They felt that physicians' knowledge of the risk for type 2 diabetes after GDM was adequate but that many doctors were unaware that a fasting blood sugar test would miss such a high proportion of women with impaired glucose tolerance (pre-diabetes) postpartum. They also pointed out that in Toronto, where primary care pediatrics is common, many women do not return to see their family physicians between visits to their pediatricians.

Interventions

Interventions were chosen to target the causes of the low screening rates as determined by our baseline data collection. The first change concept introduced was standardization of the new patient dictations. Baseline communication statistics were reported to the clinic team. It was explained to the physicians what the transcriptionist required for the letter to reach the family physicians (first and last names, proper spelling and address if available). The section on family physician information in the new-patient questionnaire was expanded. We expanded the impression and plan of the new patient template to include information on the need for postpartum OGTT testing and recommendations for diabetes prevention (Appendix 1). The changes were made in consultation with some family physicians and the physicians who rotated in the clinic.