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Original Research

Characteristics of Women with Recent Gestational Diabetes Mellitus Attending a Postpartum Diabetes Prevention Seminar

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ABSTRACT

Objective: Type 2 diabetes is preventable. Although women with gestational diabetes mellitus (GDM) are an identified target for type 2 diabetes prevention, it remains uncertain how to provide effective prevention interventions. Therefore attendance rates and demographics of women invited to a post-GDM type 2 diabetes prevention seminar were documented.
Methods: Women with GDM near term were provided with verbal and written type 2 diabetes prevention advice along with notification about a prevention seminar. Seminar reminders were mailed 1 month prior accompanied by a lab slip for on-site glycated hemoglobin testing, and an explicit invitation to bring along children. Characteristics of attendees vs. non-attendees were recorded.
Results: A total of 133 women were invited to the seminars: 59 (44%) attended. Attendees were slightly older than non-attendees (32.7 ± 5.1 vs. 30.9 ± 4.5 years; p=0.03). No other differences were found in terms of local vs. non-local address, socio-economic status by postal code, previous pregnancies or pregnancy losses, age of youngest/eldest child, weight, GDM diagnosis week, insulin start/dose, ethnicity, missed appointments, contacts with clinic registered nurse, or type 2 diabetes family history.
Conclusion: Less than 50% of women returned to a postpartum diabetes prevention seminar despite individualized discussion, personal invitation, written reminder, and family-friendly surroundings. Provision of type 2 diabetes prevention information by postpartum seminar reached <50% of target women.

Mots clés:
suivi
diabète gestationnel
prévention du diabète de type 2

RÉSUMÉ

Objectifs : Il est possible d'éviter le diabète de type 2. Même si les femmes ayant un diabète sucré gestationnel (DSG) constituent une cible dans la prévention du diabète de type 2, la façon de fournir des interventions efficaces sur la prévention demeure indéterminée. Par conséquent, les taux de fréquentation et les caractéristiques sociodémographiques des femmes invitées à un séminaire sur la prévention du diabète de type 2 après un DSG ont été documentés.
Méthodes : Les femmes ayant un DSG à l'approche du terme ont reçu des conseils verbaux et écrits sur la prévention du diabète de type 2 ainsi qu'un avis de séminaire sur la prévention. Le rappel du séminaire accompagné d'un formulaire de laboratoire pour une analyse de l'HbA_{1C} sur place a été posté 1 mois auparavant et invitait explicitement les femmes à emmener leur ou leurs enfants. Les caractéristiques des personnes présentes par rapport aux personnes non présentes ont été enregistrées.
Résultats : Un total de 133 femmes ont été invitées aux séminaires; 59 (44 %) y ont participé. Les personnes présentes étaient un peu plus âgées que les personnes non présentes (32,7 ± 5,1 *vs* 30,9 ± 4,5 ans; p = 0,03). Aucune autre différence n'a été relevée en ce qui concerne l'adresse locale par rapport à l'adresse non locale, le statut socioéconomique par le code postal, les grossesses prévues ou les avortements spontanés, l'âge de l'enfant le plus jeune et l'âge du plus vieux, le poids, la semaine du diagnostic du DSG, la dose de départ de l'insuline, l'ethnicité, les rendez-vous manqués, les contacts avec la clinique RN ou les antécédents familiaux de diabète de type 2.

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Conclusion : Moins de 50 % des femmes ont participé au séminaire sur la prévention du diabète postpartum en dépit de discussion individuelle, d'invitation personnelle, de rappel écrit et d'un environnement favorable à la famille. La transmission d'informations sur la prévention du diabète de type 2 par le biais du séminaire après l'accouchement a atteint < 50 % des femmes ciblées.

Introduction

Type 2 diabetes is a significantly preventable condition (1–3). Women with prior gestational diabetes mellitus (GDM) are a readily identified population at risk for type 2 diabetes and have participated in type 2 diabetes prevention interventions using lifestyle and medications (4,5). However, it is still uncertain how to effectively translate diabetes prevention information into wider populations at risk.

A previous local translation attempt wherein provision of type 2 diabetes prevention information was provided at a formal postpartum clinic appointment seemed futile as <10% of women returned (personal communication). Therefore, in addition to being costly to the medical system, individualized postpartum clinic appointments did not seem to meet the needs of the target population. Thereafter a group type 2 diabetes prevention seminar experience was developed for women with recent GDM, consciously trying to minimize attendance barriers.

Methods

Over 1 year, 133 women with GDM were discharged from a tertiary care Endocrine and Pregnancy clinic. Physician, dietitian and nurse educator remained consistent throughout all clinic visits. At the anticipated final visit to clinic, a formal review was provided to each patient outlining her type 2 diabetes risks but also emphasizing the positive role for lifestyle choices in type 2 diabetes prevention. Women were informed and given written notice that they would be invited to a diabetes prevention seminar at 3 to 4 months postpartum. One month before the seminar, a reminder letter was mailed outlining the seminar purpose, place and time. Family members were explicitly welcomed, including infants and/or other children as babysitting was provided. A lab slip for glycated hemoglobin (A1C) was included in the letter and women were invited to do this test at any lab, or at the hospital lab a few minutes before the late-afternoon seminar.

Eighteen monthly seminars were held from June 2010 until November 2011. Attendance ranged from 1 to 8 participants. Seminars were held in the same hospital on the same floor where women had previously been seen for their pregnancy and diabetes appointments.

A retrospective chart review for suspected predictors of seminar attendance was completed to document demographics (age, weight, local vs. out-of-town address, socio-economic status by postal code, number of children, ages of children, caucasian vs. non-caucasian); perceived diabetes risk or severity (past miscarriages, family history of diabetes, week of GDM diagnosis, use and dose of insulin); frequency of personal contact with the diabetes medical team during pregnancy (number of contacts with clinic nurse, number of missed appointments).

Using Excel software, outcomes for attenders vs. non-attenders were compared by Student's t tests (continuous variables) and chi-square tests (discrete variables). Results are presented as mean ± standard deviation (SD). Significance is reported as $p<0.05$.

Results

Less than half of women (44%) attended the postpartum diabetes prevention seminar. All who attended the seminar also did their A1C test. Women attending the seminars were more likely to be slightly older (32.7 ± 5.1 vs. 30.9 ± 4.5 years; p=0.03). All other suspected barriers or predictors of attendance were not significantly different between the 2 groups (Table 1), with perhaps a suggested trend to more attendance among women who had been on insulin (p=0.05).

Discussion

Even though knowledge acquisition may not be consistently well-correlated with positive behavior change (6,7), knowledge translation around effective strategies must form at least part of any diabetes prevention intervention. Information campaigns for type 2 diabetes prevention can target either an entire population, or be aimed at an identified population subgroup that is particularly at risk. In this context, it would appear to be opportune to provide information on type 2 diabetes prevention to women with recent GDM. Although best practices for effective translation of primary prevention knowledge are unknown, doing so through a formal didactic seminar provides an attractive option, appearing to be time-efficient and perhaps provide some added value through group learning dynamics.

However, the present study found that despite multiple personal clinical interactions, mailed reminders, and conscious attempts to minimize barriers to attendance, <50% of women with recent GDM returned to a type 2 diabetes prevention seminar at 3 to 4 months past delivery. Women who did come to the sessions tended to be older, but otherwise were not predictably different from women who did not attend.

This low rate of program uptake is consistent with other reports, particularly those studies that have examined rates of postpartum glucose testing (8–11). It had been hoped that using an A1C as the measure of glucose tolerance would be an attractive option for this

Table 1
Characteristics of women attending and not attending a postpartum diabetes prevention seminar

	Women attending	Women not attending	p
N (%)	59 (44)	74 (56)	
Age	32.5 ± 5.08	30.9 ± 4.5	0.03
From out of town (%)	14/59 (25)	16/74 (22)	0.78
From lower SES London (%)	16/43 (37)	22/57 (39)	0.89
No. previous pregnancies	1.49 ± 2.04	1.76 ± 1.9	0.44
No. miscarriages	0.66 ± 1.12	0.55 ± 0.97	0.56
Age of oldest child (months)	66.8 ± 54.9	73.3 ± 59.5	0.63
Age of youngest child (months)	46.6 ± 40.8	51.5 ± 43.4	0.63
Weight at final visit (kg)	90.9 ± 19.6	89.7 ± 24.5	0.76
Systolic pressure final visit	118.5 ± 12.5	116.2 ± 13.1	0.34
PIH (yes)	0	0	
Week of GDM diagnosis	28.5 ± 3.1	27.7 ± 5.5	0.32
On insulin in pregnancy (%)	34/59 (58)	30/74 (40)	0.05
Week insulin started	31.8 ± 3.8	30.2 ± 5.99	0.32
Insulin dose final visit	29.3 ± 44.0	22.5 ± 21.9	0.46
Private health plan (yes) (%)	45/59 (76)	49/74 (66)	0.20
Non-caucasian (%)	16/59 (27)	22/74 (30)	0.41
Family history of diabetes (yes) (%)	43/59 (73)	60/74 (81)	0.26
Number of no shows in clinic	0.23 ± 0.47	0.39 ± 0.64	0.12
Number of contacts with RN	6.3 ± 3.1	6.4 ± 4.7	0.94
A1C	0.055 ± 0.004	Not available	

A1C, glycated hemoglobin; *GDM*, gestational diabetes mellitus; *PIH*, pregnancy-induced hypertension; *RN*, registered nurse; *SES*, socio-economic status.

population, as oral glucose tolerance test has inherent barriers for new mothers: busy households with an infant to care for; the need to fast; the necessity to arrange childcare for 2 hours early on a weekday morning. However, at least in this setting where the A1C was included as part of the postpartum seminar study package, testing rates were not greatly different from other reported approaches.

Little research clarity exists around who attends prevention information sessions, although underlying issues of stress and fear may well be important considerations (12) it is known that attendees are more likely to be ready to change their habits (13) and are more likely to have positive outcomes (14). Certainly unexpected confounding factors could have been important to study women who did not attend, such as unforeseen illness, fatigue or being overwhelmingly busy. Further, it can be speculated that non-attenders may have felt they already knew enough about their type 2 diabetes risk; they may have feared knowing their diabetes status so avoided the lab visit that was associated with the seminar; or perhaps they lacked confidence that they could ever effectively change their personal type 2 diabetes risk.

There are obvious limitations inherent in retrospective chart reviews. In the present study it was not possible to access information on educational level, the presence of maternal stress or emotional support. Also, attendees were all preselected to be fluent in English as simultaneous translation of the seminar format by a friend or family member would have been disruptive.

Some of the lessons from this study could inform future group seminar iterations, including more explicit promotion to younger women. However, another important study message is the finding that >50% of a population at high metabolic risk was not served by this present model of protective message delivery. At the very least, this finding supports creating and evaluating models for type 2 diabetes prevention interventions that are more engaging and go beyond our present didactic medical models.

Author Disclosures

No dualities of interest declared.

Author Contributions

RMcM contributed substantially to study conception and design, acquisition of data, data analysis, data interpretation, wrote abstract and article. IG contributed substantially to study conception and design; critiqued paper; gave final approval for article to be published. AZ contributed to data collection; gave final approval for article to be published. JMcL contributed to data collection, gave final approval for article to be published. JMacL contributed to data collection, subject recruitment, study conception and design; gave final approval for article to be published.

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