

POSTPARTUM CARE OF WOMEN AFFECTED BY DIABETES:

A Review of Current Trends

Susan L. Shelton, PhD, ARNP, CNM

DOI:

<http://dx.doi.org/10.17125/plaid.2015.54>

ABSTRACT

Increased surveillance and heightened glucose control of pregnant women with diabetes in the United States has led to improved pregnancy outcomes. This heightened level of care often diminishes during the postpartum period and women may be left lacking knowledge and support for self-care following childbirth. The purpose of this article is to highlight topics from the literature that both patients and providers recognize as requiring further attention during the postpartum period for women with diabetes. Suggestions for addressing gaps in care are presented along with resources to improve patients' access to information and support.



People Living with And Inspired by Diabetes

INTRODUCTION

Prenatal care in the United States ranges from monthly to twice weekly visits with a provider across the gestation period. Overall, increased interaction improves the likelihood for healthy outcomes for both mother and infant. For women with type 1 diabetes (T1D) who are in their reproductive years, there is justification for being aware and proactive in their management of diabetes. Good health and glycemic control in the preconception period lends to better overall health in pregnancy and decreases the potential for perinatal and postnatal complications. This period of strict control and oversight of glucose management has a direct correlation with improved pregnancy outcomes and fetal development. For women with insulin resistance, either type 2 diabetes (T2D) or gestational diabetes (GDM), there is also reason for collaboration with a health team that specializes in diabetes.

After delivery, what becomes of this relationship, and is there still a need for the higher level of care? Some women note a sense of dismissal at the end of the pregnancy [1, 2]; once childbirth occurs, the relationship between the obstetric provider and a woman may be abruptly dissolved, with only one return visit after childbirth. The postpartum visit, which typically occurs near the sixth week after delivery, tends to focus more on the reproductive system, with less attention given to general well-being, adjustment to motherhood, and health promotion. Qualitative studies including mothers with diabetes reveal that the transition to motherhood may not be a seamless passage, and continued interaction through education and support is needed to facilitate a smooth postpartum period [2, 3].

From the existing literature, there is evidence that mothers who have diabetes need supplemental information in four areas of postpartum care: 1) lactation support, 2) postpartum glucose management, 3) nutrition and physical activity counseling, and 4) mood status [1, 4, 5]. The purpose of this article is to review trends in postpartum management of women with diabetes and highlight interventions that focus on health promotion and wellness in this population.

POSTPARTAL AREAS OF CARE

Lactation support

Breastfeeding is the preferred method of feeding for the first year of life. The American Academy of Pediatrics and the Academy of Nutrition and Dietetics agree on the promotion and support of breastfeeding for the associated benefits to both infant and mother [6, 7]. While healthcare providers and lactation support groups share the numerous benefits of breastfeeding with mothers, such as protection for the infant from common childhood infections, development of allergies and metabolic disorders, and obesity later in life [6], there is a lower initiation and continuation rate of breastfeeding among mothers with diabetes [8]. According to the Centers for Disease Control and Prevention's Pregnancy Risk Assessment and Monitoring System (PRAMS), there are statistically significant differences in the rate of breastfeeding initiation (breastfeeding or pumping breast milk for any time after birth) and continuation (breastfeeding at 2 months postpartum or beyond) between mothers with no diabetes and those with pregestational diabetes [8, 9]. Mothers with GDM initiate breastfeeding at the same rate as their non-diabetic counterparts but are less likely to continue.

A challenge for mothers with diabetes is the potential for delayed onset of lactogenesis (DOL). DOL is related to lower milk supply and can be the trigger for unsuccessful breastfeeding [10]. A systematic review by De Bortoli and Amir notes that 33-58% of women with diabetes may experience a lag in milk production ranging from 24-48 hours later than the expected time frame of nondiabetic lactating women [11]. Delayed lactogenesis may be related to greater insulin resistance and maternal obesity [8, 11, 12], but is also influenced by interventions that decrease infant latch and suckling, including cesarean birth, neonatal intensive care for prematurity, and supplementation with formula due to neonatal hypoglycemia [1, 8]. It is possible that the lower prevalence of breastfeeding may be remedied in the early postpartum period by placing the neonate to the breast soon after delivery or initiating pumping within the first 4 hours following delivery.

Not only can diabetes-related care and glycemic control influence milk production, but there are also considerations for the mother's health when breastfeeding. As the body responds to varying metabolic needs related to lactation, T1D mothers are at risk for glucose instability. An additional 400-600 kcal/day are required by the body

to support milk production in the first six months after delivery [13], so if a mother is not monitoring her own nutritional intake, she is at risk for hypoglycemia. Focus group data and interviews with a group of T1D mothers have revealed that the threat of having a hypoglycemic episode while breastfeeding leaves mothers feeling abnormal and more vulnerable than other mothers. Women recognize a need for better support in understanding the increased caloric demand and potential decrease in insulin requirements, in addition to establishing a routine to monitor and manage blood glucose fluctuations [1].

Assessment of glucose tolerance

For mothers with pregestational diabetes, the postpartum time is a period of re-establishing glucose stability after pregnancy. But for women diagnosed with diabetes during pregnancy, it needs to be determined whether the insulin-resistance resolved after delivery or if the woman has persistent diabetes. Unfortunately, determining this can be a challenge for the following reasons: 1) an assessment of glucose tolerance is not ordered for all women with GDM, 2) women may not follow through with postpartum glucose testing, and 3) there are discrepancies in the testing and diagnostic criteria in practice. In a study of practicing certified nurse midwives (CNMs) in Ohio, only 50.4% of the respondents reported that they always screen for abnormal glucose at the postpartum visit [14]. When OB/GYNs in Ohio were asked about postpartum glucose testing, nearly 70% responded that they frequently screen for abnormal glucose among patients that had GDM; however, 45.5% were not using tests that meet the recommendations of the American Diabetes Association (ADA) and the American Congress of Obstetricians and Gynecologists (ACOG) [15]. Reasons for inconsistencies in testing include poor knowledge of or inconsistencies in guidelines, limited documentation of GDM in pregnancy, and inconvenience for the patients. The current recommendation is testing between 6-12 weeks postpartum with either a fasting blood glucose (FBG) or the 75-gram Oral Glucose Tolerance Test (OGTT) which takes approximately 2.5 hours to complete [16]. In terms of identifying women with postpartum dysglycemia, researchers have begun examining if a more convenient testing approach would provide comparable results to the OGTT. The results thus far found only 54% concordance between the OGTT and the HbA1C [17].

Nutrition and physical activity counseling

According to Gunderson, nearly half of the women who experience a pregnancy complicated by GDM will be diagnosed with T2D in 5 to 8 years following pregnancy [12]. Major predictors of subsequent diabetes or metabolic syndrome include pancreatic β -cell dysfunction, glucose intolerance, and obesity in the early postpartum period [12]. Nutrition and physical activity counseling may not be discussed during a routine postpartum course, yet these are important areas for mothers. As mentioned earlier, breastfeeding mothers, particularly those with T1D, must be aware of caloric demands related to lactation and plan snacks and activities according to glucose levels. Additionally, exercise can increase the insulin sensitivity in T1D and provide better glucose control, which is also a desirable effect for T2D. In women with a BMI \geq 25, a weight loss of 7% of the current weight has been associated with a decrease in the development of T2D [5]. Unfortunately, most postpartum women fail to achieve this. Mothers should be encouraged to exercise for 30 minute sessions of moderate intensity for 5 days per week [18]. If a mother is worried about having the time to exercise, she should be encouraged to break the thirty minute segment into 10 minute bursts of exercise. Aerobic exercise is important for cardiovascular health, and most women can achieve a workout of moderate intensity by brisk stroller walking. The popularity of postpartum exercise programs has grown in the last decade as well. Organized 'Mommy and Me' classes and group fitness programs like Baby Bootcamp© often incorporate aerobic activity and resistance training, while at the same time allowing mothers to spend time with their babies.

Mood status

The previous areas have highlighted topics that address the physiologic changes after birth and the physical needs of a mother with diabetes; however, a provider would be amiss if he/she did not address the emotional health of a woman postpartally. The stress of transition from a highly monitored situation to the less structured postpartum period can be overwhelming for mothers. Findings from qualitative studies with T1D mothers report women's feelings of being abandoned and not clear about how to care for their diabetes following delivery. They felt underprepared, with limited knowledge and access to providers. Dalfrà and colleagues found that the physical well-being of mothers with diabetes in the postpartum period was

Figure 1. Educational tool for postpartum women with GDM (format modified for publication, used with permission from Castorino and Javanović [23])

CONGRATULATIONS, YOU DID IT!

...Now What?

FIRST THINGS FIRST:

- Sleep when your baby sleeps
- Snack and drink water while you feed your baby
- Remember that BREASTMILK is best!

NOW FOR YOUR HEALTH:

NUTRITION

Continue your low carbohydrate diet that is rich in vegetables, protein, and fat. Your nutrition now is just as important as during pregnancy. Eat fruits sparingly, and try to avoid bread, rice, pasta, and cereal. Your body can get overwhelmed with too much sugar.

KNOW YOUR NUMBERS

Blood Pressure: _____ My goal is _____ / _____ mmHg or less.

Fasting Blood Sugar: _____ My goal is less than _____ mg/dL.

Post Meal Blood Sugar: _____ My goal is less than _____ mg/dL.

A1C: _____ My goal is:
 Less than 5.7% if you will not have any more pregnancies
 Less than 5.0% if you might have future pregnancy

Weight: _____ My goal weight is _____ pounds.

Waist Circumference: _____ My goal waist circumference is less than 35 inches.

BMI: _____ My goal BMI is _____.

If any of your numbers are TOO HIGH, you should try to FIX them with diet and exercise. Continue to use your meter to check your blood sugars. There are great classes in your community which can teach you TOOLS to improve your numbers. You should also discuss a plan for improving your health with your regular doctor.

comparable to that of their nondiabetic counterparts; however, women with diabetes tended to experience more depressive symptoms [3]. Rasmussen and colleagues [2] noted similar findings in a small pilot study that included personal interviews with postpartum T1D women. A retrospective cohort study of low-income mothers found that when compared to mothers without diabetes, women with diabetes had greater odds of being diagnosed with postpartum depression or taking an antidepressant in the year following childbirth (OR=1.69, 95% CI, 1.27-2.23) [19]. Postpartum mood disorders have the potential for being overlooked as a priority, especially if a mother has physical demands, such as glycemic control. Unfortunately, the stress of diabetes management and her adjustment to the dual demands of self-care and infant-care may heighten depressive symptoms.

IMPROVING POSTPARTAL CARE

Provider perspective

The previous section listed four topics that should be discussed during visits with postpartum mothers who have diabetes. Addressing these areas may improve gaps in care and improve outcomes related to breastfeeding, postpartum testing, health promotion, and well-being. Providers can make changes at the individual level through consistent follow-up care. This can take place in the provider's practice by including scripted information about topics important to postpartum women, particularly those living with diabetes. Consistent follow-up care should also include information about breastfeeding and local resources, as well as recommendations for nutrition and exercise. Stasenکو and colleagues found that when patient counseling at postpartum visits was increased, there was an improvement in care [20]. An intervention study revising office protocol for sending postpartum glucose testing reminders to providers and patients demonstrated that a more consistent approach to postpartum management of women with diabetes occurred when there were systematic reminders in place [21].

An effort to improve communication between healthcare providers may result in improved care for women with diabetes following childbirth. A systematic review of clinicians' views on testing and subsequent care revealed that opportunities to care for women postpartally are missed due to inadequate communication [22]. In areas of man-

aged care, the woman may be followed by an obstetrician for the duration of pregnancy, but will then return to the care of an internist or family practitioner. These providers may not communicate the need for continuation of interventions to the next provider. For example, the generalist may have no idea that the patient had a pregnancy complicated by GDM; therefore, he/she is unaware of the need for assessment of blood glucose and supportive teaching related to diet and exercise promotion. To remedy this problem, the office that provided care to the mother during her pregnancy should provide a letter of documentation about the mother's care and history to subsequent care providers, which would ensure continuity of care. Castorino and Javanović developed a tool that gives basic information about self-care, in addition to documenting goals for blood glucose and health maintenance [23] (Figure 1). This tool could communicate information to the patient and the subsequent provider for improved care.

Patient perspective

The provider-patient relationship ideally works bi-directionally, with both parties being engaged in improving or maintaining health. Hence, the providers may adapt office routines and patient protocols, but the patient must also be an active participant in care and assume some personal responsibility for their health. For patients, being well-informed about expectations for the postpartum period and finding support for this stage of motherhood is paramount to bolstering confidence in infant-care and self-care. Once a woman has knowledge, she may better appreciate the importance of her current and future health and take a proactive role in her health. Without the discussion of how the body demands change in the postpartum period and the short-term and long-term effects of dysglycemia on the body, a mother may not appreciate the importance of continued care.

Women have reported that they need more information about living with diabetes after childbirth, but they also need support during their transition to motherhood. Some women report that they found useful information and social support via the internet [1, 24]. Online forums and blogs can be a wealth of information, create a virtual support network, and link patients to experts; however, one caveat is that the patient must be able to evaluate the credibility of websites. Patients should be steered towards reliable groups and community resources. Examples of

online resources that may have local groups include:

- La Leche League International for breastfeeding support (<http://www.llli.org/>)
- International Lactation Consultant Association for professional lactation assistance (<http://www.ilca.org/>)
- American Diabetes Association for lifestyle modification (<http://www.diabetes.org/food-and-fitness/>)
- Postpartum Support International for mental health support (<http://www.postpartum.net/>)

CONCLUSIONS AND OUTLOOK

This article highlights topics that warrant greater attention during the postpartum period for mothers living with diabetes. In addition, it presents avenues for addressing gaps in care and information dissemination. Diabetes is an integral part of life for some women; for others, it is a condition that may be looming on the horizon. Whether T1D, GDM, or T2D, healthcare providers and women need to work together to understand how to achieve positive health outcomes and avoid complications associated with diabetes. Sharing resources, communicating, and providing support are all steps to easing the transition from the gestational period to the postpartum period in women with diabetes.

Future care should focus on the areas where there is seemingly a disconnect between providers and patients. Support and attentive care do not end upon delivery of the infant; instead, the birth event marks the entry to another phase of the relationship between the woman and her healthcare provider. The postpartum period and transition to motherhood are laden with challenges for the woman with diabetes. Equipping a mother for this transition involves education, support, and prioritization of needs. If a consistent message is delivered about the trajectory of diabetes care related to pregnancy and across the lifespan, mothers will have clearer expectations of glucose-related intervention and care. Healthcare providers should incorporate routine educational pieces about future assessment for dysglycemia, nutrition, and physical activity in postpartum visits with patients.

REFERENCES

1. Sparud-Lundin C, Berg M. Extraordinary exposed in early motherhood - a qualitative study exploring experiences of mothers with type 1 diabetes. *BMC Womens Health*. 2011;11:10. DOI: <http://dx.doi.org/10.1186/1472-6874-11-10>.
2. Rasmussen B, Dunning T, Hendrieckx C, Botti M, Speight J. Transition to motherhood in type 1 diabetes: design of the pregnancy and postnatal well-being in transition questionnaires. *BMC Pregnancy Childbirth*. 2013;13:54. DOI: <http://dx.doi.org/10.1186/1471-2393-13-54>.
3. Dalfrà MG, Nicolucci A, Bisson T, Bonsembiante B, Lapolla A; QLISG (Quality of Life Italian Study Group). Quality of life in pregnancy and post-partum: a study in diabetic patients. *Qual Life Res*. 2012;21(2):291-8. DOI: <http://dx.doi.org/10.1007/s11136-011-9940-5>.
4. Kaiser B, Razurel C, Jeannot E. Impact of health beliefs, social support and self-efficacy on physical activity and dietary habits during the post-partum period after gestational diabetes mellitus: study protocol. *BMC Pregnancy Childbirth*. 2013;13:133. DOI: <http://dx.doi.org/10.1186/1471-2393-13-133>.
5. Mielke RT, Kaiser D, Centuolo R. Interconception care for women with prior gestational diabetes mellitus. *J Midwifery Womens Health*. 2013;58(3): p. 303-12. DOI: <http://dx.doi.org/10.1111/jmwh.12019>.
6. American Academy of Pediatrics. Policy Statement: Breastfeeding and the use of human milk. *Pediatrics*. 2012;129:e827-e841. DOI: <http://dx.doi.org/10.1542/peds.2011-3552>.
7. Lessen R, Kavanagh K. Position of the academy of nutrition and dietetics: promoting and supporting breastfeeding. *J Acad Nutr Diet*. 2015;115(3):444-9. DOI: <http://dx.doi.org/10.1016/j.jand.2014.12.014>.
8. Oza-Frank R, Chertok I, Bartley A. Differences in breast-feeding initiation and continuation by maternal diabetes status. *Public Health Nutr*. 2015;18(4): p. 727-35. DOI: <http://dx.doi.org/10.1017/S1368980014000792>.
9. Oza-Frank R. Postpartum Diabetes Testing Among Women with Recent Gestational Diabetes Mellitus: PRAMS 2009-2010. *Matern Child Health J*. 2014;18(3):729-36. DOI: <http://dx.doi.org/10.1007/s10995-013-1299-5>.

10. Jagiello KP, Azulay Chertok IR. Women's Experiences With Early Breastfeeding After Gestational Diabetes. *J Obstet Gynecol Neonatal Nurs*. 2015;44(4):500-9. DOI: <http://dx.doi.org/10.1111/1552-6909.12658>.
11. De Bortoli J, Amir LH. Is onset of lactation delayed in women with diabetes in pregnancy? A systematic review. Epub 2015 Jun 26. DOI: <http://dx.doi.org/10.1111/dme.12846>.
12. Gunderson EP. The role of lactation in GDM women. *Clin Obstet Gynecol*. 2013;56(4):844-52. DOI: <http://dx.doi.org/10.1097/GRF.0b013e3182a8e067>.
13. Gunderson EP. Impact of breastfeeding on maternal metabolism: implications for women with gestational diabetes. *Curr Diab Rep*. 2014;14(2):460. DOI: <http://dx.doi.org/10.1007/s11892-013-0460-2>.
14. Ko JY, Dietz PM, Conrey EJ, Rodgers L, Shellhaas C, Farr SL, et al. Gestational diabetes mellitus and postpartum care practices of nurse-midwives. *J Midwifery Womens Health*. 2013;58(1):33-40. DOI: <http://dx.doi.org/10.1111/j.1542-2011.2012.00261.x>.
15. Ko JY, Dietz PM, Conrey EJ, Rodgers LE, Shellhaas C, Farr SL, et al. Strategies associated with higher postpartum glucose tolerance screening rates for gestational diabetes mellitus patients. *J Womens Health*. 2013;22(8):681-6. DOI: <http://dx.doi.org/10.1089/jwh.2012.4092>.
16. Carson MP, Frank MI, Keely E. Original research: postpartum testing rates among women with a history of gestational diabetes--systematic review. *Prim Care Diabetes*. 2013;7(3):177-86. DOI: <http://dx.doi.org/10.1016/j.pcd.2013.04.007>.
17. Duke A, Yap C, Bradbury R, Hng TM, Kim C, Wansbrough A, et al. The discordance between HbA1c and glucose tolerance testing for the postpartum exclusion of diabetes following gestational diabetes. *Diabetes Res Clin Pract*. 2015;108(1):72-7. DOI: <http://dx.doi.org/10.1016/j.diabres.2015.01.006>.
18. U.S. Department of Health & Human Services. 2008 physical activity guidelines for Americans [Internet]. 2008 [cited 2015 Oct 21]. Available from: <http://health.gov/paguidelines/guidelines/>.
19. Kozhimannil K, Pereira MA, Harlow BL. Association between diabetes and perinatal depression among low-income mothers. *JAMA*. 2009;301(8):842-7. DOI: <http://dx.doi.org/10.1001/jama.2009.201>.
20. Stasenکو M, Liddell J, Cheng YW, Sparks TN, Killion M, Caughey AB. Patient counseling increases postpartum follow-up in women with gestational diabetes mellitus. *A J Obstet Gynecol*. 2011;204(6):522.e1-6. DOI: <http://dx.doi.org/10.1016/j.ajog.2011.01.057>.
21. Vesco KK, Dietz PM, Bulkley J, Bruce FC, Callaghan WM, England L, et al. A system-based intervention to improve postpartum diabetes screening among women with gestational diabetes. *Am J Obstet Gynecol*. 2012;207(4):283.e1-6. DOI: <http://dx.doi.org/10.1016/j.ajog.2012.08.017>.
22. Van Ryswyk E, Middleton P, Hague W, Crowther C. Clinician views and knowledge regarding health-care provision in the postpartum period for women with recent gestational diabetes: a systematic review of qualitative/survey studies. *Diabetes Res Clin Pract*. 2014;106(3):401-11. DOI: <http://dx.doi.org/10.1016/j.diabres.2014.09.001>.
23. Castorino K, Jovanović L. The postpartum management of women with gestational diabetes using a continuum model for health care. *Clin Obstet Gynecol*. 2013;56(4):853-9. DOI: <http://dx.doi.org/10.1097/GRF.0b013e3182a8e0bb>.
24. Rasmussen B, Hendrieckx C, Clarke B, Botti M, Dunning T, Jenkins A, et al. Psychosocial issues of women with type 1 diabetes transitioning to motherhood: a structured literature review. *BMC Pregnancy Childbirth*. 2013;13:218. DOI: <http://dx.doi.org/10.1186/1471-2393-13-218>.

