Postpartum screening for diabetes in women diagnosed with gestational diabetes mellitus: a re-audit

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Abstract

The majority of women with gestational diabetes mellitus (GDM) have transient hyperglycaemia during pregnancy, but up to 50% develop diabetes within five years postpartum. Early diagnosis and timely intervention reduce long-term morbidity and mortality. Women who have had GDM should have screening for diabetes mellitus according to NICE guidelines. Our previous audits in 2015 and 2016 revealed that only 44% and 33% of women had postpartum screening, respectively. We therefore, changed to glycated haemoglobin testing at 13–24 weeks postpartum, providing a request form and telephone-reminder calls to patients. After this intervention, we aimed to re-audit postpartum screening for diabetes in these women.

We undertook a retrospective audit looking at postpartum screening for diabetes in 147 women diagnosed with GDM who delivered during the year August 2017 to July 2018.

The results showed that 106 patients (72.1%) had postpartum screening for diabetes (one-fifth of these were done too early and two tests were done after six months postpartum). Therefore, 83 patients did their screening test at the appropriate time, of which eight results (9.6%) indicated high-risk for diabetes (pre-diabetes) and two results (2.4%) indicated diabetes.

This audit demonstrates that while there is still room for improvement there was a markedly increased take up of postpartum screening for diabetes in women who have had GDM. This was due to a change in practice, which we hope will provide a stimulus for change in other centres and, most importantly, aid in the prevention and incidence reporting of diabetes after GDM. Copyright © 2019 John Wiley & Sons.

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Key words
gestational diabetes; screening; postpartum; incidence; re-audit

Introduction

Approximately 700,000 women give birth in England and Wales each year with up to 5% of these women having either pre-existing diabetes or gestational diabetes (GDM). The majority of women with GDM have transient hyperglycaemia during pregnancy; up to 50% develop diabetes within five years postpartum. Early diagnosis of diabetes and timely intervention reduce long-term complications.1

NICE guidelines (NG3) recommend that women with GDM should have postpartum screening for type 2 diabetes.1 The guidelines stipulate that women should have a fasting blood glucose (FBG) test at 6–13 weeks postpartum, and if not done then a glycate haemoglobin (HbA1c) or FBG test done after 13 weeks postpartum. They also stipulate that an oral glucose tolerance test (OGTT) should not be done routinely.1 Despite these recommendations, postpartum screening for diabetes is still being missed in a third of affected women.2

In the past, our usual practice during the last antenatal clinic appointment was to: give lifestyle advice and a leaflet about prevention of diabetes; inform the patient that they can stop their antidiabetic medication on delivery; and advise them to have a fasting glucose test between 6–13 weeks post-delivery.

Our first audit in 2015 looked at women who had GDM and delivered during the year 2014–2015. This revealed that only 44% of women had postpartum screening for diabetes according to NICE guidelines. Our previous audits in 2015 and 2016 revealed that only 44% and 33% of women had postpartum screening, respectively. We therefore, changed to glycated haemoglobin testing at 13–24 weeks postpartum, providing a request form and telephone-reminder calls to patients. After this intervention, we aimed to re-audit postpartum screening for diabetes in these women.

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the usual 6–13-week FBG test. In addition to this, we gave the women pathology request forms at their pre-delivery antenatal clinic appointment so that they can do the blood test at their general practice. We also aimed to make telephone-call reminders to those mothers who had not done their blood test by four to six months after delivery. Following this action plan, we aimed to re-audit postpartum screening for diabetes in women who had GDM.

**Patients and methods**

This was a retrospective audit looking at women who had a diagnosis of GDM, followed up by our diabetes specialist nurses, and who delivered during the one-year period (August 2017 to July 2018). These women would have had their postpartum HbA1c test between November 2017 and January 2019. Therefore, we checked for the results of any HbA1c tests performed at 13–24 weeks post-delivery over this period. We also checked to see if any of these women had an FBG test at the 6–13 week period or an OGTT for postpartum screening for diabetes. The data were collected from our patient database and pathology results system. Data collection was carried out between October 2018 and March 2019. For women who lived out-of-area, we aimed to obtain HbA1c results from their general practice database.

This audit was deemed exempt from ethical approval on the account of it being registered with our Quality, Governance and Compliance Department as a re-audit and service improvement project.

**Results**

**Screening for diabetes mellitus**

We had 147 women with GDM who delivered over the specified one-year period. One hundred and six (72.1%) had postpartum screening for diabetes post-delivery. However, 21 of these tests included an HbA1c blood test being done too early and two included an HbA1c done after six months post-partum (at nine and 11 months). Therefore, 83 women (56.5%) had screening for diabetes during the post-partum period in accordance with the NICE guidelines. No patients had an OGTT. Table 1 shows the adherence rates compared over previous audits.

Forty-one patients did not have postpartum screening. Thirty-three of these patients were not contactable, mainly because they had moved out of the area or had changed their phone numbers. Only eight patients were contactable but still did not attend to do a blood test.

**The incidence of diabetes mellitus after GDM**

Of the 83 patients who had screening (HbA1c or FBG) at the right time and within six months post-partum, eight patients (9.6%) had results in the high-risk range for diabetes (pre-diabetes) and two patients (2.4%) had diabetes. These results can be taken as our estimated incidence rates for being in the high-risk group for diabetes or developing diabetes, respectively, within six months postpartum after GDM.

Twenty-one patients (14.3%) had screening earlier than recommended. One patient had an HbA1c result in the high-risk range and another patient had a result in the type 2 diabetes range. Neither of the two women who had their HbA1c after six months postpartum had abnormal results. Table 2 shows the type and timing of the screening tests and the incidence of abnormal results.

**Discussion**

We aimed to audit postpartum screening for diabetes in women with recent GDM in line with NICE guidelines. We demonstrated that over 72% of women did a postpartum screening test. Despite one-fifth of screening tests being done at the wrong time, this is still a marked improvement compared to our previous results. The screening rate demonstrated by this audit is higher than that reported in a previous large retrospective cohort study in the UK, which demonstrated consistently low screening rates before the 2015 NICE guidelines. Our postpartum screening rate was not as high as that reported in a recent study comparing pre- and post-NICE guidelines.² In our study, the incidence rate of pre-diabetes and diabetes within the six-month follow-up time period postpartum was 9.4% and 2.4%, respectively. In the recent study that
comparing pre- and post-NICE guidelines, the pre-NICE guidance cohort demonstrated a rate of diabetes at follow up of 2.6% compared with 3.1% in the post-guidance cohort. Several studies have been performed to determine the barriers and facilitators to patient adherence to having postpartum screening for diabetes mellitus. One study noted that patients who had pharmacotherapy for GDM were more likely to be screened. Another such study noted that women attending postpartum visits at hospital-based clinics were twice as likely to do postpartum glucose testing compared to women at community clinics. Another qualitative study identified important barriers to postpartum follow-up care, such as feelings of emotional stress due to adjusting to a new baby; the fear of receiving a diagnosis of diabetes at the visit and child care availability. Therefore, a national solution is required.

Studies performed at a centre in Canada and again at a centre in Australia evaluated postpartum screening after setting up call registers that sent reminder letters to women after delivery with a resultant improvement in screening rates to 50–60% of women with telephone-call reminders for postpartum follow-up care, as performed in our centre. However, randomised controlled studies are required to compare letter-reminders with telephone-reminders for postpartum screening for diabetes after GDM.

It must be noted that 21 women did not have a follow-up test too early (before the 15th week postpartum). These women clearly engaged with the process and we believe that our instructions were not clear enough. Two patients had abnormal results. One of these women had an HbA1c result in the pre-diabetes range and another had a result in the diabetes range (they are being followed up appropriately). The remaining 19 women did not have a follow-up test within the postpartum period. We do and will continue to provide a patient information sheet along with the HbA1c form.

Despite our improved postpartum screening rates, this study has its limitations. Firstly, this was a retrospective study with a small group of women. Therefore results may not be generalisable without larger studies. Secondly, for some of the patients the telephone-call reminders were carried out by a volunteer. We did not have the resources to call every woman postpartum. Many were not contactable despite trying. Thirdly, there are several factors that changed in this re-audit (e.g. changing from FBG to HbA1c testing, the timing of the blood test, providing a form and where possible making reminder calls). Therefore, it is not possible to conclude which of the factors was responsible for the improved screening rate without further controlled studies.

Despite limitations, this is one of the few studies demonstrating a high screening rate for diabetes after GDM and thus able to provide a more accurate value for the incidence of diabetes after GDM. We believe this improvement was due to a change in practice: asking mothers to do their screening blood test during a less busy time (15–24 weeks postpartum); providing a form; and, if possible, a follow-up telephone reminder. Doing an HbA1c blood test is most likely more convenient than doing an FBG test for new mothers who have a young baby to take care of. Most units will have a large number of women with GDM per year and may not have the resources to undertake reminder calls, but changing from FBG to HbA1c testing and giving women a form are simple measures that any unit can adopt.

In conclusion, our audit demonstrated markedly improved adherence to the NICE guidelines for postpartum screening for diabetes after GDM. We aim to continue our practice of ensuring HbA1c checks at 13–24 weeks postpartum. It is hoped that this report will provide a stimulus for a similar change in practice at other centres so as to provide more accurate results for the incidence of diabetes after GDM and, most importantly, aid in the prevention of diabetes in this group of women.

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Declaration of interests
There are no conflicts of interest declared.

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