Postnatal screening in patients diagnosed with Gestational Diabetes

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Background

Approximately 700,000 women give birth in England & Wales each year with up to 5% of these women having either pre-existing diabetes or gestational diabetes (GDM). Women who have diabetes during pregnancy, it is estimated that approximately 87% have GDM. It is well recognised that early diagnosis of diabetes aids in timely intervention to reduce long term complications.

Audit Standard

To assess the screening for Diabetes Mellitus (DM) in post delivery patients diagnosed with Gestational Diabetes (GDM) during pregnancy, in accordance with NICE Guidelines 2015 Part 1.6 NG3:

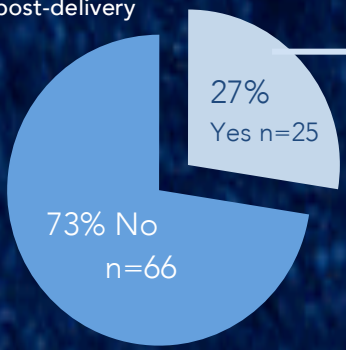
1. Fasting Blood Glucose test to be offered 6-13 weeks post delivery.
2. If standard 1 not met, Fasting Blood Glucose test should be offered beyond 13 weeks
   Or
   HbA1c test should be offered beyond 13 weeks.
3. The 75g 2-hour OGTT should not be offered routinely.

Methodology

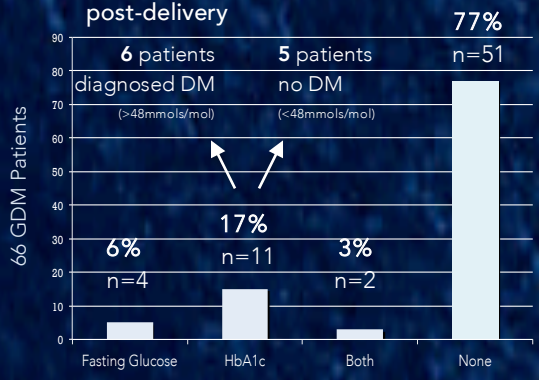
The diagnosis of GDM was made with results of oral glucose tolerance test, fasting blood glucose (FBS) ≥ 6.1 mmol/l & 2 hr blood sugar ≥ 7.8 mmol/l.
91 patients were identified with GDM between 1st January 2014 & 2nd January 2015 based on records provided by the biochemistry laboratory & diabetes centre.
We checked results of these patients for FBS performed between 6-13 w post-delivery (audit standard 1). For those who did not have the test done, we checked their results for HBA1c / FBS between 13-20w post pregnancy (audit standard 2).

Results

1. Fasting Glucose test 6-13w post-delivery



2. Patients screened for DM 13-20w post-delivery



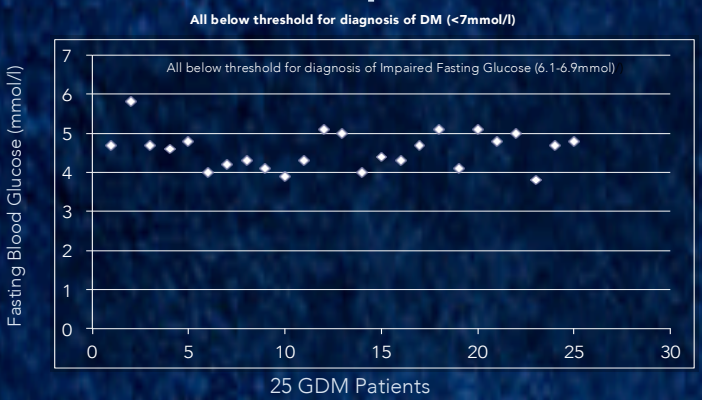
3. The 75g 2-hour OGTT should not be offered routinely:

100% compliance, no patient was tested for OGTT post delivery

Conclusion

NICE Standard 1.
Almost three quarters of all 91 patients (73% n=66) were not tested for fasting glucose between 6-13 weeks post delivery.
NICE Standard 2. (if 1. not met)
23% (n=15) of these 66 patients had either fasting glucose or HbA1c tested between 13-20w.
In contrary to NICE guidelines, 2 patients undertook both tests.
NICE Standard 3.
100% compliance. No patient had OGTT as a screening test after delivery

Out of 40 patients who were tested, 6 were diagnosed with DM (16%). No screening information was available for 56% of all 91 patients (n=51).



Recommendations

- Diabetes team will hand deliver blood test request forms to patients in the clinic & encourage them to be tested 6-13w post-delivery.
- Enhance awareness in primary care by arranging audit presentations by diabetes specialist nurses at GP practices.
- Reminder alerts can be placed on electronic patient records with GP consensus.
- We aim to re-audit in 18 months to re-evaluate the effectiveness of implemented methods.

Discussion

Bellamy et al. 2009[5] have shown patients diagnosed with GDM have been noted to have at least a seven fold increased lifetime risk in developing DM type 2 than normoglycemic pregnancy patients[2]. Rhonda Bentley-Lewis et al. 2009 have similarly found there to be a high incidence although a range between 2·6% to more than 70% in studies examining women from 6 weeks to 28 years post partum[6]. This range shows it can be difficult to measure the incidence of DM type 2 in postnatal GDM patients due to varying diagnostic thresholds over the years[7,8], using insulin during pregnancy, long periods of delay to post-partum follow- up[9] and missed opportunities for education and screening efforts in these patients.

It is known there are risk factors associated between GDM and developing DM type 2 which may indicate a commonality in cause. These are typically a previous family history of diabetes, elevated BMI, increased age and genetic allelic studies[3,4] show a link to ethnicity predominantly in those of Asian and Afro-Caribbean origin. This study shows there is room for improvement in postnatal screening for DM type 2 in GDM patients using early risk identification with timely screening and treatment reducing the risk of progression to DM type 2. These mothers with GDM and their healthcare professionals can be motivated to adhere to the 6w postpartum screening if informed of the complications that can arise from developing DM type 2 such as there may be an equivalent aging of 15 years if untreated[2] and associated renal and cardiac incidents. It is important to note that we were unable to stratify our results according to afore mentioned risk factors although we excluded pre-existing diabetic patients from our study. Further investigation of ethnicity of these patients It would be of interest to further investigate whether those patients with GDM who would develop DM type 2 post-13w (according to NICE guidelines) are actually linked to GDM or due to ulterior hyperglycemic lifestyle habits; suffer from concurrent diabetes provoking morbidities or other diabetic factors later postpartum.

A history of GDM provides a low cost indication for postnatal screening for DM type 2. In those patients with natural physiological resolution of GDM, studies can be performed on the clinical effectiveness of methods of primary prevention such as changes in diet, lifestyle and use of initial diabetes-prevention medications and lactation has also been shown to reduce risk for developing DM type 2 patients with GDM[10] Methods can then be advised for all postnatal GDM patients with the aim to reduce their risk of future development of DM type 2 and it's complications on women's health.

References

1. http://www.nice.org.uk/guidance/ng3
2. Metzger BE, Cho NH, Roston SM, Radvany R. Prepregnancy weight and antepartum insulin secretion predict glucose intolerance five years after gestational diabetes. *Diabetes Care* 1993; **16:** 1598–605.
3. Lauenborg J, Grarup N, Damm P, et al. Common type 2 diabetes risk gene variants associate with gestational diabetes. *J Clin Endocrinol Metab* 2009; **94:** 145–50.
4. Cho YM, Kim TH, Choi SH, et al. Type 2 diabetes-associated genetic variants discovered in the recent genome-wide association studies are related to gestational diabetes in the Korean population. *Diabetologia* 2009; **52:** 253–61.
5. Leanne Bellamy, Juan-Pablo Casas, Aroon D Hingorani, David Williams. Type 2 diabetes mellitus after gestational diabetes: a systematic review and meta-analysis 2009; 1773-1779.
6. Rhonda Bentley-Lewis et al. Gestational diabetes mellitus: an opportunity of a lifetime, The Lancet Vol.373 2009 1738-1739
7. Carpenter MW, Coustan DR. Criteria for screening tests for gestational diabetes. *Am J Obstet Gynecol* 1982; **144:** 768–73.
8. 4 National Diabetes Data Group. Classification and diagnosis of diabetes mellitus and other categories of glucose intolerance. *Diabetes* 1979; **18:** 1039–57.
9. Kim C, Newton KM, Knopp RH. Gestational diabetes and the incidence of type 2 diabetes: a systematic review. *Diabetes Care* 2002; **25:** 1862–68.
10. Kjos SL, Henry O, Lee RM, Buchanan TA, Mishell DR Jr. The effect of lactation on glucose and lipid metabolism in women with recent gestational diabetes. *Obstet Gynecol* 1993; **82:** 451–55.