Letter

Likelihood of 'falling through the net' relates to contemporary prevalence of gestational diabetes. Reply to Ikomi A, Mannan S, Anthony R, Kiss S [letter]

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Abbreviations:

CS, Caesarean section

GDM, Gestational diabetes mellitus

HAPO, Hyperglycaemia and Adverse Pregnancy Outcomes

NICE, National Institute for Health and Care Excellence

To the Editor: We thank Dr Ikomi and colleagues (1) for their letter and supportive comments. It was interesting to hear of your experience in south west Essex and particularly of your successful treatment of women who 'fell through the net' with normalisation of neonatal macrosomia rates.

Our main reason for choosing the study period of 2004-2008 was that we had an existing database covering this period which had been used for a previous service evaluation to assess the value of the 1 h OGTT test and to evaluate our screening strategy for postpartum diabetes (2). During the study period (2004-2008), it was our normal practice to take blood tests at baseline, 1 and 2 h after the OGTT but the results of the 1 h test were ignored. In 2008 we re-evaluated the 1-h test after reviewing the case of a 30 year old primagradiva with a negative OGTT (5.1, 13.1 and 7.1 mmol/l at 0,1, and 2 hours respectively) who went on to have polyhydramnios, emergency Caesarean section and pre-term delivery of a large-for-gestational-age infant. Her postpartum OGTT showed frank diabetes (6.9, 16.3 and 11.4 mmol/l) with no elevation in GAD antibodies. In 2009, we introduced the 1 h OGTT test at a threshold of $\geq$10.0 mmol/l as diagnostic of gestational diabetes (GDM).

Using an older database allowed us to assess the effects of changing diagnostic criteria on our population before the 1 h criterion was used in diagnosis and enabled us to have the results available in a timely manner. Although we appreciate that a more recent cohort might have been advantageous in some ways, there were several barriers to that in this case. First, we changed to criteria similar to the International Association of the Diabetes and Pregnancy Study Groups IADPSG/WHO-2013 criteria during 2012 (75 g OGTT 0 h ≥5.3 mmol/l, 1 h ≥10.0 mmol/l, 2 h ≥8.5 mmol/l)(3, 4). After this time point, women who 'fell through the net' were offered treatment in our

institution that would prevent a true estimation of the odds ratios for 'missed' diagnoses. A further barrier was that our hospital changed to an Epic ehospital system in 2014 which moved paper records to electronic files which has made it difficult to access retrospective data in a timely manner. However, the incidence of GDM was 4.88% in 2013 using the same screening criteria. This shows a gradual but not dramatic increase in incidence since 2008 and we therefore believe our retrospective data remain relevant to our population.

Our screening criteria have been criticised as being out of line with current or previous National Institute for Health and Care Excellence (NICE) recommendations(5) . While this is true, the screening criteria used were a modified two-step approach, comparable to that which has been used in the USA for many decades. The risk factor-based screening advocated by NICE has documented flaws (6), which has led us to believe that a universal screening practice offers a more robust way of screening for GDM. For example, the NICE guidelines advocate offering screening to women with a previous macrosomic infant or a previous diagnosis of GDM, which makes women in their first pregnancy less likely to be screened than parous women(7). As the importance of fasting hyperglycaemia has come to light in this study, we admit that our screening strategy using the 50 g glucose challenge test may miss some women(8), and we are currently reviewing our service data in order to design a better screening protocol. We agree with the closing statements of Ikomi and colleagues(1) about the importance of reviewing contemporary service data to guide ongoing care.

A further criticism has been that rates of delivery by Caesarean section (CS) and macrosomia/large for gestational age were higher in our study compared with the Hyperglycaemia and Adverse Pregnancy Outcomes (HAPO) cohort(9). This is to be expected, as women with glucose screening prior to recruitment or previous gestational diabetes were excluded from the HAPO study, while our study included all singleton pregnancies. Our institution is a tertiary referral centre for high-risk antenatal and neonatal care and the relatively high CS rate may reflect this.

The diagnosis of GDM is no trivial matter, and unnecessary medicalisation of pregnancy should be avoided. However, the consequences of unidentified GDM and unexpected shoulder dystocia also carry considerable emotional and physical repercussions for both mother and child (10). Our data suggest similar risk profiles for women above and below the NICE cut-off of 5.6 mmol/l. The recent supreme court ruling on CS delivery in diabetes highlights the principle of discussing 'what a reasonable patient wants to know'(11). Perhaps it is time to ask women what they think.

References:

1. Ikomi A, Mannan S, Anthony R, Kiss S. Likelihood of 'falling through the net' relates to contemporary prevalence of gestational diabetes. . Diabetologia doi:2015.
2. Church D, Halsall D, Meek C, Parker RA, Murphy HR, Simmons D. Random blood glucose measurement at antenatal booking to screen for overt diabetes in pregnancy: a retrospective study. Diabetes Care. 2011;34(10):2217-9.
3. Metzger BE, Gabbe SG, Persson B, Buchanan TA, Catalano PA, Damm P, et al. International association of diabetes and pregnancy study groups recommendations on the diagnosis and classification of hyperglycemia in pregnancy. Diabetes Care. 2010;33(3):676-82.
4. Organisation WH. Diagnostic Criteria and Classification of Hyperglycaemia First Detected in Pregnancy. 2013.
5. (NICE). National Institute of Health and care Excellence. Diabetes in pregnancy: Management of diabetes and its complications from pre-conception to the postnatal period. Clinical Guideline 632008.
6. Simmons D, McElduff A, McIntyre HD, Elrishi M. Gestational diabetes mellitus: NICE for the U.S.? A comparison of the American Diabetes Association and the American College of Obstetricians and Gynecologists guidelines with the U.K. National Institute for Health and Clinical Excellence guidelines. Diabetes Care. 2010;33(1):34-7.
7. Diabetes in pregnancy: management of diabetes and its complications from preconception to the postnatal period. National Institute of Clinical Excellence (NICE) guideline NG32015.
8. Simmons D, Moses RG. Gestational diabetes mellitus: to screen or not to screen?: Is this really still a question? Diabetes Care. 2013;36(10):2877-8.
9. Metzger BE, Lowe LP, Dyer AR, Trimble ER, Chaovarindr U, Coustan DR, et al. Hyperglycemia and adverse pregnancy outcomes. N Engl J Med. 2008;358(19):1991-2002.
10. Dajani NK, Magann EF. Complications of shoulder dystocia. Semin Perinatol. 2014;38(4):201-4.
11. Montgomery (Appellant) v Lanarkshire Health Board (Respondent). https://www.supremecourt.uk/decided-cases/docs/uksc_2013_0136_presssummary.pdf (accessed 6th August 2015).

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Duality of interest

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Hannah Lewis has no duality of interest.

Charlotte Patient has no duality of interest.

Helen R Murphy has received honoraria for speaking engagements from Medtronic, Roche, Novo Nordisk, Eli-Lilly and is a member of the Medtronic European Advisory Board.

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CLM is the guarantor of this work and, as such, had full access to all the data in the study and takes responsibility for the integrity of the data and the accuracy of the data analysis.

Contribution Statement

CLM, DS and HRM drafted the letter. All authors critically revised the article and had the opportunity to read and approve the final version.

identified the study question, designed the study, assisted with data analysis and interpretation of data, wrote and revised the manuscript. HBL performed the statistical analysis and reviewed/edited the manuscript. CP made a substantial contribution to data acquisition and analysis, reviewed and revised the manuscript and contributed to the discussion.