



## Insights uncovered from experiencing a rise in the incidence of gestational diabetes at a Melbourne hospital. Reply to Ng E, Neff M, Sztal-Mazer S [letter]

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### Abbreviations

2HG 2 h plasma glucose

GDM Gestational diabetes mellitus

*To the Editor:* We thank Elisabeth Ng and colleagues for their interest in our paper and confirmation of our data [1]. It was interesting to read their experiences with the rising incidence of gestational diabetes mellitus (GDM) in a multi-ethnic, metropolitan maternity hospital in Melbourne (Australia) after implementing the new diagnostic criteria [2].

Our data have shown that implementing the new WHO 2013 diagnostic thresholds with a higher 2 h plasma glucose (2HG) cut-off value may exclude a group of women who are currently diagnosed with GDM and benefit from treatment (i.e.

women with 2HG  $\geq 7.8$  but  $\leq 8.4$  mmol/l) [1]. Ng et al concur that more evidence is needed to establish whether women with a 2HG level between 7.8 and 8.4 mmol/l can safely be left untreated. They additionally comment that it is necessary to consider the rise in incidence and financial costs that would be likely to accompany an adoption of a lower 2HG threshold [2]. However, it has to be borne in mind that it is the adoption of a lower fasting glucose threshold that is responsible for the rising incidence. Worldwide, the new diagnostic criteria have been adopted by many guideline committees and expert groups, without considering the possible consequences of implementing a higher 2HG threshold. A recent study from the UK demonstrated that even women with a 2 h post load glucose level  $\geq 7.5$  mmol/l (for Caucasian women) and  $\geq 7.2$  mmol/l (for South Asian women) are at increased risk of adverse pregnancy outcomes [3]. This study also supports the use of ethnic-specific diagnostic criteria for GDM.

In the Netherlands, the new WHO 2013 criteria have not yet been introduced. In our paper we recommend the adoption of a lower fasting glucose threshold to improve pregnancy outcomes [1]. A randomised controlled trial directly comparing the two diagnostic approaches (WHO 1999 criteria vs WHO 2013 criteria) is needed. This should further evaluate whether the adoption of a higher 2HG OGTT threshold is safe.

The implementation of the more stringent diagnostic criteria (which are mainly more stringent in relation to fasting glucose level) results in a rising number of GDM diagnoses. Ng et al express their concerns about the higher burden on healthcare provided by medical, dietetic and diabetes nurse educator services. One of their major concerns is whether the increasing outpatient cost would be adequately compensated by reduced inpatient costs.

In our study we clearly demonstrated that, in contrast with women with normal glucose tolerance upon testing,

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women classified as having GDM based only on the WHO 2013 criteria for fasting glucose (i.e. women with fasting glucose  $\geq 5.1$  but  $\leq 6.9$  mmol/l) had significantly higher rates of gestational hypertension, planned Caesarean section and induced labour and their neonates were more likely to have an Apgar score  $< 7$  at 5 min and to be admitted to the neonatology department [1]. Leaving these women untreated would also result in higher inpatient costs. These women are at increased risk for complications and can therefore not be left untreated. Adopting the fasting glucose cut-off threshold of the new diagnostic criteria will generate a group of women with milder GDM, who can possibly be treated predominantly with dietary advice and therefore require less intensive monitoring than women with more severe GDM (who need to be treated with insulin). These women (i.e. in our paper ~60–80% of the women with GDM were treated with dietary advice only) can be followed by a diabetes specialist nurse only, as is the practice in our department at the University Medical Center in Groningen [1].

The authors also express their concerns about the costs of increased postpartum OGTT testing. In most guidelines an OGTT is recommended for testing blood glucose because the OGTT has a high sensitivity compared with other screening methods. However, a postpartum OGTT is frequently unnecessary. In the Dutch national guidelines the OGTT is not standard for postpartum testing because this method is time consuming, not patient-friendly [4] and shows considerable between-test variability.

The incidence of GDM is also rising owing to the increasing prevalence of excess weight and obesity in women of reproductive age. Maternal obesity is a major risk factor for GDM [5, 6]. Our data show that women diagnosed with GDM based only on the WHO 2013 criteria for fasting glucose (i.e. women with fasting glucose  $\geq 5.1$  but  $\leq 6.9$  mmol/l) had unfavourable characteristics (for instance high pre-pregnancy BMI and chronic hypertension). Obesity is also a major risk factor for adverse pregnancy outcomes [7]. We agree with Ng et al that preventative strategies are needed to reduce the burden of GDM. Studies on preventative lifestyle interventions before, during or after pregnancy are therefore warranted. Such strategies can be cost effective, as they may reduce the number of GDM diagnoses and adverse pregnancy outcomes in future pregnancies.

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**Authors' contributions** All authors were responsible for drafting the letter and revising it critically for important intellectual content. All authors approved the version to be published.

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