COMMENTS AND RESPONSES

Response to Comment on: Au et al. Body Composition Is Normal in Term Infants Born to Mothers With Well-Controlled Gestational Diabetes Mellitus. Diabetes Care 2013;36:562–564

The comment letter by McElduff (1) acknowledges that our study (2) is an excellent example of the research needed to determine optimal glycemic targets for mothers with gestational diabetes mellitus (GDM). The primary objective of our study was to describe the body composition at birth of infants born to mothers with GDM compared with infants born to mothers with normal glucose tolerance using air-displacement plethysomography (2). Body composition at birth, measured accurately by air-displacement plethysomography, is a more sensitive marker of the intrauterine environment than weight alone, and includes estimates of fat mass and fat-free mass.

To our knowledge, this is the first study to show that infant body composition was no different between the GDM and the normal glucose tolerance groups after adjustment for maternal and neonatal factors known to affect body composition. This can be attributed to the level of glycemic control achieved from the treatment that GDM mothers receive at Royal Prince Alfred Hospital. The treatment targets at Royal Prince Alfred Hospital are comparable to the target values in the recent consensus guidelines from the Australasian Diabetes in Pregnancy Society, which are based on 2 SD above the mean values for pregnant women without known risk factors as extrapolated from the Hyperglycemia and Adverse Pregnancy Outcomes (HAPO) study (3).

We disagree with the claim that our study was underpowered. Firstly, statistical power is a concept that is used when designing studies to ensure they are of adequate size to detect important effects if they truly exist. The use of post hoc power calculations is inappropriate and misleading. Under the alternative hypothesis, if true, there will be a range of values at which the difference would be significant. However, for many of those values, a post hoc power calculation will show less than 80% power to detect that difference. In our study, we found a number of significant differences in our unadjusted analyses, including differences for birth weight and head circumference. Thus, the argument that there was insufficient power to detect significant differences for these variables does not make sense. More importantly, although there were differences between the groups in the unadjusted analyses, these differences were in fact completely explained by known confounders, and the differences between the groups were no longer clinically important. It would be inappropriate to power a study to detect a small, clinically unimportant difference.

We recognize the importance of targeting the level of glycemic control while optimizing pregnancy outcomes in the GDM population. There may be a subpopulation of diabetic mothers who give birth to infants who are small for gestational age when strict glycemic control is maintained throughout pregnancy (4). As pointed out by McElduff, adjunctive assessment of fetal growth with ultrasound may help guide therapy in terms of the need for tightening or relaxing glycemic control (5).

The conclusions of our study are valid and important. We showed that normal body composition can be achieved in infants born to mothers with well-controlled GDM, and this finding reinforces the premise that screening for and treatment of GDM is beneficial.

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