No influence of body mass index on first trimester fetal growth

Sir,

We read with interest the recent article on the effect of obesity on first trimester fetal growth (Sarris et al., 2010). Using a univariate model, the BMI was found to be uncorrelated with first trimester growth. However, the authors did not examine potential interactions between other maternal characteristics in a multivariate model. BMI is a derived variable from maternal weight and height. Its correlation coefficient with body weight is 0.87 in women, although it is minimally correlated with height (Gallagher et al., 1996). Its correlation with percent body fat changes according to age and a formula is available to estimate the body fat percent from the BMI, age and sex (Deurenberg et al., 1991). Another potential confounding factor is the well-known correlation of high BMI with menstrual irregularities which may have a bearing on the gestational age assignment in obese women. Ideally, a multivariate analysis should have been performed in this study, which would have greater power to detect an effect of body mass index on early fetal growth.


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References


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Sir,

We thank Drs Mongelli and Condous for their interest and comments on the reporting on the effect of BMI on first trimester fetal growth (Sarris et al., 2010).

In our study, women were only included if they had a known last menstrual period with a regular 26–30 day cycle. A review of the menstrual cycle length (in days) of the women within each BMI category showed that there were no significant differences in cycle length (table below, P = 0.86). This demonstrates that in our group of women there were no menstrual irregularities associated with higher BMI and menstrual cycle length was not a confounding factor.

<table>
<thead>
<tr>
<th>BMI group</th>
<th>Cycle length median (days)</th>
<th>Cycle length (range)</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;18.50</td>
<td>Median 28</td>
<td>(range 28–28)</td>
</tr>
<tr>
<td>18.50–24.99</td>
<td>Median 28</td>
<td>(range 27–30)</td>
</tr>
<tr>
<td>25.00–29.99</td>
<td>Median 28</td>
<td>(range 28–29)</td>
</tr>
<tr>
<td>30.00–34.99</td>
<td>Median 28</td>
<td>(range 26–30)</td>
</tr>
<tr>
<td>≥35.00</td>
<td>Median 28</td>
<td>(range 26–30)</td>
</tr>
</tbody>
</table>

The second issue is why a univariate (rather than a multivariate) analysis was performed. We have previously examined potential interactions between maternal characteristics other than BMI (maternal age, ethnicity, vaginal bleeding, parity, pain, previous miscarriage and anxiety) and early fetal growth (Bottomley et al., 2009) in univariate and multivariate models. The BMI was not available to us at that time and we obtained this later, and presented it in the current study. As univariate analysis showed no association between BMI and fetal growth, whether modelled using BMI as a continuous variable or as a categorical variable using the WHO criteria, we did not feel multivariate analysis was appropriate.

References
Bottomley C, Daemen A, Mukri F, Papageorghiou AT, Kirk E, Pexsters A, De Moor B, Timmerman D, Bourne T. Assessing first trimester growth...