Reviewer's report

Title: Fetal growth determines duration of the human pregnancy

Version: 1 Date: 23 February 2008

Reviewer: Helle Kieler

Reviewer's report:

Major Compulsory Revisions

The aim of this paper is to assess whether fetal size (growth) determines the duration of human pregnancy. Knowledge of factors influencing normal pregnancies is essential to understand what happens in growth restricted pregnancies and in pre- and postterm births. The authors conclude that smaller fetuses compared with larger fetuses in the second trimester have longer pregnancies and that we would be better of by accepting a greater biological variation than current methods of ultrasound dating allow. I fully agree with the authors in their conclusion concerning acceptance of greater biological variation. However I'm not convinced that the authors in this paper actually have shown that smaller fetuses have longer pregnancies.

First of all the women included in the study had menstrual periods between 24 and 32 days (28 ± 4), which means that the difference in gestational length, when calculated from LMP could be as much as 8 days because of differences in menstrual periods. If the women carrying fetuses with the smallest size at the ultrasound examination had menstrual periods of 32 days and those with the largest fetuses had 24 days, this would explain the major part of the differences in duration of pregnancy between the groups. Probably, to control for this possible error the authors included the ultrasound estimation in second trimester (HC) as a confounder. However, I do doubt that the HC could be considered a true confounder as fetal size (HC) is closely associated with LMP, pregnancy length and birth weight. What makes the use of HC as a confounder even more doubtful is the fact that the HC, AC and FL used in the present study all had been estimated from this same population.

Secondly, the span of the time for ultrasound estimation is rather wide from 10 to 24 gestational weeks. Presumably error measurements might differ between a scan in week 10 and week 24.

To convince the readers that smaller fetuses have longer pregnancies the authors would need to do some revisions. They could include information on mean or median length of menstrual periods for each strata (-2.5 SD to 2.5 SD) and possibly control for the differences. Alternatively limit the study to include only those with 28 day-cycles. They should also control for the time in pregnancy, when the scan was performed.

Minor Essential Revisions
The title is somewhat misleading. Though the authors point out in the abstract that fetal growth express fetal size in the second trimester such an assumption would be based on all embryos having the same size in early pregnancy, which probably is not true. I believe that to use the term â##growthâ## there should at least be two measurements. A more correct title would therefore be â##Fetal size at second trimester determines duration of the human pregnancyâ##.

In the abstract a population of 650 low-risk pregnancies is mentioned, however in the present study only the 541 with spontaneous deliveries are included, which should be stated explicitly in the abstract.

The authors state that the obstetric outcome was good, but only gestational length and birth weight are presented. The authors could have included mode of delivery (spontaneous start of delivery is not equivalent with vaginal delivery), APGAR scores and neonatal outcomes in Table 1.

In the Discussion, p 9 "Our results are supported by a recent study --". The ref. for this study is missing.

What next?: Unable to decide on acceptance or rejection until the authors have responded to the major compulsory revisions

Level of interest: An article of importance in its field

Quality of written English: Acceptable

Statistical review: Yes, and I have assessed the statistics in my report.

Declaration of competing interests:

I declare that I have no competing interests.