Reviewer’s report

Title: Association between interpregnancy interval and birth weight: what is the role of maternal polyunsaturated fatty acid status?

Version: 2 Date: 29 March 2012

Reviewer: Elizabeth Yakes

Reviewer’s report:

- Major Compulsory Revisions

It was not clear to me how the logistic regression for the relationship between interpregnancy interval and maternal LCPUFA concentrations (a continuous variable) was done (table 4 analysis). How was the outcome (maternal LCPUFA concentrations) dichotomized? Or was ordinal logistic regression used? Please clarify what you mean by “for each fatty acid, the quintile that showed an association with adverse pregnancy outcome defined as small for gestational age SGA and birth weight, in the analyses between maternal essential fatty acid status and pregnancy outcome (table 4) was selected (EPA:Q1, DHA:Q1, DGLA:Q1, AA:Q4).”

When you examined the relationship between interpregnancy interval and birthweight/SGA and adjusted for the LCPUFAs “all together,” how was this done? By creating an index or other composite variable taking the 4 LCPUFAs into account? Or by including them all as separate variables in the model (collinearity issues)? Please clarify.

In your methods, you state “The final multivariate model included all covariates identified as confounders” and then you later state in the results that “None of the selected maternal and infant characteristics acted as confounding factors” in relation to one of your sets of models (table 5). Was this also true for the models in table 4? Please clarify (in text of results and table footers, if necessary).

In the comment section, it seemed that the finding that a longer IPI (# 24 mo) was associated with lower birth weight was not adequately discussed – the sentence that follows relates only to previous findings related to short IPI.

- Minor Essential Revisions

Fix the typo in this sentence (“en” between 18 and 23): “Women with an interpregnancy interval of less than 6 months had a two times greater risk of 6 delivering a child SGA than women who became pregnant between 18 en 23 months after 7 their previous delivery (OR: 2.05; 95% CI: 0.93, 4.51).” (results section)

Fix the type in this sentence (“de” between in and highest) “Women with AA concentrations in de highest quintile gave birth to infants with birth weights 145.0
g (SE: 39.1) lower and a nearly two times increased chance of SGA in comparison with women with AA concentrations in the middle quintile (OR=1.88 (95% CI: 1.19- 2.95).” (results section)

Table 3: minor rounding inconsistencies (AA, Q4, SGA OR)

Table 5: OR for SGA for IPI 12-17 mo is missing

- Discretionary Revisions

Consider commenting on the representativeness of your cohort (related to the general population of the Netherlands – is this a nationally representative sample?), even if this information has been published elsewhere.

For the sentence (introduction) “Long-term effects have also been described, including increased risks of schizophrenia, menstrual disorders, and subfecundity in female offspring (5-7),” clarify whether the increased risk of schizophrenia only applies to female offspring.

For the sentence (methods) “In addition, 1,656 women who did not participate in the biomarker study and therefore had lacking data on fatty acid status (49.9%) were excluded…” consider placing (49.9% of multiparous women with a term pregnancy) directly after “1656 women” – I was confused as to what the percentage referred to in the middle of the original sentence.

Figure 1 (selection of the study sample) was generally clear, but consider revising it slightly using Figure 1 from this paper on reporting observational longitudinal research as a guide (http://aje.oxfordjournals.org/content/161/3/280.full.pdf+html). Namely, it would be helpful to show the number of women excluded, losses, etc. to the side with reasons.

For the sentence (methods) “Date of the previous delivery was enquired by the questionnaire” (methods section) consider a grammatical correction: “Date of the previous delivery was collected via questionnaire.”

I was not clear on how the presence of stressors was determined using validated questionnaires on depression, general anxiety, etc. Was a women given a score of “1” if she was above the 90th percentile on a questionnaire, and a score of “0” if she was below the 90th percentile for each stressor? Was this the 90th percentile of the study population, or a reference population? Consider clarifying.

Table 2: seems as if this table could be more efficiently included in the paper as an additional column (quintile cutoffs) in table 3, rather than as a separate table.

For the sentence (results section): “When all four selected fatty acids were included altogether, no meaningful change in these relationships were observed either (Table 5)” consider a grammatical correction: “When the four selected fatty acids were adjusted for simultaneously, there was no meaningful change in the observed relationships.” See my note in the “major compulsory revisions” section regarding the need to clarify how the simultaneous adjustment was done.
Do you have any information available on the duration of breastfeeding during the IPI? I am wondering if this needs to be taken into account in your examination of the relationship between IPI and LCPUFA status during the new pregnancy, as I would expect that it would take longer for a woman’s biochemical PUFA status to normalize after pregnancy if (for example) she breastfed exclusively for 6 months. Note also that IPI could be related to lactational amenorrhea.

**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.