Reviewer’s report

Title: Maternal iodine status during lactation and infant weight and length in Henan Province, China

Version: 1 Date: 06 May 2016

Reviewer: Pattanee Winichagoon

Reviewer's report:

Thank you very much for your thorough responses to reviewer's comments. However, there are issues from the subject matter point of view that is essential to be improved.

1. Use of anthropometry for assessing 'nutritional status' of infants and young children. Three common indicators are used, namely, weight-for-age z-score (WAZ, underweight), height-for-age z-score (HAZ, stunting) and weight-for-height z-score (WHZ, wasting), according to WHO. It is not appropriate to use BMI since children still have growth. WHO has recommended also the use of BMI z-score, but often used for older children.

2. UIC from casual urine is NOT a measure of 'iodine status'. Its median however is a measure of population-level of iodine sufficiency.

3. There is evidence that BMIC correlates with UIC, hence this supports the use of UIC in this study as a proxy of BMIC, and should be stated. This may be included in the discussion. A few references that may be useful below.

4. Specific comments on Results:
   a. Table 2, please include statistical test underneath the Table (r & p-value)
   b. Text reference to Table 3: 'In the maternal UIC group...'. From the presented data, I understand that authors refer to the association between 'maternal UIC and infants nutritional status' (no 'group'). Similarly, that for 'infant UIC group' (text for Table 4) should be 'infant UIC'.
   c. Based on the UIC data of both lactating mothers and infants, this population seems to be 'iodine sufficient'. In addition, the anthropometric data based on mean HAZ and WAZ do not seem to be an undernourished population. Therefore, it is not surprising for not seeing any association between UIC and respective anthropometric indicators. Nevertheless, if the...
authors still want to present these data (Table 3 & 4), please put the statistical test underneath the Tables, although they are NS.

d. Is there any data on the household %coverage of iodized salt from the studied sample? If there is, it should be included. If not, but there is coverage data for this area, it may be mentioned in the discussion.

e. Multiple regression (text and Table 5): It is not clear whether the authors addressed the question, 'Is there any relationship between maternal UIC and child nutritional status (anthropometry). If so, the inclusion of factors other than maternal UIC are for controlling for potential confounders, and hence, only the beta-coefficients of the factors be presented. The coefficients of subcategories of each confounder are not meaningful for the interpretation of the main effect (maternal UIC). Why included 'paternal weight' as a confounder? If the reasons being parental status may affect child's status, then maternal BMI and maternal & paternal height may be appropriate (if data are available). Please consult your statistician.

f. Editorial note for Table 5: since the confounding factors adjusted in all models (HAZ, WZ, BMI) as presented in the footnotes below the table are the same. Hence, the variables included in the adjusted model can be indicated only once, rather than a lengthy repetitive mention. Also, remove the footnote, ' eOnly significant variables were presented' since this is not relevant in the context of analysis here.

5. Discussion:

a. Based on the UIC median and IQR of both lactating mothers and infants appear to be in the relatively 'normal range', the basis for analysis of either the low or high end of UIC and anthropometry do not seem to be valid. Zimmermann et al (Zimmermann, et al, J Clin Endocrinol Metab, March 2013, 98(3):1271-1280), suggested that UIC in school-aged children be in the range of 100-299 µg/L to avoid both deficiency and excessive. Nevertheless, UIC from one casual urine is not adequate for defining % inadequacy or excessive. A forthcoming paper (in press in JN) demonstrated a need to correct for intra-variability in UIC to properly estimate the %prevalence of either ends.

b. Ref 37, paper from Bangkok referred to in the discussion: please consider the finding carefully. I do not have access to this paper, but from the abstract, it is not a supplementation trial. It seems to be data from the routine clinical service and the supported evidence was drawn from some thousand data points from clinical records. Please consider the references provided in the comments on results above.

c. Is there clear evidence that iodine deficiency or excessive affect growth/ anthropometric indicators? Given that the studied population of infants appears to be in the normal range
for both anthropometry and UIC, the argument about the lowest means of anthropometry was found in the UIC <50 and that of hyperthyroidism in infants may not be valid.

6. Editorial: please kindly have a final edit of the MS and correcting typo errors.

**Are the methods appropriate and well described?**
If not, please specify what is required in your comments to the authors.

Yes

**Does the work include the necessary controls?**
If not, please specify which controls are required in your comments to the authors.

No

**Are the conclusions drawn adequately supported by the data shown?**
If not, please explain in your comments to the authors.

Yes

**Are you able to assess any statistics in the manuscript or would you recommend an additional statistical review?**
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