Reviewer's report

Title: Fetal cardiac diameter to biparietal diameter ratio as a predictor of hemoglobin Bart’s disease among fetuses at risk at mid-pregnancy

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Reviewer: KY LEUNG

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Major

Introduction
1. At risk pregnancies should be managed by doctors experienced in this field for scanning, counseling and invasive testing if necessary. Leaving the job to a doctor in general practice is not ideal. Would the authors revise the related text?

2. “CB ratio is more easily measured than CT ratio…” Is there any evidence? Is there a marked difference in getting a good subcostal four chamber view and a view to measure CT ratio?

Methods
3. 2-5 MHz is not optimal for cardiac scan. Would authors mention as a limitation in the Discussion?

4. If an ultrasonographer can show a typical 4-chamber view, it is not too difficult to obtain an optimal view to measure CT ratio. Would the authors include this in the discussion?

5. 7.5-15 seconds is long enough to cause artifact in measurements. Would the authors include this as in the discussion?

6. The authors wrote: ‘Based on previous studies of ultrasound sonomarkers…’ Is there any reference?

Results
7. What were the reasons for poor quality VDS in 11 cases?

8. What additional time was used to obtain STIC, manipulate the volumes and measure C/B ratio?

9. Figure 2: There was a lot of overlap in C/B ratio between unaffected and affected pregnancies. Would the authors discuss this point?

10. Table 1: Would the authors show (a) the number of fetuses at each gestation, (b) cardiac diameter, (c) biparietal diameter of affected and unaffected pregnancies? This will give clues to whether increased CB ratio was due to large heart or small BPD.
Discussion

11. The authors studied cardiac diameter to BPD (C/B ratio), a new one, to predict Hb Bart’s disease. However, there are some limitations of this C/B ratio. From the data presented, it seems to me that this C/B ratio does not have advantages over the conventional CT ratio +/- MCA PSV. An increase in C/B ratio can be due to small BPD related to head shape rather than cardiomegaly. Would the authors discuss this issue?

12. The authors wrote: ‘The main objective of this study was to develop a new simple and effective way to screen fetal Hb Bart’s disease...’ However STIC is not a simple technique and not commonly available in general setting. Would the authors discuss this issue?

13. Conclusion

A sensitive of 91.5% cannot be considered as highly effective.
STIC itself is not simple, and not practical for widely use. Would the authors revise the conclusion?

Minor

1. Discussion

Does STIC offers more accurate measurement of Cardiac dimension than 2D ultrasonography? Why not study 2D ultrasound measurement first before studying STIC? A retrospective analysis of stored data would give a preliminary answer.

Level of interest: An article whose findings are important to those with closely related research interests

Quality of written English: Needs some language corrections before being published

Statistical review: No, the manuscript does not need to be seen by a statistician.

Declaration of competing interests:

I declare that I have no competing interests.