Reviewer’s report

Title: Inter and intra-reliability of ultrasonography for the measurement of abdominal subcutaneous & visceral adipose tissue thickness at the 12 weeks gestation

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Reviewer: Giacomo Filonzi

Reviewers report:

Abstract:
- page 2, line 31: see background paragraph

- page 2, line 46: see method paragraph

Background:

- page 4, line 74: there are several recently published articles that directly correlates body fat thickness with gestational diabetes (D' Ambrosi et al., Yang SH et al., Bourdages M et al.). Also, there's an important article by Bartha JL et al. (Ultrasound Evaluation of Visceral Fat and Metabolic Risk Factors During Early Pregnancy) that correlates body fat in pregnant women with metabolic risk factor, and also provide analysis on intra- and inter-operator reliability; these issues need to be discussed here and these articles cited.

- page 5, line 79: Several measures of visceral fat measured by US have been used and tested in literature: see the milestone articles of Armellini et al. and the reviews of Vlachos IS et al. (AJR Am J Roentgenol. 2007) and Bazzocchi et al. (Eur J Radiol. 2016). Most authors measured visceral fat from the posterior wall of the abdominal wall to the anterior wall of the aorta, some others measured it from the abdominal wall to the anterior wall of a lumbar vertebra, to the posterior wall of the aorta, or to the psoas muscle. The measure used in this study at the xiphoid region is usually called pre-peritoneal fat (see the reviews), one among many indexes of visceral fat (and not the most often used); the authors should mention all others indexes of visceral fat and explain why they choose to measure the one at the xifoid region and not the other ones.
Methods

-page 5, line 114-115: I don't think the sentence is clear. Did the measures were collected by an obstetrician for operator 1, and by an ultrasonographer for operator 2?

-page 6, line 123: why the authors did not assess also inter-observer precision with coefficient of Variation? Why inter-observer precision was assessed only by LoA? I think that both inter- and intra-observer agreement should be assessed with the same method, and possibly a concordance correlation coefficient like intraclass correlation coefficient (ICC), Lin's correlation coefficient or Pearson's correlation coefficient.

Results

-page 6, line 138: can't find unity of measurement for the values in the table (guess are in cm).

-page 6, line 141: values of LoA are not so satisfying here (0.53 cm for VAT when the mean measure for VAT is 1 cm (the half of the value!). Again I think that both intra- and inter-observer agreement must be assessed with another method (ICC, Lin's, Pearson's), together with the coefficient of Variation.

Discussion

-page 7, line 151: again, reliability to 0.5 cm while measuring depth of 1 cm is not so good. Maybe correlation coefficients could give better data on reliability.

-page 7, line 159: if collected, data of time spent to obtain the values of fat thickness for both operators must be reported on results (mean and standard deviation), as it's an important issue. It would be interesting to know if differences in exam duration exist between the two operators.
Conclusion

- page 8, lines 169-171: Bartha JL et al. examined the measures of visceral fat (from aorta to abdominal wall) in pregnant women and must be cited also here; probably the current article is the first to test visceral fat at the xiphoid region (pre-peritoneal fat) in pregnant women, and this has to be stressed.

References

References must be updated with the articles cited in this review.

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.

Yes

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

Yes

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I am able to assess the statistics

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