Reviewer's report

Title: Breastfeeding and vitamin D supplementation reduce the risk of Kawasaki disease in a German population-based case-control study

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Reviewer: Takashi Yorifuji

Reviewer's report:

The present study investigated the associations of various factors from the perinatal and infancy period with the development of Kawasaki disease using a matched case-control design. The recruitment of the study participants seems remarkable and the study finding would be novel, but I have the following concerns.

1. Misclassification of information on perinatal and infancy period. Because the average age of the participants was 6 years of age, the misclassification would be possible and such misclassification may be differential which can bias the results. For example, parents of the cases may have tried to recall information on breastfeeding but those of the controls may have not, which can overestimate the protective effects of breastfeeding.

2. Because there were a lot of cases who were not included in the study (Figure 2) and some incomplete pairs were also excluded from the analysis, such losses may cause selection bias. How did this selection bias affect the study findings?

3. Although matching was conducted using sex, age, and place of residence, other factors were not controlled in the analysis. Thus, residual confounding due to parental characteristics (e.g., smoking, age), children's' characteristics, and socioeconomic status would be possible.

4. The authors probably obtained more information on various factors related with perinatal and infancy period than those shown in the manuscript. Did the authors also examine the association of other factors with the development of Kawasaki disease?

5. Page 5, lines 1-2. What is "the best fitting case-control-pair"?

6. Page 6, lines 5-6. Why was the age range different between the periods of 2012 and 2013/2014?

7. Page 6, line 15. The result from the sensitivity analysis was not shown in the manuscript.

8. Table 1. What is "n=2017" in the footnote?

9. Page 13, line 1. Why did the authors categorize the duration of breastfeeding as shown in the manuscript (<2 weeks vs. > 2 weeks)? This is also the case with the categorization of Vitamin D in Tables 4 and 5.
Are the methods appropriate and well described?
If not, please specify what is required in your comments to the authors.

No

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.

No

Are you able to assess any statistics in the manuscript or would you recommend an additional statistical review?
If an additional statistical review is recommended, please specify what aspects require further assessment in your comments to the editors.

I am able to assess the statistics

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