Reviewer’s report

Title: Association between Environmental Particulate Matter and Arterial Stiffness in Patients Undergoing Hemodialysis

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Reviewer: Szu-Chia Chen

Reviewer's report:

Weng CH et al. had evaluated the association of environmental particulate matter on arterial stiffness in hemodialysis (HD) patients, and found environmental PM10 level is associated with baPWV. The topic is interesting, however, there are some issues needed to be addressed.

Major:

1. The authors should acknowledge the difficulty in determining direction of causality in the relationship between arterial stiffness and environmental particulate matter. Does environmental particulate matter cause arterial stiffness? This study is just a cross-sectional study. The authors should avoid the words of "impact" or "effect".

2. What is the definition of "abnormal baPWV" The authors should put the cut point of abnormal baPWV in the Methods and Table 3.

3. MAP (distending) pressure is widely recognized to be a determinant of arterial stiffness and so adjustment for this should be made prior to testing for univariate correlation. Adjustment was performed by a linear regression of the two variables. The residual values were then added to uncorrected baPWV to form the adjusted baPWV. Adjusted baPWV values were then used for analysis.

4. Besides, heart rate is an obvious determinant of arterial stiffness-> The authors should put heart rate into multivariate analysis for adjustment.

5. How about the medication, especially anti-hypertensive drugs? -> The authors should put anti-hypertensive drugs (ACEI/ARB, bblockers, CCB) into multivariate analysis for adjustment.

6. The time of the measurement of ABI is important, before HD? after HD? Interdialytic HD? Besides, the date of the ABI measurement and environmental PM check and blood collection should be addressed on the Methods.

Minor:

1. The abbreviation should be used after full name use in the manuscript.

2. Data for triglyceride, iPTh, aluminum and hsCRP are skewed, and should be log-transformed for analysis.
3. Table 2 is not necessary.

4. Please show univariate analysis of "all" variables in Table 4, not just significant variables.

5. I am surprised that albumin was not associated with baPWV.

**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

**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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Please indicate the quality of language in the manuscript:

Acceptable

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