Reviewer's report

Title: Air pollution and hemorrhagic fever with renal syndrome in South Korea: an ecological correlation study

Version: 2 Date: 22 February 2013

Reviewer: Hualiang Lin

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Title: Air Pollution and the Hemorrhagic Fever with Renal Syndrome

I recommend a major revision before publication.

Major Compulsory Revisions

Background
1. In “when more than 3200 solders were infected”, it should be soldiers
2. The last sentence in the last paragraph of this section, “We also included climate variables in our analyses to assess the independence of air pollution on climate in the correlation with HFRS.” is not clearly telling what the authors want to state, please rephrase it.

Data collection
1. “…if HFRS is diagnosed”
   Please revise it into “once a new HFRS case is diagnosed”
2. “We obtained monthly HFRS case data for the years 2001 to 2010 from a database compiled by the KCDC”.
   Please change ‘2001 to 2010” to “of 2001-2010”.
3. “but we excluded data for Jeju province because only one HFRS case was reported”
   I suggest to modify this sentence into “data from Jeju Province was excluded as only one HFRS case was reported”.
4. “has been widely used for the investigation of air pollution (17).”
   It will be better to revise it into “has been widely used for the investigation of health effects of air pollution (17).”
5. How many air pollution monitors have been used? Where are these air monitoring stations located? What is the representativeness of the data for the whole study area? It will be more informative to give a map to show the distribution of these air monitoring stations and also for weather stations.

Statistical analysis
1. “….was fitted to obtain estimates of the relative rate”
It should be “relative risk”.

2. Have the authors considered the effects of hantavirus vaccination on the results? For the study period 2001-2010, has the vaccination changed?

Discussion

1. “Air pollution may be a cause of the continued occurrence of HFRS.”

How can this conclusion be made? There were positive and negative association, I wonder how the authors interpret the observed complex correlation.

2. “Second, our findings suggest that the transmission of vector-borne infectious diseases having a similar transmission route to HFRS could also be influenced by air pollution.”

Too far away from saying that.

3. “We hypothesized that the effect of air pollution depends primarily on climate variables”

To my understanding, when we say air pollution concentration, it is a short-term definition; while climate is a long-term thing.

Others:

1. Is the question posed by the authors well defined?
   Yes.

2. Are the methods appropriate and well described?
   Kind of.

3. Are the data sound?
   Yes.

4. Does the manuscript adhere to the relevant standards for reporting and data deposition?
   Yes.

5. Are the discussion and conclusions well balanced and adequately supported by the data?
   Not enough.

6. Are limitations of the work clearly stated?
   Yes.

7. Do the authors clearly acknowledge any work upon which they are building, both published and unpublished?
   Yes.

8. Do the title and abstract accurately convey what has been found?
   Yes.
9. Is the writing acceptable?
Yes.

**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:** Yes, and I have assessed the statistics in my report.

**Declaration of competing interests:**
No.