Reviewer's report

Title: Upper Gastrointestinal Bleeding due to Peptic Ulcer Disease is Not Associated with Air Pollution: A Case-Crossover Study

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Reviewer: Ilva Daugule

Reviewer's report:

The idea about the association between gastrointestinal bleeding and air pollution is interesting and original, therefore also negative results (observed in the study) could be of importance.

The design is original, although complicated for individuals not involved in environmental research. The main conclusion – no association between air pollution and upper GI bleeding – is clear. The study could be improved by analysis of other factors that could influence gastrointestinal bleeding.

Major Compulsory Revisions

Multiple regression analysis could be performed to evaluate the impact of other factors (age, comorbidities, season, possibly – H.pylori infection).

Minor Essential Revisions

• Conclusions – no need to repeat hypothesis.
• Add references in the following sentences:

Despite advances in management, the risk for mortality among patients with this condition ranges from 2.2% upward to 14%.

The primary risk factors for PUD are non-steroidal anti-inflammatory drugs (NSAIDs) and Helicobacter pylori. However, a significant proportion of PUD is not explained by these risk factors.

Discretionary Revisions

• The author could add some ideas in discussion part, how air pollution could promote ulcer bleeding.
• The role of comorbidities, seasonality, age and complications could be more analysed in respect to air pollution.

If possible, data about H.pylori infection could also be extrapolated from the databases – this could help to differentiate H.pylori related ulcers and other ulcers. May be there is an association between air pollution and only non-H.pylori ulcers.

The level of air pollution differs in both cities – how this could affect differences in discovery and replication cohort.

• The following sentence in discussion part is misleading – it seems that the authors suggests that acute exposure actually triggers an UGIB. Try to change
the sentence.
Our discovery and replication cohorts did not demonstrate any statistically significant associations suggesting that acute exposure triggers an UGIB secondary to PUD.

**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, but I do not feel adequately qualified to assess the statistics.

**Declaration of competing interests:**

I declare that I have no competing interests.