Reviewer’s report

Title: Lung function and systemic inflammation associated with short-term air pollution exposure in chronic obstructive pulmonary disease patients in Beijing, China

Version: 1 Date: 03 Dec 2019

Reviewer: Valérie Siroux

Reviewer's report:

The authors have addressed adequality most of the reviewers' comments. However, there is still one aspect that remains confusing to me.

Indeed, the authors' reply to the comment regarding the reason for including a healthy group, reinforces my initial concern.(1) If a direct comparison between the two groups is not feasible, in particular if the models applied in COPD patients and healthy individuals are not comparable (importantly, something not stated in the manuscript), then I do not see the real added value of the observations in healthy individuals (In that case direct, but also indirect comparisons, cannot be made). In the methods section it is stated that "The model was adjusted for age, sex, marital status, educational level, smoking history, body mass index and daily temperature and humidity. », therefore readers understand that it is the fully adjusted model used both in COPD and healthy individuals since all these potential confounders are relevant in both groups. But from the answer provided I understand it is actually not exact and I have no idea which factors were not included (or coded differently?) in the analysis among the healthy individuals, and to which extent it might explain differences in association observed between the 2 groups (No additional information on the confounders included in the models was provided in the legends/notes of figures and tables).

Overall, I'm still not convinced that data provided in the healthy group is highly relevant given the methodological limitations that prevent any comparison between observations in cases and healthy groups (except if the authors can provide sufficient information to indicate that differences in models cannot explain differences in association results).

(1) "We want to observe the effects of air pollution on both COPD and healthy participants because scarce studies explored the effects of air pollution on circulating cytokines both in COPD and healthy participants. However, many covariables did not matched between two groups in the study, direct comparison is not appropriate. We took the results of healthy population as indirect reference to COPD patients."
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