Reviewer’s report

Title: Association of biomarkers of inflammation and cell adhesion with lung function in the elderly: a population-based study.

Version: 1 Date: 1 June 2013

Reviewer: Mario Di Napoli

Reviewer’s report:

I have the pleasure to read this interesting manuscript by Dr. Antje Kuhlmann and colleagues about the association between inflammation and cell adhesion markers with poor lung function in elderly people. In their study, the Authors found a significant association between leukocyte count, CRP and VCAM-1 and a poorer lung function assessed by FVC and FEV1. The manuscript is surely of interest and the argument is surely of interest for journal readers. However there are several points that deserve attention by the Authors.

Major Compulsory Revisions

1. The Authors suggest the use of inflammatory and adhesion molecules concentration as bio-marker of impaired lung function. However in their study design they didn't show any measure of bio-marker test performance able to confirm their hypothesis. From this point of view, it is difficult to accept work hypothesis. Please clarify this point.

2. Then I have several doubts about the use of multiple linear regression analysis. It is not clear in the manuscript is they checked for linearity, model misspecification bias, normality and equal variance, multicollinearity and the influential of data points. Please clarify and add supplemental materials to permit the readers to understand the goodness of the model.

3. The description of baseline characteristics of cohort is quite poor. It is not clear to me if the Authors check the confounding effect of cardiovascular comorbidities on the inflammatory and adhesion molecules levels. It is plausible that they reflect the presence and the severity of cardiovascular comorbidities. Please clarify.

4. In which way did they select the variables for the inclusion in the model without considering the distribution of confounding variables on bio-markers levels?

5. The association between inflammation and adhesion molecules bio-marker is quite poor (see Table 3). In which way did the Authors think that they could have a relevant clinical effect? Did the Authors think that them could be really useful in clinical practice. If yes they should demonstrate it with the appropriate statistical method (NRI, IDI, net benefit, etc)

Minor Essential Revisions

Please make statistical legends and abbreviations clearer and according to standard medical literature.
Using paste and copy there is a repetition of this sentence "in accordance with the American Thoracic Society recommendations" in spirometry paragraph.

**Level of interest:** An article whose findings are important to those with closely related research interests

**Quality of written English:** Acceptable

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

**Declaration of competing interests:**

'I declare that I have no competing interests'