Reviewer's report

Title: Matrix Metalloproteinase-9 Mediated Inflammation Persists up to 6 Months after Smoking Cessation

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Reviewer: Brigita Sitkauskiene

Reviewer's report:

The manuscript by Louhelainen et al. describes the results of a prospective study assessing the effects of smoking cessation on neutrophils, MMP-7, -8, -9 and TIMP-1 levels in induced sputum.

Major comments:

1) As the authors describe, smoking cessation is an important factor for the reduction of COPD and other airway inflammatory disorders progression. Twenty five asymptomatic smokers, 15 smokers with asthma, and 21 with chronic bronchitis and COPD were recruited to the study (according to the Table 1). The methodology/design employed in this study may be appropriate; however, the results obtained from all these groups were analyzed as pooled group. That is why it is unclear whether high levels of MMP-9 in induced sputum are present in COPD patients or other groups before and after smoking cessation (as well as levels of neutrophils, MMP-7, -8, TIMP-1). Moreover, it is known that expression of MMPs may be induced not only by smoking, but by the disease itself (Demedts et al. Thorax 2006; Babusyte et al. Respir Res 2007). Analysis of the results from all groups (‘healthy’ smokers, patients with asthma and COPD) should be presented and discussed separately. If these groups are too small for the statistical analysis, the study should be extended.

2) Furthermore, analysis of relation between (possible) decline of lung function and studied inflammatory markers, smoking history (pack-yrs) could be a matter of scientific interest.

Minor comments:

1) Introduction is a bit too long, and should be more addressed to the topic.

2) It is incorrect to call the smokers without respiratory symptoms as healthy (asymptomatic inflammation may persist).

3) Asthma was defined according to GINA? (Ref.?)

4) The subjects after smoking cessation were provided with ‘available pharmaceutical therapies’. They should be indicated as well as producers.

5) In Methods the authors indicate that some of patients showed positive skin test; however, they do not analyze or discuss this fact in the manuscript.

6) “Tryptan blue” must be “Trypan blue”
7) Cytocentrifuge preparations were made by Cytospin (manufacturer?).
8) In results: “The inflammatory profile in the sputum revealed neutrophil predominance as is often the case also in smoking asthmatics #4#”. The sentence is a part of Discussion.
9) Results, last sentence: “… the levels remained elevated (p#0.069)”. According to the ‘p’, result is non significant, that is why the proposition is incorrect.

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

**Quality of written English:** Acceptable

**Statistical review:** No, the manuscript does not need to be seen by a statistician.

**Declaration of competing interests:**

I declare that I have no competing interests.