Reviewer’s report

Title: Influence of condensation temperature on selected exhaled breath parameters

Version: 1 Date: 15 June 2005

Reviewer: Dariusz Nowak

Reviewer’s report:

General
This manuscript assesses the effect of cooling temperature (four different temperatures: -10, -5, 0, and +5°C) on parameters of exhaled breath condensate such as condensed volume, conductivity, concentration and total amount of hydrogen peroxide (H2O2) and malondialdehyde (MDA). Exhaled breath condensate (EBC) was collected from 24 healthy non-smoking subjects during 10 min. sessions with commercially available device TURBO-DECCS (equipped with electronically controlled refrigerating system based on Peltier effect, single use polyethylene device for direct EBC collection, mouthpiece with one-way valve). Each EBC specimen was screened for alpha-amylase activity to exclude the saliva contamination. The methods used for determination of these EBC parameters are adequate and have sufficient sensitivity and preciseness.

The authors found that increase in cooling temperature causes the rise of EBC conductivity and H2O2 and MDA concentration. In contrast, this caused the decrease in total condensate volume. By appropriate statistical analysis and calculations authors estimated usefulness of conductivity as a possible normalization factor and assessed ex vivo volatility of H2O2 and MDA. Finally, authors propose recommendations for EBC collection that could decrease bias related to EBC sampling and H2O2 and MDA measurement.

This study provides original data on ways of H2O2 and MDA exhalation in healthy subjects and also has sound methodological conclusions. They can be useful in future investigations devoted to non-invasive monitoring of inflammation and/or per-oxidative processes in the airways.

---------------------------------------------------------
Major Compulsory Revisions (that the author must respond to before a decision on publication can be reached)
What was the duration of the clinical part of study (EBC collection from 24 subjects)? If this exceeded 3-4 months the possible influence of climate changes on EBC parameters should be discussed.

Did author perform the control experiments i.e. four consecutive EBC collecting sessions at the same cooling temperature? The results of this experiment performed with e.g. 4-5 subjects for each cooling temperature should be described in the results section to provide data on baseline inter-sessions variability of EBC parameters.

Discussion (Page 13) “H2O2 and MDA were positively correlated… These data suggest … biological induction of hydrogen peroxide (a marker of inflammatory processes) could lead to enhance of in vivo oxidative stress, with increase in lipid peroxidation products.” This is a little too strong and not supported by obtained results. Study subjects were without any inflammatory processes especially in the respiratory tract.

---------------------------------------------------------
Minor Essential Revisions (such as missing labels on figures, or the wrong use of a term, which the author can be trusted to correct)
Was the collecting device equipped with flow meter? Authors mentioned (in “Results”) that there
was the significant correlation between volume of exhaled air and condensed volume.

Discretionary Revisions (which the author can choose to ignore)

**What next?:** Unable to decide on acceptance or rejection until the authors have responded to the major compulsory revisions

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

**Quality of written English:** Acceptable

**Statistical review:** No

**Declaration of competing interests:**

I declare that I have no competing interests.