Reviewer's report

Title: A Cross-sectional Study of Alterations of Serum Factors Associated with Lung Ventilation Function Impairment in Coal Workers

Version: 1 Date: 25 May 2011

Reviewer: Jean-Baptist du Prel

Reviewer's report:

1. General comments

The research questions posed by the authors add new and very interesting aspects of the association between serum markers, lung function parameters and the development of CWP in coal mine workers. These new aspects seem to me very important for future research in this area and for early diagnosis and prevention of CWP in coal mine workers. The research questions are clear and well defined. I strongly recommend to present these findings to the scientific community.

Regarding methods this section is well described. But I have some questions and comments to the methods in the minor compulsory revisions part.

The authors used two control groups for CWP cases, one control free of symptoms and the other with minimal respiratory symptoms. This procedure seems to be plausible because there is the possibility to compare alterations of serum factors with different levels of lung function impairment. May be the idea was also to enhance the power of the study by matching 1 : 2, but there is nothing said about sample size considerations in the article (see also my comments regarding sample size calculation in the minor compulsory revisions of this peer review).

Regarding adherence to relevant standards for reporting this is an observational study and therefore the STROBE-statement should be the adequate guideline for reporting. With exception of my revisions in the minor compulsory revisions the article seems to be in agreement with this standard.

The discussion and conclusions are well balanced and adequately supported by the data, with exception of some revisions (see minor compulsory revision section).

The title and abstract accurately convey what has been found. Please have look at my comments regarding the study design, only (see minor compulsory revisions).

The writing is well done, the text should be controlled for orthography, only (minor compulsory revision section).

2. Major Compulsory Revisions

None
3. Minor Essential Revisions

Regarding the study design it seems to me more a case-control-study than a cross-sectional-study, because the authors mentioned in the methods section that two matched control groups were selected for the CWP-cases. It would be interesting for the reader to know from which region and in which time interval cases and controls were recruited. If it was a cross-sectional-study it would be also interesting for the reader how the recruitment process of subjects was (Was it a random sample of coal miners? From which region, during which time period was this sample, e.g. to be representative for all coal miners in the region or even in China for a certain time interval and to have the chance of estimating the prevalence of CWP, which is also a function of cross-sectional-studies).

In the publication nothing is mentioned about the sample size calculation. For some associations, which show a tendency to statistical significance but are not significant it could be if there were more persons involved in the study these associations would be significant. The authors should at least consider this possibility in the discussion even if the study is conducted in an exploratory fashion, only. In the methods section nothing is mentioned how missing data were treated. Was it a complete case analysis? At least something should be said about the percentage of missing data (if there were any missings), the causes (e.g. drop-outs) and the way the authors decided to handle missing data.

There should be reported something about the distribution of the variables included in the ANOVA. For variables which are not normal distributed nonparametric rang-tests would be the better alternative. The same is true for the Pearson correlation coefficient (otherwise the non-parametric alternative, the Spearman correlation coefficient, might be appropriate).

Orthography should be revised, e.g. in the abstract under “Results” (second page) it should be “decreased” and “asymptomatic” instead of “deceades” and “Asymptomatic” in line 3 and “metalloproteinase-9” instead of “metaslloproteinase-9” in line 5 in the results section of the abstract. There should be several blanks inserted, too, e.g. in the first line of “Results” (on page 2) it should be “(FVC, FEV1, EF50, FEF75, FEV25-75%) instead of “(FVC, FEV1, EF50, FEF75,FEV25-75%)”. Please check also the main text for orthographic appropriateness e.g. first line on page 2 “Matrix” instead of “Mtrix” or “aged” instead of “Aged” on page 3 third paragraph, second line or “ (asymptomatic miners)” instead of “(Asymptomatic miners)” in line five. The authors should have a special focus on upper and lower case in their orthographic revision.

Regarding the statistical nomenclature in the abstract under “Results” (second page) the “P” for p-values should be written in lower case “p” (please check the whole text for it) and the p-value in line 4 of the results section of the abstract should be p < 0,0005 instead of p = 0,000 (statistical programs like SPSS have a limit of internal decimal places and so the analyst can’t know what numbers will follow on the next places).
On page 3 of the main text under “Methods” one internal decimal place for all means and standard deviations, e.g. for age, will be enough if you have 69 subjects, only.

Under Methods/Subjects on page 3 in the last sentence you made statistical tests to avoid selection bias. Did the authors test for differences between groups or for equivalence?

Last sentence on page 4: The “potential determinants” are “independent variables”. Is there some redundancy in this sentence?

4. Discretionary Revisions
None

**Level of interest:** An article of outstanding merit and interest in its field

**Quality of written English:** Needs some language corrections before being published

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

**Declaration of competing interests:**
I declare that I have no competing interests