Reviewer's report

Title: Impact Of Occupational Exposure On COPD

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Reviewer: Eva Hnizdo

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The objective of the present study was to characterize the clinical pattern of COPD, according to reported occupational exposure experience to vapors, dust, gases and fumes (VDGF).

The authors analyzed data from a cross-sectional study of COPD cases, all smokers. COPD patients with stable GOLD-based diagnosis (FEV1/FVC<0.70) were recruited from Jan 2005 to August 2008 to a cross-sectional study across France. Patients with asthma or other significant disease were excluded. Occupational exposure to VDGF was ascertained by a single question: “Have you ever worked in a job which exposed you to vapors, dust, gas, or fumes?”

The clinical pattern characterization was based on a questionnaire ascertained: hay fever, life-time atopic dermatitis, life-time asthma, respiratory symptoms of chronic bronchitis, shortness of breath, life-time wheeze, exacerbations, current sputum, current wheeze, SGRQ total score, and GOLD Stage I-IV categorization of the subjects.

The results show that those reported to be exposed to VDGF had higher prevalence of reported hay fever, life-time asthma and wheeze and were more likely to interrupt their work because of their respiratory problems. The result suggests that atopic background predisposes individuals with occupational exposure to the development of COPD.

Comments:

1. The authors report that spirometry was obtained according to international standards (Quanjer PH et al, 1993), yet pre-bronchodilator (pre-BD) spirometry data are not available. Were only post-BD tests obtained? Generally, post-bronchodilator spirometry is done to exclude patients with asthma. In Table 2, FEV1% is provided. Is this FEV1% predicted or the FEV1/FVC ratio this is not clear, also is this pre- or post- BD test?

2. The weakness of the study is lack of actual lung function data and comparison with predicted values, especially since the authors set up to characterize clinical characteristics of the patients. The GOLD Stage criteria, especially GOLD Stage I often includes individuals whose lung function is within the normal limits based on the 5th percent (i.e., LLN criteria) for healthy nonsmokers.

3. The authors should discuss that the results show that the patients exposed to VDGF had higher frequency of GOLD Stage I and lower Frequency of GOLD Stage IV category. Was this trend statistically significant?
4. The interpretation of the study is focused primarily on the increased prevalence of hay fever, asthma and wheezing in the exposed subjects. The authors should also point out and discuss the result showing that the unexposed cases had higher consumption of tobacco smoking (significantly higher pack-years) and much higher frequency of GOLD Stage IV (20.4 vs. 14.4%), suggesting higher prevalence of more serious impairment that may be driven by higher tobacco smoking consumption induced impairment (likely higher severity of emphysema, since very few occupational exposures cause emphysema on their own). Does the smoking consumption (pack-years) differ by the severity of impairment (i.e., GOLD Stage I-IV) between the two groups?

5. The authors report that they used JEM to identify the likely type of occupational exposure (mineral dust, biological pollutants, and gas, vapors, fumes). Yet, they never used the data to relate this exposure types to the presence of atopy, hay fever, asthma, and wheezing. Generally mineral dust does not increase the prevalence of asthma like disease, but those with asthma may be more affected by this exposure.

6. The discussion is often confusing and not focused on their own results. For example when discussing the role of atopy in the development of COPD related to occupational exposure, the authors never attempted to interpret their own data with respect to the type of exposure established by the JEM versus atopic status, etc.

7. The authors set out to assess interactions between exposure, smoking and atopy, yet they have not done any analysis regarding this objective. It looks like this objective was added as an afterthought. For example, the authors could have analyzed in more detail tobacco consumption, and type of occupational exposure by the severity of disease.

Level of interest: An article of importance in its field

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.