Reviewer's report

Title: Risk of Tobacco-Related Multiple Primary Cancers in Bavaria, Germany

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Reviewer: María Luisa López

Reviewer's report:

The subject of the article is multiple cancer, a problem with growing incidence which needs new insights into its etiology in order to be prevented.

The research question has been well defined and the method used is appropriate and has been well described as a whole.

We only propose a few changes in order to try to improve the article.

Minor revisions:

1) ABSTRACT. Change the last sentence of Results: “In both males and females ‘several’ groups…” to “In both males and females 6 groups of TRFPC were identified….. and these groups have been confirmed by other studies”.

2) METHODS. In the last paragraph of page 4: “121,631 TRFPC in men and 75,886 respective cancers in women were registered”. We suggest the sentence should end here. The rest of it should be moved to the beginning of the Results chapter. In order to do this we propose replacing the expression: “which 2.5% of male and 1.2% of female cancer patients were followed by at least one TRSPC” on page 4, with “During the following period (mean XXX years -o months-) 2.5% of male and 1.2% of female suffered from at least one TRSPC”, on page 7, at the beginning of Results.

On pages 13 and 14 the authors state that the SEER study classification of diagnosis groups is different from their study. Could they explain succinctly, in the Discusión chapter, what the differences are between both classifications and, above all, which they consider the most suitable for this type of study in the future, with the aim of permitting comparability between different countries and research projects?

3) DISCUSSION: In this chapter the authors describe yet again (they have already done it in Results) and compare the results, but they hardly try to explain the reason for the results obtained or the differences found. An authentic ‘discussion’ of the results is missing, except in the second paragraph on page 15: “In Finland .... diseased persons” where the findings are really explained and discussed.

Omit the heading on page 12 ‘Comparison with existing literature’ (only the heading, not the content).

Put the section ‘Limitations of our study’, on pag 11, at the end of the Discussion.
4) CONCLUSIONS: In our opinión the following paragraphs, which we do not at all consider conclusions in the present study, should be excluded from the Conclusions:

- A study of the National Cancer Institute (NCI) in Maryland revealed that 12 out of 55 (22%) lung cancer patients continued to smoke for at least six months after the diagnosis of lung cancer [31].

- Furthermore, lung cancer patients who stop smoking after the diagnosis of cancer show a steadily decreasing risk of TRSPC over time [31]. Since the relative 5-year survival rate of patients with cancer of the oesophagus, pancreas, and lung is below 23% in Germany [1], the efficacy of a rigid tobacco control policy especially with regard to these cancer types would be considerable.

Nor is it common to include quotes in the conclusions.

We think that in the second paragraph of the conclusions that begins “Our results confirm…….subsequent malignancies at an early stage”, it would be interesting to add the following sentence: “the advice to quit smoking and the offer of quit smoking programs for all patients with cancer, in order to avoid multiple cancer”.

Discretionary revisions:

1) RESULTS. The value of EAR on page 8 (98.07) should be the same as the one in table 2 (98.1). Choose one of the two values and repeat it in the text and the table. The same has occurred with the EAR value 102.86 in the text and 101.9 in the table.

2) DISCUSSION. In the first paragraph on page 10 “Among both men and women…..tobacco smoke could not be confirmed as a main risk factor”, explain why it is correct to affirm this last point, if a significantly increased risk of subsequent malignancy has been found, according to fig 1.

In the sixth paragraph on page 11 “Secondly, only crude data…… to evaluate possible risk differences”, the following could be added: “A study that analyzed, among other factors, the influence of the treatment of the first breast tumour on the multiple cancer found that the host characteristics related to previous pathologies and some risk factors, such as tobacco, increase the second malignancy risk much more than the breast cancer characteristics or its treatment”. See: Risk factors for second primary tumours in breast cancer survivors. Eur J Cancer Prev 2008; 17:406–413.

3) REFERENCES:

4) TABLES:
Use either capital or small letters for “site of first primary cancer” in Tables 1 and 2.

It may be confusing that Tables 2 to 7 have the same title. Could the authors find
other more specific ones? For example: Table 2 - Risks of TRSPCs by site 
(mouth/pharynx and oesophagus) and sex, Bavaria, 2002-2008..., etc.

**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' below. If your reply is yes to any, 
please give details below.