Reviewer's report

Title: Smoking, environmental tobacco smoke and risk of renal cell cancer: a population-based case-control study

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Reviewer: Paolo Vineis

Reviewer's report:

This is overall a well written paper that addresses a potentially relevant public health issue, ETS and renal cancer. The authors are accurate in the statistical analyses and in a critical account of their work. However, there is a serious problem i.e. a very low response rate among the controls (42%). Clearly, it is hard to make any inference on a weak association like the one expected with ETS, with such a low response rate and the ensuing risk of selection bias, etc. The authors are aware of the problem but this does not detract from the limitations of the paper.

My suggestion is to try to find a different source of information on the prevalence of ETS exposure in the same age groups in the same population, to judge whether the estimate for controls is realistic. The response rate among cases is much higher (73%).

An important risk factor for RCC is also hypertension, which does not seem to be mentioned.

Of course it is totally implausible that the risk associated with ETS is larger than the risk associated with active smoking, since active smokers are also passively exposed.

Level of interest: An article of importance in its field

Quality of written English: Acceptable

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