Reviewer’s report

Title: Mobile phones and head tumours. The discrepancies in cause-effect relationships - how do they arise?

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Reviewer: Lennart Hardell

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Mobile phones and head tumours. The discrepancies in cause-effect relationships – how do they arise?

This is a comprehensive review of use of wireless phones and the association with tumours in the head region, primarily brain tumours. The text is fluent and brings the issue further in a logical way. However, some of the sentences are long and the authors may consider to in addition use an editing service company.

Major Compulsory Revisions:

Page 7, 3rd paragraph:
‘This pattern is not due to errors or..’
consider to change to something like ‘This pattern indicates that the results are not due to errors or..’

Pages 7 and 8:
It is not quite clear how the numbers for different exposure categories were obtained. Note regarding brain tumours that the numbers of exposed cases in different categories, e.g. > 2000 h cumulative use, at least 10 years exposure etc., are not correct, seem to be added from different publications of the studies from the Hardell group. Several publications come from the basic material that can be found in references number 1, 2 and 62. It is doubtful if ORs and numbers can be counted several times for the same material.

Page 8:
References are made to studies that show e.g. DNA damage and blood-brain barrier damage. However, there are also studies that show no effect. Reference and some discussion should be made to these studies also.

Page 9, 1st paragraph:
‘..the percentage of exposed cases and controls was below 30 %, which indicates the presence of a substantial selection bias.’ This seems not to be a correct statement as it stands. It might indicate recall bias, that is not correct reporting of use of mobile phones, but also indicate that during the time these studies were performed use of mobile phones was less prevalent.
Page 10, 2nd paragraph:
Regarding the discussion on RF emissions from cordless phones consider to add the following reference:

Page 10:
Note that regarding the Interphone studies the same discussion as re. the Hardell group studies (pages 7-8 above) is valid. Note for example that reference no 49 (Lahkola et al) includes other Interphone studies that have been separately published. Thus the numbers should not be counted twice.

Page 11:
Different types of bias may be discussed for case-control and cohort studies. This should be more clear in this paragraph. Thus, selection bias may exist in both types, recall bias only in case-control studies etc. Especially a 'healthy worker effect' may exist in a cohort study and explain some of the results.

Minor Essential Revisions:
Page 12, 3rd paragraph:
Change the word 'manipulated' to 'selective'.

Page 13, 3rd paragraph:
Change the word 'manipulated' to 'selective'
Note that this sentence is too long – just one sentence for the whole paragraph.

Page 14, 2nd paragraph:
Change 'flows' to 'flaws'.

Page 14, 3rd paragraph:
..marked prevalence of OR values # 1
explain #

Page 15, 2nd paragraph:
..reduction in risk (# 30%)...
explain #

Page 16, 1st paragraph:
..number of non-users subjects..
change to:
..number of non-user subjects..
Level of interest: An article of importance in its field

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

Statistical review: No, the manuscript does not need to be seen by a statistician.

Declaration of competing interests:

No conflicts of interest exist.