Reviewer’s report

Title: Use of Neuroleptics in a General Hospital

Authors:

raquel barba (rbarba@fhalcorcon.es)
javier bilbao (jbilbao@fhalcorcon.es)
helena martin-alvarez (hmartin@fhalcorcon.es)
carlos guijarro (cguijarro@fhalcorcon.es)
virgilio castilla (vcastilla@fhalcorcon.es)
isabel gonzalez-angiada (igonzalez@fhalcorcon.es)

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Reviewer: Dr Johan Fastbom

Level of interest: A paper whose findings are important to those with closely related research interests

Advice on publication: Unable to decide on acceptance or rejection until the authors have responded to the compulsory revisions

Discretionary revisions

Minor comments

1. Abstract, page 2, paragraph 2, line 3: "Fifty two percent were demented or agitated" Were not all of these agitated? According to Results, 52 percent were prescribed neuroleptics due to agitation

2. Abstract, page 2, paragraph 3, line 5: "27% of the surviving non-demented cases and 2.6% of controls". This sentence would be more clear if it was written for example "27% and 2.6% of the surviving previously non-demented cases and controls respectively..." or better "27% of the surviving cases and 2.6% of the surviving controls who were judged non-demented at admission...".

3. Results, page 8, paragraph 1, line 3: Were the neuroleptics prescribed at hospital or did some of the patients have them before? This is not clearly stated. If they got the neuroleptics at hospital, please clarify by writing e.g. "was prescribed during the stay".

4. Results, page 8, paragraph 1, line 5: "Criteria" should be "Indication".

5. Results, page 9, paragraph 3, line 3: Change "before admission" to "at admission".

6. Results, page 9, last paragraph: Please clarify that the percentages are based on the samples described in the previous paragraph, i.e. those that were judged non-demented at baseline (admission) and did not die or drop out for other reasons.

Language/spelling
Compulsory revisions

Major

9. The abstract needs more details about the study design. For example the age range of the subjects is not mentioned.

10. Background, page 4, paragraph 2, line 4: Exactly which "adverse outcomes" were studied. Please specify.

11. The age range is very wide (18+). Thus the study population is probably very heterogeneous, for example regarding the indication for treatment and certainly the incidence and prevalence of dementia. It would have been more appropriate to select one population of old people, which presumably comprises the major part, or at least to stratify by age.

12. As it is now, the paper does not provide any information about different age groups, not even the numbers in each. A table describing the demographics is recommended.

13. The dementia diagnosis is not based on standard criteria or neuropsychological tests. This is a major limitation which is appropriately discussed by the authors. However, very little information is given about the diagnostic procedure. This needs to be explained in full detail.

14. Also, it appears - although it is not clearly understood from the text - that a different procedure was used for the dementia diagnosis at admission and three months after. In addition the diagnosis seems not to have been made by the same person/s. If this is the case, it is a major drawback that has to be thoroughly discussed.

15. A considerable number of patients dropped out, due to death or other causes. In addition there were more drop-outs in the neuroleptic group. Since dementia diagnosis was not obtained from those who died, there is a risk of bias. The cause of death in the two groups may have been quite different, and maybe also the prevalence of dementia among the dead. This has to be discussed!

16. The follow-up period was very short (3 months), in order to study incident dementia.

17. As I understand it, the analysis of the two groups combined, described on page 10, does not seem appropriate. The two groups are both very selected, based on neuroleptic use, and together they do not constitute a normal population sample.

18. The discussion ends somewhat abruptly. It would be appropriate to have a conclusion here.

Minor

19. The terminology needs to be consequent. The group of neuroleptic users should be named for
example "neuroleptic users", and the controls "controls" throughout the paper. In the present version this varies quite a lot. See for example page 2, paragraph 2, line 7; page 6, paragraph 3, line 2; page 8, paragraph 2, line 4; and page 9, paragraph 3, line 3 and 4. The definition of the terms should be given, both in the abstract and materials and methods. Avoid the term "cases" as it normally refers to cases in case-control studies.

20. Generally the "non-demented" groups should be clearly defined in the text. They are often referred to as "non- previously demented" or even just "non-demented". Use more exact descriptions as for example: "non-demented at admission" or "judged non-demented at admission".

21. Table I: Explain, in legend or footnote, what the ORs represent.

**Competing interests:**

None declared.