Reviewer's report

Title: Antihypertensive drug treatment changes in the general population. The CoLaus study

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Reviewer: Eric Dietrich

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Manuscript title: Antihypertensive drug treatment changes in the general population. The CoLaus study

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The purpose of the article is to assess the changes in hypertension treatment in a population in Switzerland. The methods are clearly defined and the categories of study subjects (continuers, discontinuers, etc.). The study results appear consistent with the aim of the study and appear to be accurately represented.

Listed below are additional specific comments:

Major Compulsory Revisions:

The four categories of study subjects appears straightforward (continuers, discontinuers, combiners, switchers). However, many patients are likely to begin therapy on a low dose of single antihypertensive to ensure tolerability prior to dose escalation. Therefore, it would seem important to determine if dose escalation was attempted as it is reported that 22.1% of continuers became hypertensive. Were the drug doses for these patients simply not titrated appropriately to achieve blood pressure targets? If possible it would be relevant to include information regarding dosing. If this information is not available the results of the study are not likely to be significantly impacted, but it may be important to state that information regarding dosing was not directly available for analysis.

At the start of the second paragraph under the section “Antihypertensive drug treatment and blood pressure status” (top of page 6) continuers are defined as “participants continuing the first line medication....” The use of the term “first line” may be misleading here as it is unclear whether or not patients were started on an appropriate first-line agent; the use of reserpine was noted (albeit in a small minority of study subjects) which would not be classified as first line. Therefore, please consider changing “first line” to “initial treatment” as this will also be more consistent with the definition of combiners (“...treated with an additional antihypertensive class but continuing the initial medication”).

In the results section “Factors associated with changes in antihypertensive drug treatment” (page 8) the second sentence reads “SBP and DBP differed
significantly between groups.” It is unclear which two groups are being compared.

The section titled “Impact of changes in antihypertensive drug treatment on blood pressure status” is of particular clinical importance and will be useful for readers.

As noted above, it may be prudent to note in the study limitations if information regarding specific drug doses were not available for analysis.

Table 1 is a concise and well-constructed table with valuable information.

It is unclear in Table 2 what the p-values noted in the far right column are referring to. As there are four groups and multiple different comparisons that are possible it may be worthwhile to specifically state what specific comparison the p-value is being reported for. Although the data in this table is relevant, the length of the table (2 full pages) may be too much and be distracting. As the table is very detailed and specific it is a bit overwhelming to try to review the information contained within it. Please consider making the table more concise.

Minor Compulsory Revisions
The section “Factors associated with changes in antihypertensive drug treatment” in the Discussion section (page 10), although thorough and well written, may be too long and take up too much of the discussion section. This section may be more useful and practical if it is condensed somewhat.

Discretionary Revisions
A significant strength to this study is long-term follow-up and blood pressure status of study participants. It would be very useful if hard cardiovascular outcomes such as non-fatal myocardial infarction, non-fatal stroke, and cardiovascular death could be analyzed and compared between groups and different levels of blood pressure control. The study results could be significantly strengthened if these outcomes could be incorporated into the manuscript, as it would lend a substantial amount of clinical relevance.

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