Reviewer’s report

Title: Incident Gout and Chronic Kidney Disease: Healthcare Utilization and Survival

Version: 0 Date: 07 Sep 2018

Reviewer: Angelo Gaffo

Reviewer's report:

This is a nicely written manuscript and a timely topic. Overall I find the hypotheses sound and the analysis interesting. I have some questions about the methods and suggestion to improve the quality of the manuscript, these follow:

- Throughout the manuscript would replace "serum uric acid" for "serum urate" as described in the recently published gout nomenclature.

- The background section fails to build the narrative towards the objective of the study. I do not see a link between gout/treatment of gout/poor gout care/gout and CKD into health care utilization in gout and CKD. I think a link could be that heath care utilization in gout is high (there is data on this) and that is expected that it will be higher in gout/CKD but there are no studies, the authors would be trying to fill in this gap. Probably some other aspects of the introduction could be shortened or eliminated.

- Page 8, line 174 "pseudo" should be "pseudogout", I think

- I fail to grasp the healthcare resource utilization calculation and results. I see is the average per patient of the different measures (GP visits, specialist visits, etc) but cannot understand the final unit change in healthcare utilization. I think this deserves further explanation. Is this a standards process to analyze health care utilization. If so, the authors might want to provide a reference.

- I wonder if all health care utilization is equal. For example, frequent visits to GP or specialist, measurements or urate levels, allopurinol refills are not undesirable and might lead to less healthcare utilization related to, most notably, hospitalizations. Frequent visits might be needed to adjust allopurinol doses, educate the patient, or other important features of gout care.

- Do the authors have access to data on emergency room visits? This is an expensive and undesirable feature of healthcare utilization (along with hospitalizations) that would be interesting to count. If not, I might consider this a limitation

- The data on mortality is interesting. However, when comparing gout patient mortality with and without CKD my natural question will be: how is this different than the increased mortality in any individual with and without CKD? What I believe would be an interesting calculation would be to obtain a standardized mortality ratio comparing the ratio of gout patients with and without CKD with the ratio in the general population with and without CKD. Them you could argue that
is the combination of gout and CKD conferring a particular increase in mortality, that you are not just seeing the effect of CKD

-Is there a possibility of misclassification of gout? Would be misclassification be non-differential? I personally think the gout definitions taken by the authors are good, but would compare their definitions with others taken in the epidemiological literature.

**Are the methods appropriate and well described?**
If not, please specify what is required in your comments to the authors.

Yes

**Does the work include the necessary controls?**
If not, please specify which controls are required in your comments to the authors.

Yes

**Are the conclusions drawn adequately supported by the data shown?**
If not, please explain in your comments to the authors.

Yes

**Are you able to assess any statistics in the manuscript or would you recommend an additional statistical review?**
If an additional statistical review is recommended, please specify what aspects require further assessment in your comments to the editors.

I am able to assess the statistics

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