Reviewer's report

Title: Older renal cell cancer patients experience increased rates of venous thromboembolic events: a retrospective cohort study of SEER-Medicare data

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Reviewer: Adam Metwalli

Reviewer's report:

The control group of non-cancer patients were frequency matched for age but not comorbidities that might modify VTE risk. I think this is inadequate and as a result cannot provide a reasonable control group. Do we know if the non-cancer group had higher or lower rates of anti-platelet therapy or anti-coagulant use? Do they have or not have comorbidities that modify VTE risk? this is not sufficiently described in the methods.

There is a tremendous amount of data shown in the tables but I do not think it is as clearly presented as it should be and so the impact of some of the data is lost. For example, there appears to be a protective effect of nephrectomy for DVT and PE. Was that difference statistically significant? Not only is that not shown, but this finding is not discussed. More than likely this reflects the difference in VTE risk based on stage. But the same criticism is true for increasing risk/HR of VTE with more advanced disease (local vs regional vs distant). In addition, the hazard ratios shown in Table 2 are interesting but an associated p-value would be good to see there as well.

Table 3 is difficult to interpret. In the non-cancer cohort, how did you determine a before vs after incidence if they do not have a cancer diagnosis? What is the event that is used for the non-cancer cohort? This needs to be more clearly explained. Furthermore, the bottom half of the table describes modifying events such as atherosclerosis, but it is not clear if this only for the RCC-diagnosis group, the non-cancer group or all of them. A more interesting and useful measure would be to compare the RCC vs non-cancer groups using these parameters. If that is what you've done then you need to make that more obvious.

In all, I think the premise of the manuscript is one that is well worth pursuing, however I do not think the data is presented in a way that provides adequate information worthy of publication. I commend the authors on their effort and recommend revision and re-submission.

Level of interest: An article whose findings are important to those with closely related research interests

Quality of written English: Acceptable
Statistical review: Yes, but I do not feel adequately qualified to assess the statistics.

Declaration of competing interests:
I declare that I have no competing interests