Reviewer's report

Title: Bleeding and first-year mortality following hip fracture surgery and preoperative use of low-dose acetylsalicylic acid: an observational cohort study

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Reviewer: Anna Miller

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This is a very interesting study question that has been explored in many ways, especially in the arthroplasty literature – does preoperative low-dose acetylsalicylic acid (ASA; defined by the authors as <320 mg daily) use affect hip fracture patients. The authors use their cohort of patients from a previous study to try to answer this complicated question. The methods are appropriate, however, as they mention in their discussion, since this cohort was actually chosen for another purpose, it may not be the ideal methodology to get the maximum amount of information for this particular study.

Major Compulsory Revisions:

1) Authors should explain what happened to the 222 patients not included in the study cohort (p. 8, Results, Paragraph 1).

2) With the increased blood loss in an intertrochanteric (extracapsular) vs. subcapital (intracapsular) hip fracture, authors should further delineate differences in these two subgroups and whether they influenced the findings of this study as they have in others (see their own Reference #10)

3) Examination of M vs. F patients, since their own discussion states that women often have higher acetylsalicylic acid blood concentrations than men.

4) Do they have any explanation for why the preoperative ASA patients had more thromboembolic events? If they had the same postoperative regimen, the same types of fractures, and a statistically significantly higher aPTT and INR preoperatively, this doesn’t seem to make sense. In addition, any explanation for why these patients had a “significantly” higher aPTT and INR (although from the Table, it appears that the numeric differences are actually quite small), since ASA is metabolized through the kidneys and doesn’t affect aPTT or INR?

5) Is it possible for them to do any further characterization of the ASA dosages? Clearly 75-320 mg is a large span, and, in their discussion, they mention that “most side effects of acetylsalicylic acid are dose-related,” so perhaps they should further break down the cohort and assess whether more of these complications were in the higher “low dose” population.

6) Authors should include reference to and discussion of the following relevant article and how their article adds differently to the literature, as their conclusions are in stark contrast: “Manning BJ, et al. The effect of aspirin on blood loss and transfusion requirements in patients with femoral neck fractures. Injury. 2004
7) The authors should discuss why they believe that the increased post-operative mortality is due to pre-operative ASA use, as opposed to the significantly increased numbers of patients with HTN, cerebrovascular, and cardiovascular disease in the pre-operative ASA group.

**Level of interest:** An article of importance in its field

**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.