Reviewer’s report

Title: Effects of Intravenous Hydration on Risk of Contrast Induced Nephropathy and In-hospital Mortality in STEMI Patients Undergoing Primary Percutaneous Coronary Intervention: A Systematic Review and Meta-analysis of Randomized Controlled Trials

Version: 0 Date: 30 Dec 2018

Reviewer: Marwan Saad

Reviewer’s report:

Title: Effects of Intravenous Hydration on Risk of Contrast Induced Nephropathy and Mortality in STEMI Patients Undergoing Primary Percutaneous Coronary Intervention:

A Systematic Review and Meta-analysis of Randomized Controlled Trials

Liu et al conducted a systematic review and meta-analysis of RCTs comparing prophylactic IV hydration versus no hydration at the time of primary PCI in STEMI patients. The authors concluded that compared with no hydration, IV hydration was associated with reduction in the incidence of CIN.

I would like to congratulate the authors for their work. I have few comments to consider:

1. It may be more accurate to report the weighted incidences of the outcomes rather than unweighted incidences, with the sample size of each trial being its weight.

2. I assume that these outcomes are all in-hospital outcomes as mentioned in the figures. This has to be more clear in the title and throughout the manuscript.

3. What was the weighted mean duration of following the creatinine level after primary PCI?

4. Did the included trials report the mean duration of IV hydration used?

5. In table 1, the authors reported some of the baseline characteristics of the cohort of each study. However, it is also important to report and statistically compare the baseline risk factors of the 2 arms (if reported by the studies), as this may impact the outcomes (ex. baseline creatinine and GFR, DM, female sex, etc.)

6. The authors reported that they used GRADE tool for assessment of risk of bias, however I do not see it reported. The authors may want to include the table for GRADE tool for assessment of quality of evidence at each outcome.
7. In absence of details regarding the characteristics of the included STEMI patients (such as baseline EF, outcomes of primary PCI, TIMI flow after primary PCI, coronary anatomy, etc.) it would be hard to comment on the outcome of in-hospital mortality in relation to IV hydration alone. In-hospital mortality after primary PCI is largely related to the area of jeopardized myocardium, clinical and electrical instability, success of primary PCI etc.. The authors should elaborate on that in the discussion.

**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

**Quality of written English**
Please indicate the quality of language in the manuscript:

Acceptable

**Declaration of competing interests**
Please complete a declaration of competing interests, considering the following questions:

1. Have you in the past five years received reimbursements, fees, funding, or salary from an organisation that may in any way gain or lose financially from the publication of this manuscript, either now or in the future?

2. Do you hold any stocks or shares in an organisation that may in any way gain or lose financially from the publication of this manuscript, either now or in the future?

3. Do you hold or are you currently applying for any patents relating to the content of the manuscript?
4. Have you received reimbursements, fees, funding, or salary from an organization that holds or has applied for patents relating to the content of the manuscript?

5. Do you have any other financial competing interests?

6. Do you have any non-financial competing interests in relation to this paper?

If you can answer no to all of the above, write 'I declare that I have no competing interests' below. If your reply is yes to any, please give details below.

I declare that I have no competing interests

I agree to the open peer review policy of the journal. I understand that my name will be included on my report to the authors and, if the manuscript is accepted for publication, my named report including any attachments I upload will be posted on the website along with the authors' responses. I agree for my report to be made available under an Open Access Creative Commons CC-BY license (http://creativecommons.org/licenses/by/4.0/). I understand that any comments which I do not wish to be included in my named report can be included as confidential comments to the editors, which will not be published.

I agree to the open peer review policy of the journal