Reviewer’s report

Title: The Top Tertile of Hematocrit Change During Hospitalization is Associated with Lower Risk of Mortality in Acute Heart Failure Patients

Version: 0 Date: 28 Jun 2017
Reviewer: Johann Auer

Reviewer’s report:

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This study investigated whether changes in volume status among patients hospitalized with acute heart failure (AHF) and is associated with a favorable outcome.

The authors enrolled 510 consecutive patients hospitalized for AHF and hematocrit (HCT) levels were measured at admission and discharge or close to day 7.

Based on the results the authors conclude that In patients hospitalized with AHF, changes of HCT concentration during hospitalization is a significant independent predictor of survival. An increase in HCT during hospitalization is associated with lower risk of all-cause mortality relative to no change or a decrease in HCT.

No change or a decrease in HCT showed no difference in risk for all-cause mortality.

The paper is well written. However, there are some major points that have to be addressed:

Previous studies including the paper by Testani and colleagues (J Am Coll Cardiol. 2013 Aug 6; 62(6): 516-524.) report similar findings. Additionally, this paper found that only hemoconcentration occurring late in the hospitalization was associated with improved survival. Did the authors find similar results?

The data should be analysed for this remarkable finding.

Which are the novel findings of this study? Is this study confirmatory only?

This should be thoroughly discussed.

The design of this study cannot confirm causality. This, any findings are hypothesis generating. This should be clearly stated, thoroughly discussed and added to the limitations section.
The authors should add information on diuretic doses used in individual patients. Did diuretic dose (any possibly renal function) significantly correlate with HCT (and outcomes)?

Did the authors perform sample size calculation?

**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.

No

**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**
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Needs some language corrections before being published

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