Reviewer's report

Title: Postdialysis Blood Pressure Rise Predicts Long-term Outcomes in Chronic Hemodialysis Patients: A Four-Year Prospective Observational Cohort Study

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Reviewer: Jula Inrig

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This article is a prospective cohort of 115 prevalent hemodialysis patients which seeks to determine whether an increase in postdialytic BP is associated with higher 4-year cardiovascular mortality and higher all-cause mortality at 4-years of follow-up. This has been a recent area of investigation and a number of other studies have shown intradialytic increases in BP to be predictive of mortality. This study seeks to expand these prior findings and elucidate if the adverse outcomes persist with longer follow-up.

The major strengths include 2 months of BP readings and the addition of CV endpoints. The major limitation is that this is the smallest cohort to date to investigate the relationship between BP rise pre-to-post dialysis and thus has limited power to adjust for confounders. Thus, these results should mainly be considered confirmatory.

Finally, the authors hypothesize that poor survival among patient with intradialytic BP rise may be related to volume overload, but they did not measure EC volume nor did they challenge dry weight to answer this hypothesis. CT ratio is not a validated measure of extracellular volume and thus this study cannot further our understanding of the mechanisms of intradialytic BP rise.

Major Compulsory Revisions

1. Please modify your conclusion statements in your abstract and discussion. This research shows an independent association between BP rise post HD and poor outcomes. It does not elucidate how to treat these patients. A more appropriate abstract conclusion would be “A postdialysis SBP rise in HD patients independently predicted 4-year cardiovascular and all-cause mortality. Considering postdialysis SBP rise was associated with higher CT ratio, intensive evaluation of cardiac and volume status should be performed in patients with postdialysis SBP rise.”

2. There are 2 new research studies published in cJASN (6: 2016-2024, 2011 and 6:1684-1691, 2011) that reveal patients with intradialytic hypertension have higher interdialytic ambulatory BP as well as impaired endothelial cell function. Consider adding to introduction and discussion section

3. How was “postdialysis SBP rise” defined? Was it based on the change from beginning of dialysis or was it from the end of dialysis to after dialysis. Please define this in the Bp section.
4. Was the change in BP during HD analyzed as a continuous variable? If not, why not? Was the relationship non-linear? Please discuss.

5. With only 40 events, the authors have overanalyzed the data and included numerous testing which increases the likelihood of a type 1 error. I am reassured that the final results are similar to univariate analyses but this needs to be acknowledged.

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

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