6/26/2021

We would like to thank the editor and the reviewers for the time that they spent on the review of our manuscript and for their insightful suggestions. We have revised the manuscript based on these recommendations and made the requested modifications. I think they have helped us significantly improve the quality of the manuscript and hence would like to express our sincere appreciation.

Following is the point-by-point response to those comments.

Reviewer(s)' Comments to Author:

Reviewer#1

I am grateful for the opportunity to review this interesting manuscript about the Doppler ultrasonography applications for the evaluation of venous congestion in the bedside context. The paper is well-written, the topic is of clinical interest and good figures are included.

Thanks for your kind comments.

I only suggest the following minor revisions:

In the “Normal Venous Doppler flow patterns” paragraph a better description of the venous waveform morphology is needed; in particular, authors should report the three main venous flow patterns: respirophasic, continuous and pulsatile.

We have now added this information. Thank you.

As for central veins, the authors reported only inferior vena cava evaluation; in this regard, I suggest including internal jugular assessment for the hemodynamic status of congestive patients.

We have now added a paragraph on IJ vein ultrasound including pertinent references.

I really appreciate the description of the “pulsatility fraction” as a quantitative marker of portal vein Doppler alterations, so I suggest including the “venous impedance index” for the assessment of Doppler renal venous flow.

Thank you, we have now included information on both venous impedance index and stasis index.

I recommend including a table depicting the advantages and limitations of the different sonographic venous flow patterns depending on the different sites you described in the manuscript.

Table 1 added.

Reviewer#2

1. What is the meaning of over jealous volume removal? could you explain or clarify
   Thank you for pointing that out. We have now changed the sentence to, “excessive volume removal targeting a normal IVC diameter and collapsibility is not in the best interest of these patients.”

2.It was stated that in cardiac surgery patients, altered intra-renal Doppler pattern was shown to be a strong predictor of AKI. However, this was not replicated in less selected populations of critically ill patients, can you further explain the reason for this finding.

This sentence serves as an explanation – “Given the multitude of etiologies of AKI in addition to venous congestion (such as tubular injury) in such patients, this lack of association is not surprising”. Thank you.

2. It was stated that Doppler Evaluation of venous congestion can point to renal congestion as the cause of renal hypoperfusion, could you give detail information and explanation on this statement.
   We have now improvised this sentence by adding the phrase, “…renal hypoperfusion by demonstrating the effects of raised RAP on venous outflow”. Hope it conveys the meaning better. Thanks.

3. Also, I suggest superior vena cava assessment of congestion could be included in this review.
   We have now included a section on IJ vein and SVC assessment.

   Sincerely,
   Abhilash Koratala, MD
   Corresponding author