Reviewer’s report

Title: The role of the specialized team in the operation of continuous renal replacement therapy: a single center experience

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Reviewer: Udayan Bhatt

Reviewer's report:

The manuscript entitled "The role of the specialized in the operation of continuous renal replacement therapy: a single center experience" is a retrospective study whose objective is to study the association of implementation of a specialized CRRT team on therapy performance and patient outcome.

For this study, the investigators reviewed charts from patients undergoing CRRT before and after implementation of a specialized CRRT team. The specialized CRRT team consisted of one nephrologist and two nurses. These individuals were "responsible for the operation and management of the CRRT machine and procedure. The main duty of the CRRT team was to initiate and manage the CRRT". The specialized team was deployed in March 2013. The investigators compared CRRT performance and patient outcomes pre-specialized team implementation (i.e. from the time period of 2011 to 2013) to post specialized team implementation (i.e. from 2013-2015). The authors found that with utilization of the specialized CRRT team, patients experienced reduced initiation time to CRRT, less CRRT downtime, and less CRRT down time per day. In addition, the investigators found a lower all-cause mortality rate in the time period after implementation of the CRRT team. In addition, the authors studied factors associated with all-cause mortality and CRRT mortality. Factors found to be associated with all-cause mortality in multivariate analysis included serum albumin, CRRT operation duration, CRRT initiation time, SOFA score, and INR. Factors found to be associated with CRRT mortality included total protein, CRRT initiation time, SOFA score, and INR. These associations were determined in multivariate analysis.

Overall, this study was methodologically well done and the statistical methods used were appropriate for the project.

The value of this study stems from the fact that improved CRRT performance and patient outcomes can possibly be associated with deployment of a specialized CRRT team. The strengths of this study include the fact that this was a large study done over a period of 4 years. Also, this study correctly emphasized the importance of limiting interrupted treatment time and
possibly earlier initiation times in patients undergoing CRRT. Despite this, the study does have some weaknesses. Obviously, the lack of randomization and the separation of 2 study groups by a difference in time periods creates a possibility of different subject characteristics between the 2 groups. In fact, vasopressor use and ventilator use was lower in the post CRRT team implementation time period. In addition, team implementation did not directly influence patient mortality but it did so indirectly by the association between team implementation and improved CRRT initiation time.

The main suggestions I would have includes improved definition of the variables including initiation time, down time, and how variables such as CRRT initiation time was defined in mortality analysis. In addition, given the differences in the two groups, I would suggest using multivariate linear or logistic regression in the analyses that were performed for and displayed in Table 3.

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

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