Reviewer’s report

Title: Impact of non-dialysis chronic kidney disease on survival in patients with septic shock

Version: 1 Date: 18 December 2012

Reviewer: Peter Yuen

Reviewer’s report:

In this well written retrospective study Maizel J et al. analyzed the impact of non-dialysis chronic kidney disease on survival in patients with septic shock. Although the sample size was small, the study was well conducted. The authors were able to test their hypothesis by using two models to compare survival following septic shock at 28 days and 1 year in patients with and without pre-dialysis chronic kidney disease. The main conclusion of this study is that serum creatinine on admission does not predict mortality, while the baseline presence of CKD does.

A few concerns/questions should be addressed:

1. In this study only the first incident of septic shock is considered. Is there a difference in the number of septic shock events between the two groups?

2. In a typical backward multivariate Cox Regression analysis all variables are at first included in the analysis and then variables, which do not reach a significance threshold, are successively removed. The methods state that baseline eGFR or CKD status are successively included, which would be more consistent with a forward or stepwise analysis. Please clarify the procedure used for this analysis.

3. What was the average (±error) time between baseline serum creatinine and septic shock onset (more detail beyond < 3 months)?

4. When patients did not have baseline eGFR, serum creatinine was collected after the septic shock for eGFR calculation using MDRD. How long after the shock was this creatinine measured and considered for eGFR calculation?

5. The number of patients with CKD (56) among the 212 patients is already high (34%). When you consider the patients excluded for being on chronic hemodialysis or for past history of kidney transplant, 43% of patients with septic shock have CKD. The prevalence of CKD among patients with septic shock is very high in this study. Although the study of CKD prevalence was not the main goal, it could be briefly discussed in the paper.

6. On page 7 the mortality rates given in brackets are switched with respect to the text. These should be ‘70% vs 50%’ rather than ‘50% vs 70%’.

7. Including SAPS II in the models causes other variables to drop below the significance threshold and others to rise above the threshold. This latter change may be unexpected to someone without a firm understanding of statistics. Would including a brief explanation in the discussion be possible?
8. The methods section indicates that all data are expressed as median and interquartile range. Is baseline eGFR presented as mean±S.D in the abstract?

9. As stated the economic burden of sepsis in the United States is nearly $17 billion, but the reference for this figure was published in 2001 and based on data from 1995. Do any subsequent studies have more recent estimates for either the United States or other countries?

10. In table 4 Model 2 + SAPS II the text and the values are incorrectly aligned.

**Level of interest:** An article of importance in its field

**Quality of written English:** Acceptable

**Statistical review:** Yes, and I have assessed the statistics in my report.

**Declaration of competing interests:**

no competing interests