Reviewer's report

Title: Effects of crystalloid fluids resuscitation on cardiac function in patients with severe sepsis

Version: 1 Date: 8 October 2007

Reviewer: Sean Bagshaw

Reviewer's report:

General

Thank you for the opportunity to review this manuscript. The authors have conducted and report a small randomized trial of 3 fluid types for initial resuscitation in sepsis. This is an important and active area of investigation. This is a difficult topic for study and I applaud the authors efforts. I do have a few concerns that I think the authors could address prior to publication that I will highlight below.

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Major Compulsory Revisions

1. Several grammatical errors/spelling issues
2. Manuscript - in particular the introduction/discussion is too long - I think the authors could reduce the word count considerably without compromising their central thesis.
3. Inclusion criteria - why include acidosis in inclusion criteria if it was not necessary - there really is no logic - further - the authors have included children (aged 2, 5, 7 yrs) and I think this population is not comparable with adults (aged 80 yrs) - this may compromise the generalizability given the authors are not reporting co-morbid illness - a major factor in predicting outcome in critically ill patients - while one may argue this was an RCT and perhaps they would balance out - they do not report their method of randomization and this study was small - thus greatly increasing the probability of a type 1 error (notably already evident for age).
4. Reporting of trial design/randomization/concealment/analysis with intention to treat - essentially all RCTs should abide by these standards (CONSORT) and I encourage the authors to revise their methods to include this information.
5. Data presentation - table 3 is too large - all this data should be collated - I really don’t think there is a role for presenting individual patient data and it is totally redundant with table 1.
6. Echo figures add very little and should be excluded. Similarly, figures for resp rate and heart rate add very little and should likely be excluded.
7. Limitations - this is a small trial - prone to both type I and type II error, it has limited power, the event rate was low (mortality rather low for septic shock), the
groups were not similar at baseline and the authors did not attempt to adjust for this, the entire population has hematologic maligancy thus limits the generalizability. These factors should be discussed. Further, the authors perhaps need to ethically justify a little more clearly why they would limit therapy in these patients with septic shock for 120 min to the randomized fluid in the context of septic shock - where the worldwide standard would likely entail some form of early-goal directed therapy (i.e. no pressors or other fluids allowed). Moreover, when one estimates the amount of fluid these patients received as a bolus as per protocol - there would be concern they may be woefully under-resuscitated. This needs to be defended and/or justified.

Minor Essential Revisions (such as missing labels on figures, or the wrong use of a term, which the author can be trusted to correct)

Discretionary Revisions (which the author can choose to ignore)

1. Key words - the authors mention hypotonic saline - which I don't believe they used and this should be corrected.

What next?: Unable to decide on acceptance or rejection until the authors have responded to the major compulsory revisions

Level of interest: An article of importance in its field

Quality of written English: Not suitable for publication unless extensively edited

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.