Reviewer's report

Title: Implementation and evaluation of a nurse-centered computerized potassium regulation protocol in the intensive care unit: a before and after analysis.

Version: 1 Date: 2 September 2009

Reviewer: Hiroshi Morimatsu

Reviewer's report:

To the authors,

This is the study to assess the efficacy of the implementation of a computerized potassium regulation protocol in the ICU. They conducted before-after comparisons for their protocol implementation. They have already used a computerized glucose regulation protocol (GRIP) system, and they had added a potassium regulation protocol to GRIP. They evaluated potassium regulation with this protocol system. They studied 2210 patients totally and found that the incidences of hypo- and hyperkalemia were significantly decreased after the implementation of protocol, although the median values and their time-course of potassium were not different. They also found that the time spent in the abnormal range of potassium decreased after the implementation of the protocol. They concluded that computerized potassium control is safe, effective and reduces the prevalence of hypo- and hyperkalemia in the ICU.

This is an interesting study and they showed that this system is useful to reduce the prevalence of abnormal values of potassium. The manuscript was well written and their findings were reasonably discussed. However, I have some concerns and suggestions to the authors as shown below.

Major Compulsory Revisions

1. To evaluate the incidence and prevalence of abnormal potassium levels, they only used actual rates. I think odds ratio would be more informative in these analyses. Please provide odds ratio for the incidence and prevalence of abnormal potassium levels.

2. For potassium control, they only reported the results of potassium control. I think it is important to report the details of potassium administration. How many patients received potassium infusion?, what is the average rate of infusion? How long were patients on potassium infusion? etc. Please provide the information about potassium infusion.

3. Most exciting results of this study is that this system improves potassium control without the increased risk of hyperkalemia, because this algorithm only have potassium infusion, but not potassium decreasing protocol. This point should be emphasized in the Discussion.

Minor Essential Revisions
1. Page 4, last part “physician driven” should be “physician-driven”.
2. Page 13, second paragraph, “physician driven” should be “physician-driven”.

Discretionary Revisions
None.

**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.