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: 27 August 2009

Reviewer: Shigehiko Uchino

Reviewer’s report:

Hoekstra et al. conducted a before-after study looking at the impact of implementing a computerized protocol for serum potassium level control in critically ill patients. They found that computerized potassium control was effective and reduced the prevalence of hypo- and hyperkalemia compared with previous physician-driven potassium regulation. This study is well conducted and the manuscript well written. However, this study contains some problems in generalizability, which needs to be discussed more thoroughly.

Major Compulsory Revisions

#1. In their unit, the computerized protocol could be implemented without major difficulty because they had used a similar protocol for glucose. It is likely that most hospitals are not using such a computerized system and would not be easy for such hospitals to implement it.

#2. It is not clearly written how abnormal potassium level was dealt in the before period and how their ICU was run (open or closed ICU). For example, according to the method section in the manuscript, potassium intake was reviewed by the attending physician only daily, except for cases of markedly abnormal potassium levels. It is also not mentioned how often and when nurses called doctors for abnormal potassium levels. In my knowledge, most ICUs in Netherlands are closed ICUs and are covered by intensivists for 24-7. If so, it would not be difficult for ICU physicians to review potassium intake more frequently and for nurses to consult physicians about potassium management.

#3. Nowadays, due to the rare but serious accidents of inadvertent potassium injection, many hospitals have abandoned using concentrated potassium. Continuous concentrated potassium infusion shown in this study cannot be implemented in such hospitals. Authors should mention for safety of using concentrated potassium and for generalizability of their findings in such hospitals.

Minor Essential Revisions

#1. Page 9, 2nd paragraph: Figure 3, not figure 4.

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