Reviewer's report

Title: Utilization of Base Deficit and Reliability of Base Deficit as a Surrogate for Serum Lactate in the Peri-Operative Setting

Version: 2 Date: 28 December 2009

Reviewer: Hiroshi Morimatsu

Reviewer's report:

To the authors,

This is a combination report of survey and prospective observational study. In their survey, they found anesthesiologists frequently used base deficit as an endpoint of resuscitation, and threshold of abnormal base deficit was almost 6 mEq/L. Serum lactate was also frequently used as an endpoint, and its threshold was almost 4 mmol/L. They also conducted a prospective observational study and found that base deficit was not good surrogate of hyperlactatemia. They concluded that the use of base deficit as a surrogate for serum lactate was not warranted and it should be measured directly in the operating room.

Major Compulsory Revisions
1. Most important drawback of this study is that almost all of the blood gas machine can measure serum lactate directly in this 21st century. In your surveyed hospital, how many machines can measure arterial lactate? Can you provide this information from your survey?
2. The results were completely predictable. You have to show us why this study is important and what can we learn from this study.
3. Why you choose the cutoff value of hyperlactatemia was 2 mmol/L? As your survey suggested, higher cutoff value will be appropriate, such as >4 mmol/L. Furthermore, please provide how many patients (samples) have been classified to hyperlactatemia.
4. The results will be incomplete. No explanation for Figure 4. Please correct.
5. Your hypothesis was not clearly stated. Please clarify your hypothesis clearly in Introduction.
6. Please provide how to measure lactate.

Minor Essential Revisions
1. Page 5, Methods section: What was HIPAA?
2. Page 6, last line: all means are reported as +/- SD???
3. Page 12, Table of Question 2 and 4: Difficult to understand Q1, Q2,… Please clarify what Q1, Q2… mean.
4. Page 13, Table 2: The percentage numbers of operation categories would be mistake. Please correct.
5. Page 16, Figure 2: Color should not be used.

**Level of interest:** An article of limited interest

**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' below.