Reviewer’s report

Title: Early goal-directed therapy using arterial waveform analysis in high-risk, abdominal surgery: study protocol of a multi-center, randomized controlled, superiority trial.

Version: 2 Date: 11 July 2014

Reviewer: Alexey Smetkin

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Major Compulsory Revisions

1. Randomization
   “A randomization procedure is used to allocate patients to standard care (control group) or standard care with EGDT (intervention) in a 1:1 ratio.”
   Will you keep this 1:1 ratio in all included centers or this is cumulative 1:1 ratio? In last case, it is possible that you will compare data of control group prevailing in one center and date of intervention group prevailing in another center.

2. Standard care
   What kind of anaesthesia do you use? Is it standard procedure, for instance, combined – general and regional (e.g. epidural) anaesthesia or general anaesthesia only? This may affect vascular tone and thereby cardiac output.

3. Standard care
   Will all the patients be well preoperatively hydrated? What approach do you use to preoperative fasting? What is the basic perioperative fluid therapy?

4. Intervention
   “The choice of AWA technique depends on the institution in which the study is performed”
   Of course, this approach provides an opportunity to involve more centers in the study and make the algorithm more versatile. Nevertheless, various AWA techniques have different accuracy in measuring the cardiac output and different trending ability. In this situation, if the number of patients in the intervention group is not equal in each center, the efficiency will be shifted (for better or worse, depending on the method used in the center) toward the center with a large number of patients.

5. Intervention
   “If the CI increases 10% or more during PLR, a 500 ml FC is given.”
   How fast will be fluid load performed?

6. Intervention
“If both measurement of SVV and PLR testing are not possible, a small 250 ml FC is given. If the CI subsequently increase, another 250 ml is given”

At which an increase in cardiac index is considered a positive response?

7. Risk assessment

“EGDT involves fluid therapy and inotropic support, which are commonly used in patients undergoing high-risk surgery. Additional risk associated with its use in the treatment algorithm is therefore not likely in comparison with routine practice.”

This is provided that the cardiac output is measured properly. It is known that less invasive methods of measuring cardiac output are less accurate in comparison with thermodilution techniques. Therefore, if the monitor underestimates cardiac output, according to the algorithm patient will receive unnecessary treatment.

**Level of interest:** An article of outstanding merit and interest 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