Author's response to reviews

Title: Deep sternal wound infection after cardiac surgery

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Response to Reviewers

Reviewer’s report
Title: Deep sternal wound infection after cardiac surgery
Version: 1 Date: 1 March 2013
Reviewer: Toshiya Ohtsuka

Reviewer’s report:
Authors compared the incidence of DSWI and mortalities in different heart procedures and concluded that more invasive procedures cause higher mortality of DSWI, and postoperative bleeding may deteriorate the mortality. There are two questions.
1: Authors used the 30-day mortality data for results 1-6, but seem to have used longer in-hospital death data for result 7. Why? They should use the common database, otherwise confuse readers.

Thank you for your suggestion. According to the suggestion, we added the data of in-hospital mortality for each surgical procedure group and statistical evaluation between the surgical procedure groups.

2: Copious postoperative bleeding alone would cause higher mortality because that complication damages more or less the patients’ hemodynamics and liver/kidney functions. Readers want to know if the reopening of the sternum leads to a higher incidence of DSWI (Very likely, Yes). “Secure hemostasis to prevent DSWI” may become a more beneficial message to surgeons than the use of VAC system.

Thank you for your suggestion. According to the suggestion, we changed the sentence in “Discussion” as shown below.

“Considering these results, first of all, to secure hemostasis to prevent re-exploration for bleeding is important to prevent DSWI, and when re-exploration for bleeding is required, earlier decision should be made to decrease DSWI after cardiac surgery.”

Level of interest: An article whose findings are important to those with closely
related research interests

**Quality of written English:** Needs some language corrections before being published

**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

**Reviewer's report**
**Title:** Deep sternal wound infection after cardiac surgery

**Version:** 1 **Date:** 18 March 2013

**Reviewer:** Yukihiro KANEKO

**Reviewer's report:**
This article, written by Kubota and associates, describes the incidence of deep sternal wound infection (DSWI) in Japan. The reviewer finds several serious flaws in this paper. Due to the lack of important information, the reviewer believes that the current version of this paper conveys little clinical implication to the readers.

**Major compulsory revisions:**
1. Several risk factors for the development of DSWI have been known from the previous literature. Patient-related risk factors include diabetes, obesity, chronic obstructive pulmonary disease, osteoporosis, tobacco use. Surgery-related risk factors include duration of surgery, duration of cardiopulmonary bypass, use of intraaortic balloon pump, use of bilateral internal thoracic arteries, re-exploration for bleeding, shaving with razors, improper use of antibiotics, and use of bone wax. These risk factors strongly influence the incidence and outcome of DSWI.
   In the present manuscript reports the influence of re-exploration for bleeding on the outcome of the patients with DSWI. The incidence of re-exploration for bleeding is not reported. The incidences of other risk factors and their influences on the outcome should be reported.

Thank you for the important suggestion. According to suggestion, we added the overall and procedure related incidence of re-exploration for bleeding in the text and also added a table. We also added another table which shows the odds ratio of other risk factors related to re-exploration for bleeding and DSWI for three
surgical procedures.

2. In this paper, the interval from the operation to death is reported to be between 41.5 and 95.7 days, indicating that majority of the patients died more than 30 days after surgery. The 30-day mortality is inappropriate for exclusive outcome index. The in-hospital mortality must be reported.

Thank you for your important suggestion. According to the suggestion, we added operative mortality, defined as in-hospital or 30-day mortality, in the text and table.

3. Pathogen strongly influences the outcome of and appropriate treatment for DSWI. Pathogen must be reported.

Unfortunately, JACVSD does not include the clinical information about the pathogen. We regret that we cannot offer any information about pathogen that causes DSWI.

4. The authors conclude that appropriate prevention may improve the outcome of cardiac surgery. However, they did not report the preventive measures against DSWI in the patient cohort. The preventive measures against DSWI including the type and duration of perioperative antibiotics, technique of body hair removal, use of surgical safety check list must be reported.

Exactly, we did not report the preventive measures against DSWI in the cohort. Unfortunately, JACVSD does not include the information about the usage of perioperative antibiotics, duration of the administration, body hair removal and so on. Regretfully, we could not mention any information about other preventive measures.

5. The authors conclude that establishment of effective appropriate treatment for DSWI may improve the outcome of cardiac surgery. However, they did not report the treatment against DSWI in the patient cohort. The treatment modalities in the patient cohort must be reported.

Thank you for the comments. As you mention, we did not report the
effectiveness of treatment for DSWI. However, as we described in “discussion”, recent several literatures describe the significant effectiveness of VAC system to treat DSWI. Because our conclusion is not fully based on our own results, we used the word “may” in the sentence.

**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 have no financial conflict of interest.
Drs. Kubota, Ono, Takamoto and Kyo are my acquaintances. I worked with them for several years previously. Nonetheless, I feel that this fact does not influence my review opinion.