Author's response to reviews

Title: Bougies as an aid for endotracheal intubation with the Airway Scope: bench and manikin comparison studies

Authors:

Ichiro Takenaka (dd6xj6rx7@yahoo.co.jp)
Kazuyoshi Aoyama (kazuyoshi.aoyama@kitakyu-hp.or.jp)
Tamao Iwagaki (itamaphone@yahoo.co.jp)
Yukari Takenaka (asireveulb@yahoo.co.jp)

Version: 1 Date: 25 Jun 2017

Author’s response to reviews:

Re: Manuscript Title: "Comparison of available bougies as an aid for tracheal intubation with the Airway Scope: a bench study" (BANE-D-17-00046)

Corresponding Author: Ichiro Takenaka

Dear Dr. Meyer,

Thank you very much for your kind letter of 26th April, 2017 concerning our paper entitled "Comparison of available bougies as an aid for tracheal intubation with the Airway Scope: a bench study " (BANE-D-17-00046).

We have tried to revise the manuscript as much as possible in line with your and reviewers’ suggestions. All authors attest to the validity and legitimacy of data and accuracy of its interpretation and presentation, and approved of the revision. I hope all these corrections and revisions will be satisfactory.

Yours sincerely,

ICHIRO TAKENAKA, MD, PhD
Department of Anesthesia
Kyushu Rosai Hospital
1-1 Sonekita, Kokuraminami, Kitakyushu, 800-0296, Japan
Tel: +81 934711121  fax: +81 934710627  e-mail: dd6xj6rx7@yahoo.co.jp
For Dr. Meyer (Editor)

#The language of the manuscript is very good but there are a number of times when the lack of fluency leads to confusion. Any effort to improve the quality of the language would be great. In the Abstract: Background there are two examples "difficulty in intubation" and "of available four bougies in the tracheal tube attached to the AWS."

According to your suggestion, we requested a professional language editing service again to improve the English of our revised manuscript.

#I agree with reviewer 1 that a pictures of an anesthesiologist using the AWS during this study would be helpful--this would compliment the digital schematic nicely.

According to your and reviewer 1’s suggestions, we newly added figure 2 and its figure legend (lines 28-3 pages 12-13 in the revised version), and adjusted the other figures accordingly.

#How were the anesthesiologists assessing the rotation angles on the circular protactor blinded? Were they not watching the test? A picture (as mentioned above) may help demonstrate/explain this as well.

According to your suggestion, we newly added figure 2 and its figure legend (lines 28-3 pages 12-13 in the revised version), and adjusted the other figures accordingly.

# How was a "20% absolute change defined as clinically important?" A preliminary study is mentioned but there is no citation--was this performed by the authors? Is this unpublished data? How did that contribute to the power calculation for this study?

According to your suggestion, we newly added “----- (unpublished data; the 63th --- 26 May, 2016). “ in lines 2-4 page 6 in the revised version. We newly cited ref 10 (in press paper) in line 4 page 6 in the revised version and adjusted the other references accordingly. In addition, we attached the file for in-press paper (new ref 10; Japanese including abstract in English).

#Add to the discussion 6:56-59 regarding hypotheses for which materials may have allowed for better conservation of rotational force from proximal to distal ends of the bougie. Was it the friction in the AWS channel with the ETT? Was it the polymer of the bougie? What was it about these polymers? Were there similarities in the design / make-up of the two that worked? How about the two that did not work? It would be nice to be able to extrapolate from this study a hypothesis beyond "X" bougie brand/style is good for channeled video laryngoscopes and "Y" is not.

According to your suggestion, we deleted the paragraph regarding factors contribute to rotating a bougie in lines 48-3 pages 6-7 in old version. In addition, we deleted “This may --- are made.” in lines 8-10 in page 8 in old version (Conclusions).

#Please consider Reviewer 1’s recommendation to perform a manikin study to assess if this improved conservation of rotational force results in better intubating conditions or not.
According to your and reviewer 1’s suggestions, we performed a manikin study and rewrote as follows.

(Title) We revised "Comparison --- a bench study" in old version as “Comparison --- bench and studies” in lines1-2 in page 1 in the revised version.

(Abstract) We newly added “--- and the efficacy --- AWS in a manikin.” (lines 8-9 page 2, Background), “Bench study: --- four bougies.” (lines 11-20 page 2, Methods), and “In the manikin study, --- intubating catheters.” (lines 24-30 page 2, Results).

(Background) We newly added “--- and the efficacy --- AWS in a manikin.” in lines 1-3 page 4 in the revised version.

(Methods) We newly added “Manikin study --- were recorded.” in lines 3-28 page 5 in the revised version.

(Statistical analysis) We newly added “Differences in the --- test, respectively.” in lines 10-11 page 6 in the revised version.

(Results) We newly added “In the manikin study, --- catheters, respectively. “ in lines 27-3 pages 6-7 in the revised version.

(Discussion) We newly added “In the scenario --- with an AWS.” in lines 23-7 pages 7-8, “Moreover, in the manikin --- intubating catheters.” in lines 10-13 page 9, and “Fourth, we --- for our purposes.” in lines 18-22 page 9 in the revised version.

(Conclusions) We newly added “--- by both bench and manikin studies ---” in line 31 page 9 in the revised version.

For Dr. Riegel (Reviewer 1)

#Simplicity of understanding:

Maybe one or 2 pictures of the AWS with the inserted tube and bougie would make it easier and faster to understand since not every reader might be familiar with the Pentax AWS.

According to your and editor’s suggestions, we newly added figure 2 and its figure legend (lines 28-3 pages 12-13 in the revised version), and adjusted the other figures accordingly.

#Clarification of meaning:

* "In addition, when the epiglottis cannot be directly lifted with the tip of the AWS blade, 180 degree rotation of the bougie tip often requires for successful intubation." to me, "is often required" sounds more familiar.
According to your and editor’s suggestions, we requested a professional language editing service again to improve the English of our revised manuscript.

We revised “In addition, --- for successful intubation.[5]” In lines 27-31 page 7 in old version as “Moreover, --- Frova intubating catheters.” in lines 10-14 page 9 in the revised version in line with your suggestion.

* "However, at least, the bougies of which rotation was difficult in this bench study should not be easily rotated in humans." I guess, what you want to say, is, that your study indicates, that also in "real life" we could experience difficulties when trying to rotate Frova and Portex bougies in an AWS?

We revised “However, at least, --- in humans.” in lines 41-43 page 7 in old version as “However, --- with an AWS.” in lines 16-18 page 9 in the revised version in line with your suggestion.

#Clinical relevance:

Please add a manikin study with one or two commercial available difficult airway manikins and a group of anesthesiologists who are randomized to perform intubations with all 4 bougies in different order and evaluate for: intubation time, intubation success and specific problems encountered with each bougie. E.g. it could be, that the 2

According to your and editor’s suggestions, we performed a manikin study and rewrote as follows.

(Title) We revised "Comparison --- a bench study" in old version as “Comparison --- bench and studies” in lines1-2 in page 1 in the revised version.

(Abstract) We newly added “--- and the efficacy --- AWS in a manikin.” (lines 8-9 page 2, Background), “Bench study: --- four bougies.” (lines 11-20 page 2, Methods), and “In the manikin study, --- intubating catheters.” (lines 24-30 page 2, Results).

(Background) We newly added “--- and the efficacy --- AWS in a manikin.” in lines 1-3 page 4 in the revised version.

(Methods) We newly added “Manikin study --- were recorded.” in lines 3-28 page 5 in the revised version.

(Statistical analysis) We newly added “Differences in the --- test, respectively.” in lines 10-11 page 6 in the revised version.

(Results) We newly added “In the manikin study, --- catheters, respectively. “ in lines 27-3 pages 6-7 in the revised version.
(Discussion) We newly added “In the scenario --- with an AWS.” in lines 23-7 pages 7-8, “Moreover, in the manikin --- intubating catheters.” in lines 10-13 page 9, and “Fourth, we --- for our purposes.” in lines 18-22 page 9 in the revised version.

(Conclusions) We newly added “--- by both bench and manikin studies ---” in line 31 page 9 in the revised version.

#Randomization:

Please add a chart in which the reader can see in which order each bougie was used by the 7 anesthesiologists.

According to your suggestion, we newly added table 2 (line 13 in page 4 and line 10 in page 5 in the revised version) and adjusted the other tables accordingly.

For Dr. Hashimoto (Reviewer 2)

#Additional discussion about airway damage


According to your suggestion, we newly added the paragraph regarding airway damage related a bougie in lines 19-29 page 8 in the revised version. In addition, we newly cited refs 16 (above ref 1) and 17 for discussion about airway damage, and adjusted the other references accordingly.