Author's response to reviews

Title: A randomised, controlled crossover comparison of the C-MAC videolaryngoscope with direct laryngoscopy in 150 patients during routine induction of anaesthesia

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Author's response to reviews: see over
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A randomised, controlled crossover comparison of the C-MAC videolaryngoscope with direct laryngoscopy in 150 patients during routine induction of anaesthesia

2nd February 2011

Dear Dr. Norton,

we would like to re-re-re-submit the enclosed manuscript „A randomised, controlled crossover comparison of the C-MAC videolaryngoscope with direct laryngoscopy in 150 patients during routine induction of anaesthesia“ as a research article for publication in BMC Anesthesiology. I have discussed the reviewers’ comments with all co-authors, and have subsequently incorporated the comments, as appropriate, into the manuscript. We hope that this paper now merits publication in BMC Anesthesiology, and look forward to your response.

This material, in whole or in part, has not been published previously, and is not being considered for publication elsewhere.

All authors have made significant contributions to the study, and have read and approved submission of this revised manuscript to BMC Anesthesiology. Funding was restricted to institutional and departmental sources. No author receives any compensation for this work. However, Volker Doerges is a member of the Karl Storz advisory board, and receives grant support from Karl Storz, Tuttlingen, Germany, for studies related to airway management.

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We would like to thank you in advance for consideration of this work.

Respectfully,

Erol Cavus, M.D.
Corresponding author
Answers to Reviewers:

Reviewer 1:
I thank the authors for their considered responses to my previous points, particularly with respect to the low observed incidence of grade 1 C&L laryngeal views. I have no further comments about the revised manuscript other than to agree with the second reviewer that a footnote since should be added stating that since the authors first submitted their manuscript other companies have developed modified videolaryngoscopes which offer both direct and indirect laryngeal views.

We added a footnote with the suggested content to the revised manuscript.
Reviewer 2:

The authors have demonstrated, for the first time, that the laryngeal exposure seen using a (Macintosh-configured) VL is occasionally worse than that obtained by conventional direct laryngoscopy. BURP was frequently required with the C-MAC but has rarely been required in other studies using more angulated VL such as the McGrath and GlideScope.

Thank you for your summary of part of our results. The fact that laryngeal exposure by Mac-VL may be worse compared to DL in some cases, has, in the meanwhile, been reported by other investigators (Brown CA et al., 2010). The higher incidence of BURP with the C-MAC resulted from the difference of visualization between lower and higher angulated blades; this issue has been discussed in the last version of the manuscript (p12, lines 16-20) and has, in the meanwhile, also been reported by other investigators (Teoh WHL et al., 2010).

The authors have suggested that the use of a stylet or intubation guide should be avoided if possible and that such avoidance confers a safety advantage. I remain unconvinced of this contention. I believe that soft tissue injuries are more likely to result from failure to directly observe the insertion of the endotracheal tube into the patient's oropharynx rather the device that is chosen to intubate the trachea. Direct observation is possible with any of the non-channelled video laryngoscopes such as the GlideScope, McGrath and EVO Truview.

Regarding the safety issue of stylet-use, the current literature does neither favour the reviewers’ nor our opinion; therefore, in the current manuscript, we have denominated this issue as debatable. Further, we respectfully would like to point out that we have described the cause for possible tissue injury in the current manuscript, which does not contradict the reviewers’ commentary: “...in that device, a highly angulated blade caused difficulty in advancing the tracheal tube to the glottic entrance, because both pharynx and the glottis were not under direct view, resulting in a partly blind oropharyngeal passage of the stylet. For avoidance of such complications, insertion and oropharyngeal passage of the endotracheal tube should be directly visualised as long as possible...”.

Laryngoscopy that requires additional lifting is not only a concern with respect to the force applied to the maxillary incisors (as mentioned by the authors) but also to the lifting force applied to the tongue. This may manifest itself as a greater stress on the patient (hemodynamically or hormonally) and a reduced laryngeal view.

We agree with this reviewer that, from a mechanistic site of view, videolaryngoscopy most probably may also reduce the lifting force applied to the tongue. However, as far as we know, only forces applied to the maxillary incisors have been quantifiably measured (Lee RA, et al. 2009). Since in that study the increase of forces during conventional laryngoscopy applied to cases with difficult intubation conditions, the impact in cases with easy intubation conditions may be much lower. In our manuscript, we prefer conventional laryngoscopy only in cases with easy conditions: “In our opinion, in all cases with easy intubation conditions the anaesthesiologist should prefer the direct laryngoscopic view of the C-MAC 3 over the videolaryngoscopic view.”