Reviewer's report

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

Version: 4 Date: 24 November 2010

Reviewer: David Ray

Reviewer's report:

The revised manuscript is now much improved with the changes made by the authors - thank you. Despite this I believe that there are still some areas which need addressed.

Major compulsory revisions

1. Page 6. The authors state in their response to previous comments that they have modified the text to clarify that each patient underwent 3 separate laryngoscopies. Unfortunately the text they suggest in their response (which is acceptable) does not appear in the text of the manuscript (which is not acceptable). Please change the text in the manuscript to that shown in the response - ie: "Next, all patients underwent three separate laryngoscopies using the standard Macintosh laryngoscope with an apprporiate size 3 or 4, the C-MAC size 3, and the C-Mac size 4, respectively, in the sequence determined by randomisation."

2. Thank you for providing the data in figures 4 and 5a. This clearly shows that only around 40% of patients had a Cormack & Lehane grade 1 view with any device without application of optimising manoeuvres such as BURP - this percentage is much lower than I would expect. Even after the application of BURP this percentage rose to only around 75% for all devices, again much lower than I would expect and certainly much lower than the >90% grade 1 views obtained with other videolaryngoscopes. I am also concerned that 6 of the patients scheduled to be intubated using the Macintosh were unsuccessful - this equates to a failed intubation rate for unselected patients of around 11% - again much higher than would be expected. I would be very grateful if the authors could comment on these concerns. Similarly since the percentage of grade 1 views obtained with the C-MAC is much lower than those obtained with other videolaryngoscopes perhaps the authors should temper their conclusion that "...the C-MAC may serve as a standard intubation device for both routine airway management and educational purposes."

3. Page 10. "The C-MAC videolaryngoscope is a relatively new device with the unique advantage that it provides the possibility to obtain both a direct laryngoscopic view and a camera view that is displayed on the video screen, in contrast to many previous videolaryngoscopes." This is not a unique feature as other modified videolaryngoscopes now offer this dual possible view.
4. Page 9. "Taking this into account, intubation success rates with DL, C-MAC3, C-MAC4 and C-MAXC/STB were 50/56 (89%), 37/37 (100%), 18/18 (100%), and 45/45 (100%) respectively." Presumably since the 6 patients who had failed intubation using DL were intubated using the C-MAC4/STB the success rate should be 51/51 for this technique.

5. Table 1. The authors state in their response that they have changed the term "reclination of the head" to "cervical extension" but this has not been changed in the manuscript.

Minor essential revision
1. Page 7. "Peripheral oxygen saturation, mean arterial blood pressure, and heart rate were recorded continuously." Unless the patients had an arterial line in place I suspect that mean arterial pressure was not recorded continuously, but rather intermittently.

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

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 assisted Aircraft Medical (Edinburgh, UK) in the development of the McGrath videolaryngoscope. My employing authority has received payment from Aircraft Medical for my professional advice given on a consultative basis.