Zhao and Huang reply:

We appreciate the comments on our paper because they give us the opportunity to further improve our methods.

Before we tried intubating with percutaneous transluminal coronary angioplasty (PTCA) guide wire, we had performed operations on mice with an otoscope, but failed due to the difficulty in visualizing the laryngis aditus and vocal cord[1,2] (possibly due to a lack of necessary training[2]). Some of the currently used orotracheal intubation methods necessitate special instruments[2–4], which we failed to acquire, therefore we developed our method of retrograde intubation. We were not aware of the existence of the "mouse intubation kit," but we are greatly interested in it now. But on the other hand, we have to point out that it appears to be a bit too costly to suit some laboratories, since the kit, together with the Rodent Work Stand and otoscope, costs almost $800.

Our method is more reliable because the cannula in the trachea is visible and detectable by inserting a finger through the incision. Thus mispositioning of the tube in the esophagus[5] is almost impossible. Although retrograde intubation is an invasive method, the operation is simple and easier to perform if there is difficulty in visualizing the vocal cord in mice.

Mayer argues that this tracheal intubation method will subject the animal to an extra surgical invasion and increase mortality leaving the operation unable to be repeated. In fact, we think most complications of invasive methods like tracheotomy are due to the severe damage to trachea, not to the skin. Our method also confirms that there aren't obvious airway complications related to PTCA wire injury. Since this study was only a part of other experiments, we did not perform controlled studies. We are planning to begin an independent study of this method within the next several weeks.

Deyo and Wei[6] mentioned that two mice died as a result of trauma to the trachea during the learning period. One died for unexplained reasons about 2 hours into the procedure. More recently, Sanders *et al.*[7] also reported that fifteen mice died when they were intubated with an operating otoscope.

As to the iatrogenic trauma to the arytenoid cartilages, the tip of PTCA guide wire is soft and will not cause injury. Also, most vocal cord and tracheolaryngeal injuries are related to expansion of the thorax and adjustment of the position of the cannula. Unnecessary harm is avoidable when the tube is pushed along the soft guide wire.

As an noninvasive method, the direct orotracheal intubation may be the best technique. But at present, there are some obstacles to its widespread use, especially in developing countries.

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