APPARATUS

Surgical vs wire-guided cricothyroidotomy: a randomised crossover study of cuffed and uncuffed tracheal tube insertion

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Summary

Using an airway manikin and artificial lung model, we compared surgical cricothyroidotomy with a 6.0-mm cuffed Portex tracheotomy tube with wire-guided cricothyroidotomy using a 3.0-mmuffed Melker or 6.0-mm uncuffed Melker tube. The trial was carried out by 27 anaesthetists using a randomised, crossover design. Surgical cricothyroidotomy proved significantly faster (mean SD) time to first breath 44.3 (12.5) s for Portex surgical, 87.2 (21.0) s for cuffed Melker, 87.8 (19.2) s for uncuffed Melker. With a standard ventilator model, the cuffed tubes provided more effective ventilation (mean SD) tidal volume 44.6 (4.1) ml Portex, 43.6 (5.2) ml cuffed Melker, 19.5 (5.1) ml uncuffed Melker, p < 0.001. Fourteen of the participants preferred the wire-guided system. We conclude that, in this model, a cuffed device is preferable when cricothyroidotomy is needed. In addition, the surgical method is quicker than a wire-guided approach.

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*This work has been presented in part at the Liverpool Society of Anaesthetists in February 2003 and at the annual meeting of the Difficult Airway Society in November 2005.

Accepted: 17 December 2005

In the can't intubate, can't ventilate scenario, cricothyroidotomy is recommended if all other methods of ventilation are exhausted. Alternatively, a cuffed tube can be inserted by surgical cricothyroidotomy to provide both a secure airway and mechanical ventilation.

doi: 10.1111/j.1365-2044.2006.24621.x

citekey: Sulaiman2006p496

published: Jun 01, 2006

read: Jan 17, 2009 - 06:06 AM

printed: Not printed