Flying doctor emergency airway registry: a 3-year, prospective, observational study of endotracheal intubation by the Queensland Section of the Royal Flying Doctor Service of Australia

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ABSTRACT

Objective To describe the profile and success rates of emergency endotracheal intubation conducted by the Queensland Royal Flying Doctor Service aeromedical retrieval team comprising a doctor and flight nurse.

Method Each intubator completed a study questionnaire at the time of each intubation for indications, complications, overall success, drugs utilised and deployment of rescue airway devices/adjuncts.

Results 76 patients were intubated; 72 intubations were successful. None required surgical airway and three were managed with laryngeal mask airways; the remaining failure was managed with simple airway positioning for transport. There were two cardiac arrests during intubation. Thiopentone and suxamethonium were the predominant drugs used to facilitate intubation.

Conclusion Despite a low rate of endotracheal intubation, the high success rate was similar to other aeromedical organisations’ published airway data. This study demonstrates the utility of the laryngeal mask airway device in the retrieval and transport setting, in particular for managing a failed intubation.

INTRODUCTION

Advanced airway management with endotracheal intubation and the institution of mechanical ventilation are core skills and interventions provided by Royal Flying Doctor Service (RFDS) aeromedical teams within Australia. This descriptive study is the first to report on the safety profile and success of endotracheal intubation by RFDS Queensland aeromedical teams over a three-year period. The Queensland section of the Australian RFDS has a total of seven operational bases for aeromedical missions that cover a combined territory equivalent to three times the land area of France. During the period of the study, 1 January 2007 to 1 January 2010, an intubation questionnaire was distributed. This study conforms to the standards established by the National Health and Medical Research Council for ethical quality review.1

PATIENT CHARACTERISTICS

The youngest patient was 5 months old and the oldest was 82 years old. The predominant age range of the study group was 16–65 years. The indications for intubation were predominantly trauma related (mainly head and chest injuries), with neurological reasons (seizures and intracerebral haemorrhage) being the second most common, followed by infection/respiratory causes (sepsis and pneumonia).

USE OF LARYNGEAL MASK AIRWAY DEVICES

There were 10 cases in which a Laryngeal Mask Airway Device (LMA, The Laryngeal Mask Company, Jersey, Channel Islands) airway device was deployed, after a failed first intubation attempt. An LMA Proseal was used three times, with successful rescue ventilation in all cases and transport with LMA in situ in two cases. An LMA Fastrach (intubating LMA) was used six times, with five successful rescue ventilations and four successful blind intubations via the Fastrach.

IMMEDIATE COMPLICATIONS FROM THE INTUBATION

There were two asystolic cardiac arrests during the intubations. Both were resuscitated successfully with return of spontaneous circulation within 1 min of arrest.

DISCUSSION

The overall intubation success rate of 95% is comparable to that found by Gunning et al2 for another Australian aeromedical organisation (Careflight Medical Services) in the same state of Queensland. In his study the overall success rate was 97.6%. Rates of complications are important to consider. Gunning et al reported one possible case of pulmonary aspiration in the one failed intubation in their series and no cardiac arrests related to intubation. This RFDS airway study demonstrated the immediate complication of four failed intubations. Two cardiac arrests occurred as a result of these failed attempts. Cardiac arrest related to emergency intubation in an intensive care unit setting has been reported at 2% or 1 per 50 cases.3 This correlates with the experience encountered in this RFDS study (2 in 76 cases). This study demonstrates the utility of the LMA device in the retrieval and transport setting, in particular for managing a failed intubation. These findings add to the growing body of pre-hospital literature on the intubating LMA as a rescue airway device in the field.4 The strategy to use an LMA as a failed intubation rescue device and then leave it in situ for transport ventilation has been reported in the aeromedical and pre-hospital literature,5,6 and this study lends additional support for such an alternative practice.
Short report

Competing interests None.

Provenance and peer review Not commissioned; externally peer reviewed.

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