BJA Advance Access published October 30, 2012

doi:10.1093/bja/aes320

BJA

Failed tracheal intubation in obstetric anaesthesia: 2 yr national case–control study in the UK

A. C. Quinn[1]*, D. Milne[2], M. Columb[3], H. Gorton[1] and M. Knight[4]

[1] The General Infirmary at Leeds, Great George Street, Leeds LS13EX, UK
[2] Pinderfields General Hospital, Aberford Road, Wakefield WF1 4DG, UK
[3] Department of Anaesthesia and Intensive Care Medicine, University Hospital of South Manchester, Wythenshawe, Manchester M23 9LT, UK
[4] National Perinatal Epidemiology Unit (NPEU), University of Oxford, Old Road Campus, Oxford OX3 7LF, UK

* Corresponding author. E-mail: a.c.quinn@leeds.ac.uk

Editor's key points

- This survey confirms the expected incidence of failed tracheal intubation in obstetrics at one in 224.
- The incidence of failed intubations did not decrease in the last 20 yr, despite advances in airway techniques.
- Age, BMI, and a recorded Mallampati score were significant independent predictors of failed tracheal intubation.

Background. There are few national figures on the incidence of failed tracheal intubation during general anaesthesia in obstetrics. Recent small studies have quoted a rate of one in 250 general anaesthetics (GAs). The aim of this UK national study was to estimate this rate and identify factors that may be predictors.

Methods. Using the UK Obstetric Surveillance System (UKOSS) of data collection, a survey was conducted between April 2008 and March 2010. Incidence and associated risk factors were recorded in consultant-led UK delivery suites. Units reported the details of any failed intubation (index case) and the two preceding GA cases (controls). Predictors were evaluated using multivariable logistic regression, significance $P<0.05$ (two-sided).

Results. We received 57 completed reports (100% response). The incidence using a unit-based estimation approach was one in 224 (95% confidence interval 179–281). Univariate analyses showed the index cases to be significantly older, heavier, with higher BMI, with Mallampati score recorded and score >1. Multivariate analyses showed that age, BMI, and a recorded Mallampati score were significant independent predictors of failed tracheal intubation. The classical laryngeal mask airway was the most commonly used rescue airway (39/57 cases). There was one emergency surgical airway but no deaths or hypoxic brain injuries. Gastric aspiration occurred in four (8%) index cases. Index cases were more likely to have maternal morbidities ($P=0.026$) and many babies in both groups were admitted to the neonatal intensive care unit: 21 (37%) *vs* 29 (27%) (NS). Three babies died—all in the control group.

Keywords: airway complications; failed tracheal intubation; anaesthesia obstetrics; incidence; laryngeal masks; UK Obstetric Surveillance System, UKOSS

Accepted for publication: 18 July 2012