Airway management for tonsillectomy: a national survey of UK practice†

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Background. The emergence of variant Creutzfeldt–Jakob disease (vCJD) prompted guidelines from the Department of Health that stress the use of disposable and protective equipment. This survey explores current methods of airway management for tonsillectomy in the UK and ascertains anaesthetists’ current knowledge and opinions of the guidelines and of vCJD.

Methods. Three hundred and five questionnaires were sent to all Royal College tutors across the UK to explore the current practice and adherence to the guidelines.

Results. The tracheal tube was the most frequently used airway across all age groups: 87% for <3 yr old, 79% for 3–16 yr old, and 73% for adults. Of the respondents who intubated, 57% protected the laryngoscope blade with a disposable sheath or used a disposable blade, while others used a reusable laryngoscope blade without protection. Fourteen per cent protected the laryngoscope handle, as recommended. When a reusable classic or flexible laryngeal mask airway was used, 45% reused it after routine sterilization. Thirty-eight per cent of respondents were unaware that any recommendations existed, 55% disagreed with them, and 84% were not fully compliant with them. Compliance rates did not differ between the anaesthetists who agreed or disagreed with the recommendations. Overall full compliance was achieved by only 16% of respondents. The most common reason for non-compliance was the lack of protection of the laryngoscope handle.

Conclusions. The survey demonstrates widespread non-compliance with and lack of knowledge of, national guidelines.

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In the late 1990s, a new variant of Creutzfeldt–Jakob disease (vCJD) was described.1 The disease was associated with bovine spongiform encephalopathy. Subsequently, the infectious agent was found to be a prion protein. In 2001, Miller and colleagues showed that most reusable anaesthetic equipment when decontaminated in the manner common at that time, retained traces of proteinaceous material.2 vCJD was found to differ from sporadic CJD as prion material was detectable in the lymphoid tissue of asymptomatic carriers of the disease, including the tonsils.3 In response to concerns about the prion’s infectious nature, its resistance to decontamination, and the possibility of asymptomatic carriers harbouring prions in tonsil tissue, the UK Department of Health (DH) issued guidelines for decontamination of surgical instruments, and the requirement of use of disposable surgical equipment for tonsillectomy.4 The Royal College of Anaesthetists (RCoA) produced a set of recommendations in 2001 that reiterated the DH guidelines.5 Increased morbidity associated with the use of disposable surgical equipment led the DH to reverse the directive regarding surgical equipment in late 2001,6 but after some confusion, it was confirmed in April 2002 that this reversal did not include anaesthetic equipment.7 Since that time single-use standard and reinforced laryngeal masks, single-use laryngoscope blades, handles, and covers have become widely available.

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We conducted a national survey to examine current practice in airway management for tonsillectomy. Several questions were asked to explore knowledge of current guidelines and of vCJD.

**Methods**

A postal questionnaire was sent to all College Tutors (n=305) in the UK in July 2005. The tutor was asked to pass the questionnaire on to a colleague if they did not anaesthetize for ENT surgery. The questionnaire (see Appendix) was re-sent to those who had not replied in September 2005. Microsoft Excel was used to aid data analysis. Where appropriate, χ² test was used to analyse differences between incidences of different practices in different age groups.

**Results**

We received 216 returns of 305 questionnaires sent (71%). Thirty-three respondents indicated that they did not perform ENT procedures in their hospitals. The response rate from the remaining 272 hospitals was 67%.

For all age groups, tracheal intubation was the most frequent method of airway management. The frequency of tracheal intubation decreased from 87% in <3 yr to 73% in adults, with the difference being statistically significant (P<0.01) (Table 1). Of those using a laryngeal mask for airway management approximately half used reusable devices and half, single-use. The use of a single-use standard (non-reinforced) laryngeal mask airway (LMA¹) increased in adult patients (Table 1).

Of 167 respondents who used a tracheal tube for at least one of the patient groups, the majority (57%) took precautions to protect the laryngoscope blade from contamination by using either a sheath to cover the blade (8%) or by using plastic (14%) or metal single-use blades (35%). Seventy-one respondents (35% of intubators) used a reusable metal blade with no sheath covering it. Of those respondents who intubated, 14% used precautions to protect the laryngoscope handle. Of these 24 respondents, 17 used a handle cover, 4 a disposable handle, and 3 ‘cleaned the handle after each use’.

Of those using reusable laryngeal masks in their practice, the following actions were taken to protect future patients—48% disposed of the laryngeal mask, 45% sterilized them normally, and 7% used unspecified ‘special precautions’. Therefore 45–52% of laryngeal mask users breached guidelines.

Sixty-two per cent of respondents stated they were aware of the guidelines for airway management during tonsillectomy and 47% believed that their practice complied. On the basis of the replies given, we concluded that only 16% were fully compliant with the published guidelines. The most common reason for non-compliance was the lack of protection of the laryngoscope handle. If this reason was excluded 51% (96/183) of respondents were still non-compliant, with use of a reusable laryngoscope blade being the most common reason for breaching the guidelines.

Fifty-five per cent of respondents did not agree with the guidelines. Those agreeing with the guidelines were no more likely to be compliant than those who did not: non-compliance rates were 84% in both groups. Of 83 respondents who stated that their practice did not comply with the guidance the most common reasons not to comply were disagreement with the guidelines (29%), lack of availability of equipment (26%), and a judgement that the single-use equipment was inferior (14%) (Table 2).

The final questions concerned the estimated risks of contracting vCJD (Table 3). The majority of respondents believed that the risk of transfer of vCJD from a sterilized airway device was <1:100 000. With regard to the number of people estimated to become infected with vCJD within the next 80 yr, 12% estimated ‘fewer than 50’ and 45% ‘between 50 and 1000’. Known reports of transmission of infection of vCJD through the reuse of an airway device were thought to be zero in 95% of responses. All these responses are in line with current estimates.

**Discussion**

In 2001–2, the RCoA and Association of Anaesthetists of Great Britain and Ireland (AAGBI) both published reports encouraging the use of single-use equipment for tonsillectomy, in keeping with guidance from the Department of Health.⁵⁸ This guidance has not been modified or withdrawn since then. In order to comply with the guidelines (1) All LMAs used should be disposed whether the device is a disposable type or reusable.

<table>
<thead>
<tr>
<th>Reason for non-compliance</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Disagree with guidelines</td>
<td>29</td>
</tr>
<tr>
<td>Trust does not provide equipment/equipment not available</td>
<td>26</td>
</tr>
<tr>
<td>Clinical judgement on quality of disposable kit</td>
<td>14</td>
</tr>
<tr>
<td>Changed practice when surgeons did</td>
<td>11</td>
</tr>
<tr>
<td>Not aware of guidelines</td>
<td>8</td>
</tr>
<tr>
<td>‘Guidelines not rules’</td>
<td>6</td>
</tr>
<tr>
<td>Cost</td>
<td>2</td>
</tr>
<tr>
<td>Plan to comply in future</td>
<td>1</td>
</tr>
</tbody>
</table>

Table 2 Stated reasons for non-compliance with the guidelines in respondents who acknowledged that their practice was non-compliant (n=83)

¹LMA® is the property of Intavent Ltd.
(2) If tracheal intubation is used the laryngoscope blade must either be a disposable blade or the standard blade must be covered by a disposable transparent plastic sheath. A clear disposable cover for the laryngoscope handle is also recommended.

(3) If bougies or stylets are used these should also be disposable.

(4) Single-use disposable gloves must be worn by anaesthetists

In this survey we have shown widespread failure to comply with the published guidance. The most common reason for non-compliance was the lack of protection of the laryngoscope handle and this is a recommendation or preferred action rather than a definitive statement. Including this as non-compliance, 84% of respondents appear to breach guidelines, while if it is excluded, 51% of respondents were non-compliant. This appears to be because of a combination of ignorance of the guidelines, personal disapproval of the guidelines, and corporate failure to fund the necessary equipment.

These findings are of concern. If the guidelines are rational and there is an ongoing significant or plausible risk to future patients where reusable devices are put back into circulation after use during tonsillectomy, then action needs to be taken. On the other hand, if the risk is insubstantial and the guidelines ‘out of date’ then logically they should be revised or withdrawn.

The purpose of this survey was to examine practice when compared with the guidance. The primary aim was not to discuss suitability of the guidance itself. However in view of the widespread flaunting of the guidelines several comments are worth making. First, the guidelines were issued when there was speculation that vCJD might lead to an epidemic of ‘hundreds or… hundreds of thousands’ of patients,9 and in that environment dramatic changes in practice can be considered wise. Secondly, the assumption was made that changing practice and the introduction of single-use equipment would do more good than harm. In 2003, in response to an article showing substandard performance of some single-use (plastic) laryngoscope blades,10 Blunt and Burchett wrote an editorial estimating the risk of transmission of vCJD from reusable airway equipment.11 Even at the time, when estimates of the prevalence of the disease were high, they calculated that a ‘pessimistic estimate’ of risk of prion cross-infection with reusable airway equipment after decontamination and sterilization was ‘between 1–10 per 100 000 anaesthetics’. They stated that ‘even a small deterioration in safety as a result of using a single-use device of poorer quality in place of a reusable device would increase the overall risk to patients and go against the recommendation of the Spongiform Encephalopathy Advisory Committee (SEAC).’

The epidemic of vCJD has fortunately failed to materialize. Current authoritative estimates of the likely number of patients of vCJD are as low as 8–40 over the next 70 yr [95% confidence interval (CI) 9–540].12 Given this marked reduction in the estimated risk of exposure to vCJD, we should reconsider the previous risk assessment by Blunt and Burchett and their statement about the introduction of new equipment of lower quality.

The majority of respondents to this survey overestimated the predicted number of patients of vCJD in the future, but correctly estimated the small estimated risk of transfer of disease between patients and also correctly identified the absence of reports of such events.

This survey has also determined the frequency with which different airway management devices are used for tonsillectomy in the UK. Of note tracheal intubation is used for between three-quarters and four-fifths of patients, depending on age.

In summary, this national survey suggests that the majority of anaesthetists choose to intubate patients of all ages undergoing tonsillectomy. Whether using a LMA or tracheal tube, most anaesthetists do not comply with the nationally published guidelines, even when they are aware of them. This has potential safety and medico-legal implications.

### Appendix. Questionnaire

1. What airway would you routinely choose for (a fit and well, ASA I).
   - Paediatric tonsillectomy (<3 yr)? tracheal tube/cLMA (reusable)/single-use LMA/fLMA/single-use fLMA/other.
   - Paediatric tonsillectomy (3–16 yr)? tracheal tube/cLMA (reusable)/single-use LMA/fLMA/single-use fLMA/other.
   - Adult tonsillectomy (>16 yr)? tracheal tube/cLMA (reusable)/single-use LMA/fLMA/single-use fLMA/other.

2. If you use a tracheal tube for one of the above what laryngoscope blade do you use.
   - Reusable blade/reusable blade+sheath/plastic single-use blade/metal single-use blade?
3. If you use an ETT do you use any precautions to protect the handle? Yes/No.
   • If yes, what (please specify): .............................................

4. If you use a reusable cLMA or reusable fLMA for tonsillectomy, what do you do after use?
   • Dispose of it/sterilize normally/take special precautions (please specify):

5. Are you aware of the Royal College of Anaesthetists/DOH guidelines for airway management for tonsillectomies (as shown on overleaf)? Yes/no.
   • Does your practice comply? Yes/no.
   • If no, why do you choose not to follow the guidelines? (please comment) .............................................

6. Do you agree with the RCA guidelines? Yes/No.
7. What is the estimated risk of transfer of new variant Creutzfeldt–Jakob disease (nvCJD) to patients from reuse of a sterilized airway device?
   1:100/1:1000/1:10 000/1:10 000/1:10 000

8. How many people are estimated to be infected by nvCJD within the next 80 yr?
   <50/50–1000/1000–5000/5000

9. How many people have been reported as infected by nvCJD via reuse of airway devices?
   none/1–5/5–20/20–100/100

Royal College of Anaesthetists recommendations for all tonsillectomies and adenoidectomies:
• An LMA should not be reused. Use a single-use disposable type or a reusable LMA (that is then disposed of).
• If intubating the trachea with a single-use disposable ETT, the laryngoscope blade used must be either a disposable blade or the standard metal blade must be covered by a disposable transparent plastic sheath. A clear disposable cover for the laryngoscope handle is also recommended.
• If bougies or stylettes are required these should also be of the single-use disposable type.
• Single-use disposable gloves must be worn by anaesthetists.

Sources.

References