Role of the anaesthetist during cataract surgery under local anaesthesia in the UK: a national survey

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Background. Recent advances in cataract surgery techniques have enabled these to be performed under less invasive local anaesthetic techniques. As a result, ophthalmic surgeons are increasingly prepared to give the local anaesthesia to the patient themselves without the need for the presence of an anaesthetist.

Methods. A national postal survey was conducted in 2008, asking all consultant ophthalmic surgeons for their choice of local anaesthetic technique, whether an anaesthetist or a surgeon performs the block, the current level of anaesthetic cover for the ophthalmic operating sessions, and the need for anaesthetists for phacoemulsification under local anaesthesia in future. No reminders were sent to the non-respondents.

Results. The response rate was 62%. The choice of local anaesthetic technique was sub-Tenon’s 47%, topical 33%, peribulbar 16%, retrobulbar 2%, and others 2%. Twenty-eight per cent of sub-Tenon’s blocks were given by the surgeons and 47% by the anaesthetists. Of peribulbar blocks, 9% were given by the surgeons and 85% by the anaesthetist. Seventy-five per cent of ophthalmic operating sessions had allocated anaesthetic cover. Ophthalmic surgeons felt that in their judgement, only 10% of the phacoemulsifications under local anaesthesia would necessitate the presence of an anaesthetist.

Conclusions. The consultant eye surgeons, based on their judgement, are prepared to undertake a bigger proportion of cataract surgeries under local anaesthesia without the presence of an anaesthetist. This development is bound to have a significant impact on manpower planning for ophthalmic anaesthetists.

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of the Honorary Secretary of the Royal College of Ophthalmologists.

We sent a questionnaire (Appendix) to each consultant. The survey was self-administered and confidential, with no reminder letters sent. A covering letter explained that the data collected would be anonymous and be non-attributable. Questions elicited whether the surgeon performed phaco-emulsification under local anaesthesia (PULA), PULA volume per month, anaesthetic technique, anaesthetic administrator, current provision of an anaesthetist, and also their opinion of the future need for an anaesthetist. The questions involved either a numeric response (number or percentage) or a tick implying yes for anaesthetic administrator.

Results

Nine hundred and thirty questionnaires were sent out, and 572 replies were returned—a response rate of 61.5%. Fifty-four (9.4%) respondents did not perform any cataract operations, and 19 (3.3%) forms had missing fields. These were excluded, leaving 499 questionnaires for further analysis.

A total of 18,540 cases of PULA were performed in 1 month by the respondents, with a median of 34 (range 4–200) per surgeon. The median number of different local anaesthetic techniques was 2 (range 1–4) and the median number of administrators of these blocks was also 2 (range 1–3). The data for the number of cases per surgeon and the type of block performed were not normally distributed (Table 1). There was also no correlation between the number of cases of PULA performed by a surgeon and the type of block they used.

The total number of blocks administered by the different combination of administrators is shown in Table 2, and the administrators of each type of block are shown in Table 3. Where there are combinations of more than one administrator, this indicates that the block could have been performed by either one of the administrators listed.

The median current allocation of anaesthetists for PULA lists was 75% (IQR 25–100%). This should be contrasted with the ophthalmologists’ perceived requirement for an anaesthetist of only 10% (IQR 0–100%), which was significantly lower ($P=0.0000$ with the Wilcoxon signed-rank test). Figure 1 displays the pattern of change in current allocation vs the perceived requirement for an anaesthetist to be present for cases of PULA. There was no correlation between the number of cases of PULA performed by a surgeon and their perceived requirement for an anaesthetist (Spearman’s rank correlation coefficient $-0.0558$). This is illustrated in Figure 2.

Correlation (Spearman’s rank correlation coefficient) between block performed and perceived requirement for an anaesthetist is shown in Table 4. Only topical anaesthesia and perceived requirement were moderately correlated (in this case negatively: $-0.47$ $P<0.001$).

Discussion

The response rate of the survey was 61.5%. This is comparable with the response rate for surveys to ophthalmologists in the UK, which has previously been documented at 66%. The response rate is similar to surveys in Canada (358/698, 67%) and Singapore (88/144, 61.1%), and better than those in Japan (457/930, 49%) and the USA (985/6350, 15.5%). A survey in New Zealand which sent reminder letters did have a higher response rate (84/103, 84%).

A significant finding of the survey was the difference between current anaesthetic allocation for ophthalmic surgical sessions (75%) compared with the perceived requirement for an anaesthetist to be present for cases of PULA (10%). These data indicate that if an operating session was devoted entirely to PULA cases, then there could be a 65% reduction in the necessity for an anaesthetist to be present. Technical advances in regional ophthalmic anaesthesia and operative surgery for cataract and economical factors have probably contributed to the low percentage requirement of an anaesthetist for PULA cases.

The type of block used for PULA, however, did not strongly correlate with the perceived requirement for an anaesthetist, except in the case for topical where there was a moderate negative correlation, that is, the greater the use of topical anaesthesia, the lower the perceived requirement for an anaesthetist. However, it must be noted that overall all surgeons had a lower perceived requirement for an anaesthetist.

Internationally, there has been a change in practice of the type of anaesthetic administered for cataract surgery. In New Zealand, a preference for sub-Tenon’s anaesthesia increased from 24% in 1997 to 65% in 2007 along with a decrease in peribulbar anaesthesia (40% to 10%) over

### Table 1

<table>
<thead>
<tr>
<th>Anaesthetic block used</th>
<th>Median (%)</th>
<th>IQR (%)</th>
<th>Total no. of cases</th>
<th>Per cent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Topical</td>
<td>2</td>
<td>0–80</td>
<td>6178</td>
<td>33</td>
</tr>
<tr>
<td>Sub-Tenon</td>
<td>50</td>
<td>5–95</td>
<td>8666</td>
<td>47</td>
</tr>
<tr>
<td>Peribulbar</td>
<td>0</td>
<td>0–20</td>
<td>2988</td>
<td>16</td>
</tr>
<tr>
<td>Retrobulbar</td>
<td>0</td>
<td>0–0</td>
<td>373</td>
<td>2</td>
</tr>
<tr>
<td>Other</td>
<td>0</td>
<td>0–0</td>
<td>335</td>
<td>2</td>
</tr>
</tbody>
</table>

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Correlation (Spearman’s rank correlation coefficient) between block performed and perceived requirement for an anaesthetist is shown in Table 4. Only topical anaesthesia and perceived requirement were moderately correlated (in this case negatively: $-0.47$ $P<0.001$).

### Table 2

<table>
<thead>
<tr>
<th>Administrator</th>
<th>No. of blocks administered</th>
<th>Per cent of total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Surgeon</td>
<td>6948</td>
<td>37.5</td>
</tr>
<tr>
<td>Anaesthetist</td>
<td>7042</td>
<td>38</td>
</tr>
<tr>
<td>Nurse</td>
<td>1723</td>
<td>9.3</td>
</tr>
<tr>
<td>Surgeon/anaesthetist</td>
<td>2243</td>
<td>12.1</td>
</tr>
<tr>
<td>Surgeon/nurse</td>
<td>212</td>
<td>1.2</td>
</tr>
<tr>
<td>Anaesthetist/nurse</td>
<td>86</td>
<td>0.5</td>
</tr>
<tr>
<td>Surgeon/anaesthetist/nurse</td>
<td>286</td>
<td>1.5</td>
</tr>
</tbody>
</table>

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data from Singapore showed that the two most preferred anaesthetic techniques were peribulbar (43%) and topical (36%). However, Leaming also noted that anaesthetic technique varied by surgical volume; only 38% of surgeons performing one to five cataract procedures per month used topical anaesthesia compared with 76% of surgeons performing 75 or more procedures. Interestingly, this finding was not reflected in the current survey. These data highlight considerable variability in anaesthetic preference for cataract surgery both geographically and over time.

Besides changes in anaesthetic technique over time, there may also be a change in the anaesthetic administrator. In our survey, more than 90% of topical anaesthesia was administered by non-anaesthetists (i.e. surgeon, nurse, anaesthetic assistant); however, anaesthetists were the primary administrators for sub-Tenon (47–72%) and peribulbar (85–91%) blocks. Although the Cataract National Database establishes trends of other cataract-related variables, it does not possess data of the anaesthetic administrator. We believe that establishing a baseline of anaesthetic administrator is also important, as this could help with workforce planning in future. Furthermore, in the event of the introduction of PULA operating lists without anaesthetists, the healthcare providers ought to ensure that a robust process is in place for the selection of patients and appropriately trained paramedical personnel needs to be allocated to monitor these patients intraoperatively as stipulated in the intercollegiate guidelines. A significant number of PULA cases will still need anaesthetic input and the challenge is to identify these patients accurately and get them onto the lists manned by anaesthetists.

In conclusion, we present the findings of a national survey of current practice of local anaesthesia in cataract surgery in the UK. It shows the potential reduction in the need for ophthalmic anaesthetists and the need to establish a database of local anaesthesia administrator. Our findings

**Table 3** The percentage of different blocks performed by the different administrators

<table>
<thead>
<tr>
<th>Administrator</th>
<th>Topical (%)</th>
<th>Sub-Tenon (%)</th>
<th>Peribulbar (%)</th>
<th>Retrobulbar (%)</th>
<th>Other (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Surgeon</td>
<td>61</td>
<td>28</td>
<td>9</td>
<td>47</td>
<td>87</td>
</tr>
<tr>
<td>Anaesthetist</td>
<td>3</td>
<td>47</td>
<td>85</td>
<td>46</td>
<td>8</td>
</tr>
<tr>
<td>Nurse</td>
<td>27</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Surgeon/anaesthetist</td>
<td>2</td>
<td>22</td>
<td>6</td>
<td>7</td>
<td>5</td>
</tr>
<tr>
<td>Surgeon/nurse</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Anaesthetist/nurse</td>
<td>1</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Surgeon/anaesthetist/nurse</td>
<td>4</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

**Table 4** Correlation coefficient (Spearman’s rank) between block preference of each surgeon vs perceived requirement for an anaesthetist

<table>
<thead>
<tr>
<th>Correlation coefficient</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Topical</td>
<td>−0.4722</td>
</tr>
<tr>
<td>Sub-Tenon</td>
<td>0.1</td>
</tr>
<tr>
<td>Peribulbar</td>
<td>0.2664</td>
</tr>
</tbody>
</table>

![Fig 1](scatterplot.png)

**Fig 1** Scatterplot of the perceived requirement vs the actual allocation of an anaesthetist. Every point below the line of equality indicates that the perceived requirement is less than the current session allocation of an anaesthetist.

![Fig 2](scatterplot2.png)

**Fig 2** Scatterplot of the monthly cases performed by each individual surgeon vs their perceived requirement for an anaesthetist.
may be of relevance to future workforce planning, particularly for anaesthetic departments in the UK.

**Conflict of interest**

None declared.

**Funding**

This survey was supported by the South East Thames Society of Anaesthetists.

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**Appendix**

Survey of the role of the anaesthetist during phacoemulsification under local anaesthesia (PULA) in the NHS

1. Do you perform PULA on a regular basis? YES [ ] NO [ ]

   *If YES please continue, if NO please return questionnaire in SAE provided.*

2. How many cases per month (approx)?

3. At present, approximately what percentage of your cases of PULA are performed under the following local anaesthetic blocks (Add to 100%)

<table>
<thead>
<tr>
<th>Local Anaesthetic (LA) Block</th>
<th>% of TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>TOPICAL</td>
<td></td>
</tr>
<tr>
<td>SUB-TENON</td>
<td></td>
</tr>
<tr>
<td>PERIBULBAR</td>
<td></td>
</tr>
<tr>
<td>RETROBULBAR</td>
<td></td>
</tr>
<tr>
<td>OTHER (please specify)</td>
<td></td>
</tr>
</tbody>
</table>

4. Who normally performs the following local anaesthetics blocks for your cases of PULA? (please tick)

<table>
<thead>
<tr>
<th>LA BLOCK</th>
<th>SURGEON</th>
<th>ANAESTHETIST</th>
<th>OTHER - specify</th>
</tr>
</thead>
<tbody>
<tr>
<td>TOPICAL</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SUB-TENON</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PERIBULBAR</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>RETROBULBAR</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>OTHER - specify</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

5. At present, approximately what percentage of your operating **SESSIONS** has an allocated anaesthetist? %

6. At present, approximately what percentage of your operating **SESSIONS** has an allocated Non Anaesthetic Practitioner instead of an anaesthetist? %

7. In your judgement, what percentage of your **CASES** of PULA, would necessitate the presence of an anaesthetist? %

*THANK YOU and PLEASE RETURN QUESTIONNAIRE IN SAE PROVIDED*
References

15. Local Anaesthesia for Intraocular Surgery. The Royal College of Anaesthetists and The Royal College of Ophthalmologists, 2001; 1–24