

ORIGINAL ARTICLES

Current practice of cataract extraction and anaesthesia

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Abstract

A questionnaire regarding preferred methods of cataract extraction and anaesthesia was sent to 456 consultant ophthalmologists in England and Wales. Replies were received from 86% (n=392), 83% (n=380) having completed the questionnaire in full. The most frequently employed surgical approach was non-automated extracapsular cataract extraction. Only 2% of surgeons (n=8) used phacoemulsification routinely and 2% (n=7) used intracapsular extraction. Intraocular lens implantation was the standard practice of 99% of surgeons (n=376). There has been a dramatic increase in the popularity of local anaesthesia, which was employed routinely (in more than three-quarters of their cases) by 20% of surgeons (n=76). Retrobulbar infiltration remains the most common method of administration. Sedation was given routinely by 45% of surgeons (n=171) when using local anaesthesia. Medical contraindications and patient preference were considered the most important reasons for selecting local anaesthesia rather than general. The exclusive use of general anaesthesia in cataract surgery appears to be diminishing.

Cataract extraction is one of the most commonly performed operations in this country but has undergone considerable change in the last 20 years. Despite its increasing frequency,¹ waiting lists remain long. There is inevitably, pressure on the surgeon to provide the most beneficial, efficient, and cost effective procedure available. A diversity of operative and anaesthetic techniques exists. Current discussion in the ophthalmic literature suggests an increased interest in local anaesthesia,²⁻⁴ day case surgery,⁵ and phacoemulsification.⁶ Almost all cataract extractions are performed under local anaesthesia in the USA, where the hospital stay rarely exceeds 2 hours.⁷ The practice of retrobulbar infiltration has been questioned.⁸⁻¹⁰ Peribulbar anaesthetic techniques¹¹ and other alternatives¹²⁻¹³ have been suggested.

Local anaesthesia provides a number of advantages over general. There are fewer metabolic changes¹⁴ and, in particular, a reduction in systemic complications such as postoperative confusion, postural hypotension, and vomiting.¹⁵ It allows earlier mobilisation, which is especially desirable in an elderly population and has

facilitated the development of day case surgery.¹⁶ Cost effectiveness⁵ and popularity with patients¹⁷ have been established.

We thought it timely to undertake a national survey to document current surgical practice in England and Wales in terms of operative and anaesthetic techniques.

Material and methods

A questionnaire was sent to every consultant ophthalmologist in England and Wales, the names and addresses having been obtained from the College of Ophthalmologists. It contained questions designed to elicit the preferred techniques of cataract extraction and anaesthesia. The following subjects were covered: routine method of cataract extraction; frequency of use of local anaesthesia; the use of sedation with local anaesthesia; indications for local anaesthesia; indications for general anaesthesia. Questions, detailed in Tables 1-8, were brief and limited to one side of A4 paper to encourage completion.

To assess the reasons for preferring either local or general anaesthesia a number of possible indications were suggested. Consultants were asked to state, in order of importance, indications for the selection of local anaesthesia rather than general, and general anaesthesia rather than local.

The indications were scored by awarding five points for the first choice made by each consultant, reducing to one point for the fifth. Results have been tabulated in three ways: firstly, the percentage of consultants listing a given indication in their top five choices; secondly, the frequency with which an indication was placed as first choice; thirdly, an 'overall score', calculated as the sum of the scores awarded by all consultants for a given indication and expressed as a percentage. The percentages in the columns 'Consultants placing indicator as first choice' and 'Overall score' do not always total 100 because results have been rounded up or down to the nearest whole number. Results were computer analysed. No regional distinction was made.

Results

Questionnaires were posted to 456 consultants on 4 March 1991. Replies were received from 86% (n=392) by 1 July 1991, at which time the study was concluded. Of these respondents 83%

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Accepted for publication
14 November 1991

Table 1 Method of administration of local anaesthesia

	All consultants (Total 380)	'Frequent' users of LA* (Total 76)	'Infrequent' users of LA (Total 141)
Retrobulbar	26 (7%)	5 (7%)	13 (9%)
Retrobulbar and facial	178 (47%)	25 (33%)	82 (58%)
Peribulbar	84 (22%)	27 (35%)	17 (12%)
Peribulbar and facial	42 (11%)	6 (8%)	18 (13%)
Facial only	8 (2%)	3 (4%)	1 (1%)
Others	42 (11%)	10 (13%)	10 (7%)

* Local anaesthesia.

Of the 42 (11%) included in the 'other' grouping, 31 (8%) answered two or more options. The remaining 11 (3%) stated a variety of techniques including the 'Redmond Smith' method and 'superior and inferior rectus infiltration with a facial block.'

Table 2 Method of administration of local anaesthesia by specified groups

	'Day case surgery' an indication for LA (Total 213)	'Speed' an indication for LA (Total 125)
Retrobulbar	13 (6%)	5 (4%)
Retrobulbar and facial	102 (48%)	57 (46%)
Peribulbar	49 (23%)	33 (26%)
Peribulbar and facial	28 (13%)	15 (12%)
Facial only	4 (2%)	3 (2%)
Others	17 (8%)	12 (10%)

(n=380) had completed the questionnaire in full. Twelve questionnaires were returned uncompleted with explanations attached. Two consultants had retired and replacements had not yet been appointed, one was abroad, and nine no longer carried out cataract surgery as a result of subspecialisation.

The most common technique of cataract extraction was non-automated extracapsular, used by 53% of 380 consultants (n=201) with a further 17% (n=65) performing automated extracapsular surgery. Non-automated endocapsular surgery was preferred by 19% of consultants (n=72), automated endocapsular by 4% (n=15), phacoemulsification by 2% (n=8), and intracapsular surgery by 2% (n=7). The remainder regularly used more than one technique. Intraocular lens implantation was the routine practice of 99% of surgeons (n=376).

The frequency of use of either local or general anaesthesia by each consultant was determined. This allowed analysis of the subgroups 'frequent' users (>75% of cases) and 'infrequent' users (<25% of cases). Local anaesthesia was used 'frequently' by 20% of surgeons (n=76) and 'infrequently' by 37% (n=141).

When performing cataract extraction under local anaesthesia 45% of consultants (n=171) preferred the patient sedated. Oral sedation was prescribed by 26% (n=99) with 11% (n=42) using intravenous, 3% (n=11) using intra-

muscular, and 5% (n=19) using a combination. Half the 'infrequent' users (n=71) and 42% of the 'frequent' users of local anaesthesia (n=32) routinely sedated the patient. The popularity of intravenous sedation increased among 'frequent' users of local anaesthesia, being employed by 21% (n=16).

All but one of those surgeons routinely performing intracapsular extraction used local anaesthesia 'infrequently.' There was no other direct association between method of cataract extraction and anaesthetic technique.

The most common method of administration of local anaesthesia was retrobulbar infiltration, used by 54% (n=204) followed by peribulbar, the choice of 33% (n=126) (Table 1). The frequency of use of peribulbar anaesthesia remained similar in the subgroups of surgeons choosing either 'Day case surgery' or 'Speed' as an indication for local anaesthesia (Table 2).

Indications for the selection of local anaesthesia rather than general are presented in Table 3. 'Medical contraindications' was considered the most important indicator, with 'Patient's preference' a close second. 'Day case surgery', 'Age of patient,' and 'Surgeon's preference' achieve similar overall scores. 'Speed' and 'Cost' are the least popular choices. Indications for the selection of local anaesthesia in the subgroups 'frequent' and 'infrequent' users are shown in Tables 4 and 5.

Indications for the selection of general anaesthesia rather than local are presented in Table 6. 'Patient's preference' and 'Stable operating conditions' are the most popular, with 'Ocular conditions' and 'Age of patient' also achieving high 'overall scores.' 'Familiar technique' and 'Anaesthetic opposition' are the least popular of the suggested replies. Indications for the selection of general anaesthesia in the subgroups 'frequent' and 'infrequent' users of general anaesthesia are shown in Tables 7 and 8.

Discussion

In spite of the problems associated with questionnaire based studies the 86% response rate allows a reasonable assessment of current practice to be made. The most common technique in cataract surgery is non-automated extracapsular cataract extraction, which is employed routinely by 53% of consultants (n=201), with 93% (n=353) performing some variant of extracapsular surgery. This contrasts with the 34% regularly performing extracapsular extraction in 1985.¹⁸ Phacoemulsification has been available for many years,¹⁹ but despite the plethora of publicity is practised routinely by only 2% of surgeons (n=8). Several consultants indicated their imminent conversion to this technique. Intracapsular extraction is used routinely by 2% of consultants (n=7), a marked reduction from the 54% of 1985.¹⁸ There has been a dramatic increase in the frequency of intraocular lens implantation, which is now the routine practice of 99% of surgeons (n=376), whereas in 1985 lens implantation was carried out in less than half of all cataract extractions in the UK.¹⁸

Despite the attention focused on local anaesthesia by lower costs,⁵ a shorter post-

Table 3 Indications for selection of local rather than general anaesthesia (total 380 per indication)

	Consultants choosing indicator	Consultants placing indicator as first choice	'Overall score' (see text)
Medical contraindications	330 (87%)	237 (62%)	1490 (30%)
Day case surgery	213 (56%)	38 (10%)	703 (14%)
Surgeon's preference	168 (44%)	33 (9%)	517 (11%)
Patient's preference	299 (79%)	34 (9%)	1057 (22%)
Cost	90 (24%)	3 (1%)	174 (4%)
Speed	125 (33%)	10 (3%)	298 (6%)
Age of patient	193 (51%)	22 (6%)	583 (12%)
Others	23 (6%)	3 (1%)	70 (1%)

'Others' included 'A necessary evil for waiting lists,' 'Lack of postoperative complications,' 'Administrative pressure' and 'Non-availability of anaesthetist' (most common).

Table 4 Indications for local anaesthesia when local anaesthesia used 'frequently' (total 76 consultants per indication)

	Consultants choosing indicator	Consultants placing indicator as first choice	'Overall score'
Medical contraindications	49 (65%)	26 (34%)	194 (19%)
Day case surgery	44 (59%)	7 (9%)	151 (15%)
Surgeon's preference	51 (68%)	17 (23%)	176 (18%)
Patient's preference	48 (64%)	7 (9%)	164 (16%)
Cost	20 (27%)	1 (1%)	41 (4%)
Speed	37 (49%)	7 (9%)	114 (11%)
Age of patient	42 (56%)	9 (12%)	144 (14%)
Others	10 (13%)	2 (3%)	28 (3%)

Table 5 Indications for local anaesthesia when local anaesthesia used 'infrequently' (total 141 consultants per indication)

	Consultants choosing indicator	Consultants placing indicator as first choice	'Overall score'
Medical contraindications	132 (94%)	107 (76%)	627 (38%)
Day case surgery	68 (48%)	10 (7%)	243 (15%)
Surgeon's preference	43 (30%)	6 (4%)	133 (8%)
Patient's preference	113 (80%)	13 (9%)	338 (21%)
Cost	37 (26%)	1 (1%)	70 (4%)
Speed	32 (23%)	2 (1%)	67 (4%)
Age of patient	48 (34%)	2 (1%)	135 (8%)
Others	9 (3%)	0	16 (1%)

Table 6 Indications for selection of general rather than local anaesthesia (total 380 per indication)

	Consultants choosing indicator	Consultants placing indicator as first choice	'Overall score'
Surgeon's preference	203 (53%)	78 (21%)	729 (16%)
Familiar technique	51 (13%)	4 (1%)	125 (3%)
Opposition by anaesthetist	34 (9%)	7 (2%)	99 (2%)
Stable operating conditions	275 (72%)	114 (30%)	1073 (24%)
Patient's preference	295 (77%)	81 (21%)	1140 (25%)
Ocular conditions	209 (55%)	48 (13%)	725 (16%)
Age of patient	181 (48%)	44 (12%)	578 (13%)
Others	29 (8%)	4 (1%)	86 (2%)

Table 7 Indications for general anaesthesia when general anaesthesia used 'infrequently' (total 76 consultants per indication)

	Consultants choosing indicator	Consultants placing indicator as first choice	'Overall score'
Surgeon's preference	19 (25%)	2 (3%)	51 (6%)
Familiar technique	4 (5%)	0	12 (1%)
Opposition by anaesthetist	7 (9%)	1 (1%)	19 (2%)
Stable operating conditions	45 (60%)	22 (29%)	182 (23%)
Patient's preference	59 (79%)	22 (29%)	239 (30%)
Ocular conditions	38 (50%)	10 (13%)	141 (18%)
Age of patient	38 (50%)	17 (22%)	141 (18%)
Others	3 (4%)	2 (3%)	13 (2%)

Table 8 Indications for general anaesthesia when general anaesthesia used 'frequently' (total 141 consultants per indication)

	Consultants choosing indicator	Consultants placing indicator as first choice	'Overall score'
Surgeon's preference	104 (74%)	56 (40%)	426 (25%)
Familiar technique	35 (25%)	4 (3%)	95 (6%)
Opposition by anaesthetist	6 (4%)	0	13 (1%)
Stable operating conditions	115 (82%)	50 (35%)	464 (27%)
Patient's preference	97 (69%)	16 (12%)	342 (20%)
Ocular conditions	66 (47%)	9 (6%)	208 (12%)
Age of patient	47 (33%)	6 (4%)	118 (7%)
Others	13 (9%)	0	36 (2%)

operative recovery period,¹⁴ and earlier mobilisation,¹⁶ only 20% of surgeons (n=76) used it 'frequently' (in more than 75% of their cases).

There are several commonly practised methods of administration of local anaesthesia. The traditional technique of retrobulbar infiltration and facial block is the current practice of almost half the consultant population. However, within

the subgroup of surgeons using local anaesthesia 'frequently' the popularity of peribulbar anaesthesia increases.

The majority of surgeons (55%, n=209) do not give sedation for cases under local anaesthesia. The preponderance of non-sedators increases to 70% (n=149) among surgeons expressing 'Day case surgery' as their first choice indicator for the selection of local anaesthesia. When sedation is used, it is most frequently oral. Intravenous sedation is given on a regular basis by only 11% of surgeons (n=42). This increases to 21% (n=16) among those using local anaesthesia 'frequently.' Three surgeons are themselves administering intravenous sedation.

Eighty-seven percent of all consultants (n=330) chose 'Medical contraindications' as a reason for selecting local anaesthesia, with 62% (n=236) placing it as first choice. This contradicts the opinion of Rubin⁷ that local anaesthesia should be seen as an alternative to general anaesthesia for the more fit and healthy and not as a means of operating on unfit patients. The second most common indication for local anaesthesia is 'Patient's preference,' possibly reflecting at least in part, the growing awareness in the community that this technique is available. 'Cost' and 'Speed' are, interestingly, infrequent first choice indications with correspondingly low 'overall scores'.

In the further analysis of indications for local anaesthesia 'Medical contraindications' appears more important to the 'infrequent' than to the 'frequent' users of local, being chosen by 94% of the former (n=132) and 65% of the latter (n=49), whereas 'Surgeon's preference' is chosen by 68% of the 'frequent' users (n=51) but only 30% of the 'infrequent' users (n=43). 'Speed' is more important to the 'frequent' than to the 'infrequent' users of local anaesthesia, being chosen by 49% (n=37) compared with 23% (n=32). 'Cost' is considered unimportant by both groups equally.

'Day case surgery' as an indication for local anaesthesia was selected by 56% of surgeons (n=213), being the first choice of 10% (n=38). This apparent interest in day case surgery is not reflected in the results of the Cataract Audit Week of the College of Ophthalmologists.²⁰ Only 8% of the cases performed that week were day cases and many of these were carried out in a small number of 'day case units.'

There has been a marked increase in the use of local anaesthesia compared with 1985.¹⁸ The exclusive use of general anaesthesia was then employed by 63% of surgeons, whereas only 37% (n=141) now use general anaesthesia 'frequently' (in >75% of cases). Six surgeons volunteered the information that they invariably employ general anaesthesia.

Increasing interest in local anaesthesia for cataract surgery has implications for resource management. In addition it has been suggested that a growing number of anaesthetists are themselves interested in administering local anaesthesia for ophthalmic surgical procedures.⁷ This has the advantage that the anaesthetist is more involved in the preparation of the patient, but is likely to be resisted by many surgeons, the pericocular and orbital tissues traditionally being

the domain of the surgeon rather than the anaesthetist.

The most popular indications for the selection of general anaesthesia rather than local are 'Patient's preference,' chosen by 77% of surgeons (n=295) and 'Stable operating conditions,' chosen by 72% (n=275). The importance of 'Stable operating conditions' increases among the 'frequent' users of general anaesthesia, being selected by 82% (n=115) and decreases among the 'infrequent' users, being selected by 60% (n=45). 'Opposition by anaesthetist' was selected as a reason for general anaesthesia by 9% of consultants (n=34). In the further analysis of indications for general anaesthesia 'Surgeon's preference' is a more commonly chosen indicator among the 'frequent' users of general anaesthesia. The same subgroup of surgeons also cites 'Familiar technique' more commonly.

In conclusion, extracapsular cataract extraction is by far the most popular technique in current use with phacoemulsification practised infrequently. Almost all surgeons routinely insert an intraocular lens. There has been a trend towards the use of local anaesthesia, the retrobulbar technique remaining the most popular. Medical contraindications and patient preference are considered the most important indications for selection of local anaesthesia.

We thank the many consultant surgeons whose cooperation in responding so fully and rapidly to our request for information allowed this survey to take place. We are particularly grateful to Professor A R Elkington and Sister M Alexander of Southampton Eye Hospital for their help and guidance.

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