BUJO RESEARCH

Anaesthetic Choice for Cataract Surgery

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Abstract

Cataract surgery is one of the most common operations performed by the NHS. The resources required for the provision of these cataract services can be reduced by increasing the proportion of operations conducted under local anaesthesia (LA). This local service appraisal updates and augments the literature concerning anaesthetic choice for cataract surgery and indicates the factors locally influencing anaesthetic selection. This information was extracted from the theatre records of the 8566 cataract operations performed at Newcastle's Royal Victoria Infirmary in 2011. Of these 247 (2.9%) operations were found to be conducted under general anaesthesia (GA) and a sample of 46 of these cases were further examined to find the indication for GA. In 29 (63%) cases GA was selected despite no documented clinical contraindications of LA. These findings imply that the proportion of cataract operations performed under GA in a large tertiary centre could be reduced, thereby reducing the cost of service provision.

Keywords: phacoemulsification, cataract, local anaesthesia, general anaesthesia

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Introduction

In the financial year 2010-11 the NHS performed 293,487 cataract operations in England alone.[1] This is the result of a trebling of numbers over the past 2 decades which has been facilitated by several advances in surgery provision.[2,3] The proportion of operations using phacoemulsification has progressed from less than 4% in 1990 to 99.7% circa 2005.[3] This evolution in the ophthalmologist's approach has also been accompanied by anaesthetic advances. In the same period a majority use of GA in cataract operations has been replaced by an overwhelming 95.5% dominance of LA in the latest large scale UK dataset.[4] The increasing prevalence of LA in cataract surgery is beneficial for two reasons. Firstly, there is evidence that LA causes fewer adverse events than GA as well as reducing the recovery time for the patient.[5-7] Secondly, the financial cost to the NHS per cataract operation is lower when conducted under LA. It is the aim of this local service appraisal to determine the current residual proportion of GA cases and ascertain how many are clinically unavoidable. If a sufficient number of GAs are administered to cataract patients simply because they are uncomfortable with the idea of LA, then implementing a protocol

to reduce anxiety associated with LA operations could enhance LA uptake in the NHS cataract service.

The literature comparing the relative frequency of adverse events with GA and LA specifically in cataract surgery is both limited and dated. The literature also considers LA sharp needle techniques whilst trends have moved towards blunt cannula administration,[4,8] which have further reduced adverse outcomes.[9,10] Nevertheless, it is important to note there is no suggestion of disadvantaging a patient by selecting LA, though there may be benefits. Studies from 1993 and 1996 found higher rates of nausea post-operatively and more fluctuations in pulse and blood pressure intra-operatively with GA.[5,6] Patients with risk factors for ischaemic heart disease have also been shown to have more ischaemic episodes during and following cataract operations under GA compared to LA.[7] Despite these differences no overall benefit is demonstrable for either anaesthetic modality in terms of long term performance, morbidity or mortality from these data. However, evidence that adding sedation to LA worsens prognosis is convincing.[11]

The financial advantages of LA over GA for cataract surgery are clearer. The latest guidance from the Royal College of Ophthalmologists (RCOphth) and the Royal College of Anaesthetists (RCoA) states that unlike GA, a dedicated anaesthetist is not required for each cataract operation.[2,12] They also advise that topical, sub-conjunctival and sub-Tenon's LA do not need to be given by an ophthalmologist, but can be administered by any appropriately trained member of staff.[2] LA allows for 2-3 times as many operations per list compared to GA and imposes a lower demand on inpatient beds from both day cases and overnight hospital stays. All of these factors mean that a cataract service using a higher proportion of LA is a more efficient and more affordable one.

The £245 million spent on cataract surgery by the NHS, in the 2010/11 financial year in England alone, indicates the sizeable savings that could be made from even a modest increase in the prevalence of LA.[1] As LA rates were already up to 95.5% circa 2005, it is possible that a further increase could be challenging to produce.[4] To assess the feasibility of such a reduction it will be necessary to have recent data of the rates of GA and an indication of whether LA was clinically contraindicated in those cases. The proportions of anaesthetic techniques employed in cataract surgery on a national scale have not been documented since 2006 and even locally these figures are often not readily available. Thus, data of how many cataract operations are performed under GA and why this form of anaesthesia was chosen needs to be augmented and updated.

Table 1 | Contraindications to LA[2]

- PATIENT REFUSAL AFTER CAREFUL COUNSELLING
- LOCAL SEPSIS
- TRAUMA OR PERFORATED GLOBE
- GROSSLY ABNORMAL COAGULATION
- SEVERE REACTION, ALLERGY OR OTHER COMPLICATION OF LA
- CONFUSION, INABILITY TO COMMUNICATE OR TO COMPLY WITH INSTRUCTIONS
- UNCONTROLLED TREMOR
- INABILITY TO ADOPT ACCEPTABLE POSITIONING

Methods

The location for the study was the Eye Department of the Royal Victoria Infirmary, Newcastle; a tertiary centre performing 8566 cataract operations between 01/01/2011 and 31/12/2011. The theatre records for this time period were examined to identify cataract operations using GA. The date of these operations, the patients' numbers and names were noted. Combined procedures, such as phacotrabeculectomy, were excluded. Once all the operations had been identified, a consecutive sample of 62 cases was selected. Each was assigned a number to pseudo-anonymise the data. Patient notes were collected and interrogated against a proforma. The proforma was designed using the guidance from RCoA and RCOphth, specifically the suggested indications for

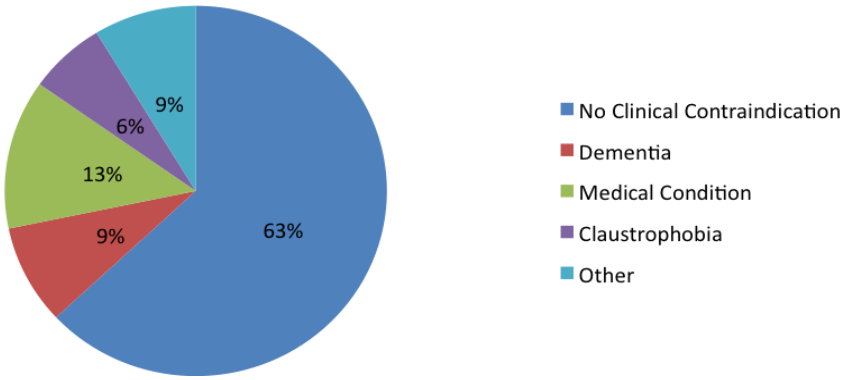

Figure 1 | Reason for selecting GA.
Frequency of contraindications to LA for cataract surgery (n=46)

use of GA over LA in cataract surgery (Table 1). 14 sets of notes were unavailable and 2 case notes contained contradictory anaesthetic information, leaving 46 GA cases as a sample to be examined. Optimally this sample would be larger; however the limited resources available for this service appraisal did not allow it.

Results

Of the 8566 cataract operations performed 247 (2.9%) of the cataract operations used GA. In the majority of notes examined (63%) no clinical contraindication for LA was present (Figure 1). Whilst patient request for GA was not explicitly documented in all cases it is the only remaining accepted LA contraindication.

Discussion

It seems from this service appraisal that the majority of patients declining LA for their cataract operation are doing so for potentially preventable reasons. Whether or not patient choice, and thus validity of consent, can be maintained whilst reducing LA refusal could create a limit on the desirable extent of LA dominance. However, data produced in an audit of an ophthalmic surgical department in Norfolk demonstrated a GA rate of 1.4% in the 2426 phacoemulsification procedures performed over 6 months.[13] These figures suggest that even lower use of GA in the NHS cataract service is possible. They also highlight a weakness of this appraisal; this degree of regional variation means the local figures generated here will not be applicable to each ophthalmic centre.

The next step is to find out what dissuades patients from what is broadly accepted as the superior anaesthetic option for both the NHS and its patients.[2] One multicentre approach would be to examine the relationship between the rates of GA at a centre and the pre-operative counselling content, such as the use of patient information leaflets.[14] Also, a qualitative approach could illuminate which factors dissuade patients from LA. Information from these sources would allow guidance to be formulated and applied on a national level to reduce LA refusal in cataract surgery. Until such a time, educating patients and taking time to explore their concerns is likely to provide the best outcomes.

Conclusion

Whilst the recent decreases in the rate of general anaesthesia for cataract surgery seem to have continued there seems to be substantial inter-regional differences in anaesthetic choice. Given these differences, and the predominantly non-clinical composition of local anaesthesia contraindications, increased dominance of local anaesthesia for phacoemulsification in the Royal Victoria Infirmary, and in likelihood elsewhere, seems possible. ■

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