



BOAS

Ophthalmic Anaesthesia News

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BOAS Meeting Report, June 28-30th, 2000

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Ophthalmic Anaesthesia News

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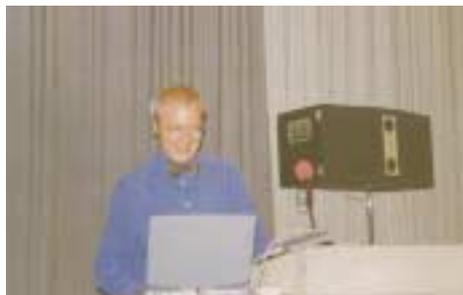
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This was my first visit to Bristol. I was excited to be there before the BOAS meeting. My good friend, Dr Robert Hustead, accompanied me. Bob is an ex pilot and a very good navigator. His directions were superb all the way from Middlesbrough to Bristol. When we arrived in Bristol City near the hotel, we could not find the hotel car park although we could see the hotel. Bob was scheduled to conduct the workshop on anatomy. The time was approaching fast. Ultimately, we managed to park the car in the designated area. We went straight to the hotel reception and asked for the rooms, but they were not ready for occupation. We were eager to be dressed properly for the occasion, but we could not find an appropriate place to change our clothes. Bob came up with a bright idea and suggested why don't we get changed in the car park. We re-parked the car in a corner and we managed to change our shirts and trousers. Our wives helped us in getting changed by cordoning off the area! We finally made it to the hotel. We were then taken to the Bristol simulation centre.



Dr Robert Johnson, BOAS 2000 Meeting Organiser



Drs Stephen Mather and Francis Forrest, Co-organiser

There were other workshops but the one for anatomy was important to us. The anatomy workshop was jointly conducted by Dr Gary Fanning, Prof. Jonathan Dutton and Dr Bob Husted. Despite being jetlagged and having difficulty with the technology, Jonathan presented anatomical illustrations in PowerPoint superbly. The meeting was blessed with the presence of Dr Roy Hamilton and the discussion was very enjoyable.

The second part of the workshop involved simulation. The simulation workshop was a live Internet transmission from the simulation centre to one of the lecture room in the hotel. Some delegates were in the hot seat. I was supposed be in the hot seat but I managed to escape this sentence. The technology worked fine and the delegates enjoyed the scenario on the anaphylactic reaction.



Prof Jonathan Dutton participating in the Anatomy Workshop



Dr Gary Fanning participating in the Anatomy Workshop

After the hectic travelling and attendance at the workshop, I had to attend then BOAS Council meeting prior to the reception in the Bristol City Museum. The whole museum was open to us to visit. Drinks, food, music and the exhibits of Bristol Museum made our evening very enjoyable.

The venue for the main meeting was the Watershed Conference Centre, which was only a walking distance from the hotels and City. The meeting started with a welcome speech by Dr Robert Johnson, President of BOAS. 120 delegates attended the meeting. The theme of the first session was Risk and ophthalmic anaesthesia. The topics included preoperative assessment, preparation, guidelines and consent to treatment.



Dr Marc Feldman addressing the issues on preoperative assessment and preparations



Dr Monica Hardwick talking on the progress of the Joint Colleges Guidelines

Free paper session was chaired by Dr Chandra Kumar and trainees presented the abstracts.



Drs H Knight, Z Sheikh and S Vadodaria presenting free papers

Three topics included local for vitreo-retinal surgery, Local anaesthesia for cataract surgery: York experience and an audit of haemorrhagic complications in warfarinised patients.



Mr Ken Barber, Dr Z Sheikh, Dr Monica Hardwick and Dr Marc Feldman sitting in the audience

Our distinguished speaker, Dr Tony Rubin, delivered a prestigious new lecture entitled "The Abbott's Lecture". The title of his talk was Safer Local Anaesthetic Drugs.



Dr Tony Rubin presenting Abbott's Lecture

The afternoon session theme was again anatomy for those who missed the workshop.

In the evening we were taken to Ashton Court for the dinner. The sight of Ashton Court was amazing. The food was good and so was the wine. The entertainment included a band all the way from Newcastle. The group entertained us for 3 hours. The evening will be remembered for a long time to come.

Next day the meeting theme was World anaesthesia for ophthalmology. Speakers from several different continents were the highlights of this session. Three notable speakers were Dr Emile Calenda, France, Dr Alexander Logis, Russia and Dr Uday Goraksha, India. While Emile presented in English, Dr Logis spoke in Russian with Dr Andrei Varvinski of Cardiff giving simultaneous translation.



Dr Emile Calenda, France



Dr Alexander Logis, Russia



Dr Andrei Varvinski translator for Dr Logis



Dr Uday Goraksha, India



Mr Tim Dowd (Treasurer), Dr Robert Johnson (President) and Dr Chandra Kumar (Secretary) during the Annual General Meeting

The last session included another superb presentation by Dr Gary Fanning. This session ended with case discussions. Drs Robert Johnson, Chris Dodds and Roy Hamilton selected three interesting cases and the delegates participated in the discussion.

We were pleased to have the generous support of many pharmaceutical companies and would hope to see more companies participating in the future events.



Dr Robert Johnson, Dr Chris Dodds and Dr Roy Hamilton during Case Discussion



Delegates attending BOAS Meeting in Watershed Conference Centre, Bristol

On the whole the meeting was superbly organised and well attended. Drs Robert Johnson, Stephen Mather and Francis Forrest should be congratulated for their efforts in organising such a successful and thought provoking meeting.

We all look forward to meeting again next year in London.

**OAS meeting report
Chicago, 15-17th September 2000**

Dr Robert Johnson

President BOAS

Consultant Anaesthetist

Bristol Royal Infirmary, Bristol

Flying over the Great Lakes from Amsterdam (for some reason BA likes all Bristolians to fly KLM as they provide no convenient means of reaching Heathrow) the colours were simply magnificent – vivid turquoise and ultramarine. It conveyed some of the beauty and excitement expressed by patients on first being unpadding after cataract surgery.

The OAS meeting is held in Chicago each year by popular demand of the members. I can understand this as it is a clean, attractive and vibrant city with great museums, symphony halls, jazz and restaurants. No cows this year though (see last year's report). As ever, the kindness and hospitality shown to the English delegates (just three this year) was superlative and much appreciated.

The programme was varied and stimulating. I will say at the outset that David Greaves' talk on training and Chandra Kumar's on the Greenbaum sub-tenon's technique were exceptionally well researched, illustrated and delivered – that was not just my view.



Dr Chandra Kumar presenting anaesthetists evaluation of Greenbaum's sub-Tenon technique

Certainly David Greaves produced a reasoned and clear rationale for teaching regional blocks

without putting patients at risk or slowing down the list. Equally important, trainees taught in the way suggested would be well appraised of their progress without fear or embarrassment.



Dr David Greaves and Dr Robert Johnson enjoying dinner hosted by Dr Gary Fanning

If I change to sub-tenon's, I think a modified Greenbaum technique would be my starting point. Talks on alternative medicine were enjoyable but probably would not have convinced many of us that the scientific basis is always as clear as the undoubted benefit that some patients in some situations gain. A beautifully illustrated talk on retinal surgery convinced me, not that I had any doubts, that these surgeons are very skilful and are developing amazing techniques to restore and preserve vision. I had no idea that retinal relocation for macular degeneration was a possibility.

Topical anaesthesia was addressed in several presentations and the message was reasonably clear that total comfort is rare unless there is supplementation with sub-tenon's, intracameral or some sedation or analgesia. One

presentation left me feeling rather uncomfortable.



Dr Paul Honan addressing on alternative medicine

It suggested that a safe technique involving midazolam, methohexitone and alfentanil with NO local anaesthesia provided good patient comfort and safety. Somehow, I felt that some LA drops before the drapes were placed may have been contributory. I am sure it is fine in the hands of those who presented but might not find favour with many of us.



Dr Gary Fanning and Robert Johnson in the audience

A paper on risk critically (really quite critically when it discussed CEPOD) discussed the difficulty in obtaining accurate data for risk of LA or GA. Specialist societies might well organise data collection to review the situation – but this would be collecting the data of those who arguably have the greatest knowledge of ophthalmic anaesthesia. Nevertheless, it would be a start.

There were presentations on anaesthesia techniques for ‘ambulatory’ surgery – there was both evidence and anecdote in favour of dexamethasone (4 mg to an adult) as an antiemetic particularly in combination with ondansetron. Also, a case was made for timing the administration of these drugs for twenty minutes before the end of surgery. Preoperative ‘testing’ for cataract surgery reported the important multicentre study published in NEJM earlier this year. There is simply no advantage to patient safety in performing tests (haematology, biochemistry, ECG or radiology) unless it would be indicated for a particular patient by the history and examination even if the patient were not to receive surgery under local anaesthesia. It must be likely that the long awaited ‘new’ Colleges’ guidelines will support this view. There were other good presentations and workshops and, of course, stimulating discussions both between talks and at coffee breaks.

It must be said that the absence of Bob Hustead and Roy Hamilton on this occasion did modify the nature of discussion and both were greatly missed. A very good meeting. I would strongly encourage our members to attend the next OAS meeting in Chicago in early October next year. We do receive a concessionary OAS members’ registration rate and booking early prevents a financial penalty (phrased by OAS as an early booking discount!) However, If you can only attend one ophthalmic meeting next year, make it BOAS in London on 28th June 2001.

ANAESTHESIA FOR STRABISMUS SURGERY

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Introduction

Many anaesthetists providing anaesthesia for ophthalmic surgery have not studied ophthalmology itself in much depth, and compared with their knowledge of general surgery, or gynaecology, for example, their appreciation of the perspective of the surgeon is sometimes found wanting. Nowhere is this more so than in strabismus surgery, where frequently a generic “keep still” anaesthetic is given, without a great deal of thought as to what could be done to improve the quality of anaesthesia, and to minimise the side effects, which are not inconsiderable.

Problems for the anaesthetist

- Most of the patients are children, often small.
- They are usually day-cases
- There is a requirement to meet specific surgical conditions
- Untreated, there is a high incidence of postoperative nausea and vomiting (PONV)
- Prophylaxis against the oculocardiac reflex is required

Surgical requirements

- The squint angle as measured under general anaesthesia is unpredictable, although formulae do exist to predict it^{1,2}
- The ocular alignment is usually more divergent under anaesthesia (without neuromuscular blockade) than in the awake state
- Modern inhalational agents produce poor muscle relaxation and a variable end-point of gaze depending upon the depth of anaesthesia and extra-ocular muscle tone
- Complete neuromuscular blockade is required to produce a reproducible end-point.

General considerations

Most of the patients are children, undergoing day care surgery. There are certain requirements for this:

ASA I or II patients, although others with stable chronic disease may be considered, such as those with:

- Stable congenital heart disease
- Leukaemia
- Cystic fibrosis

Occasionally, well children with a murmur are picked up at the pre-operative visit. Surgery need not usually be cancelled, but referral for an echocardiogram as an outpatient should be made.

Patients with known congenital heart disease must be carefully assessed pre-operatively. If necessary, an echo-cardiogram should be performed. Antibiotic prophylaxis is unnecessary for squint surgery.

Patients with diabetes, asthma or epilepsy should be well controlled. Recent respiratory infection may exacerbate asthma and laryngospasm³ and elective operations such as strabismus surgery should be postponed until the patient is fully well. Intubation intensifies the tendency to cough and breath holding. A recent history of pertussis or measles should lead to a delay of at least 6 weeks from the acute episode as the respiratory tract remains irritable throughout this period⁴

Strabismus surgery generally does not place much stress on insulin-dependent diabetics, but care must be given to fasting, fluid management and post-operative insulin requirements. This should not limit access for day surgery.

Social and family factors

Most patients for strabismus surgery are day cases. For children, one must rely upon the

parents to follow starvation guidelines and to arrange suitable transport. Sometimes transport must be provided by the hospital. The distance between hospital and home is important, but arbitrarily defined. A common cut-off point is 10 road miles or 20 minutes journey time. If returning home, carers and parents must have access to a telephone in order to be able to call the hospital for advice or reassurance. It is important to advise carers about driving style, since abrupt turns and fast cornering may exacerbate PONV.

Pre-operative preparation and fasting regimens

Day patients need not be admitted more than two hours before surgery, provided they have been pre-assessed. Adequate time must be allowed, however, for the administration of pre-operative analgesic premedication. Haemoglobin estimation is not necessary unless the patient is clinically anaemic or has a haemoglobinopathy. Sickle status should be known.

Psychological preparation of children and their parents is important in coping with a hospital admission⁵. Many hospitals address this question with a booklet or video, or a visit to the ward.

Fasting regimens are many and varied, but the evidence suggests that clear water may be taken until close to the time of surgery. In small children, hypoglycaemia must be avoided, but this is very unlikely to occur, even in babies, with a fast of 4h. The effect of fasting on the emotional state of a child must be considered, but it is thirst, rather than hunger, which is most distressing. This is also true for older children and adults.

Recommended fasting times vary from 2h⁶ to 4h⁷ in the literature. It has been advocated⁸ that the administration of apple juice (3ml/kg) 2h pre-operatively results in a reduced gastric volume, with less thirst and hunger. Milk must be regarded as a solid and may slow gastric emptying. Breast milk may be better absorbed than cow's milk.

Consensus is difficult to achieve, but the modern view is that in infants and children over 1 year, and also in older children and adults, 4h starvation for food and milk and 2h for clear fluid (water, black coffee or tea) seems safe. If necessary, children should be admitted in time to ensure that they do have a drink 2-3h before surgery. This is difficult for morning lists.

Since strabismus surgery, in untreated patients, results in a high incidence of nausea and vomiting, many anaesthetists advocate that patients who have undergone overnight starvation should be given intravenous fluid. There is some evidence that this reduces nausea.

Premedication

Sedative premedication is almost always unnecessary unless the child has cerebral palsy or a previous adverse experience of anaesthesia. Local anaesthetic cream should be applied in 2 sites if an intravenous induction is planned. Reassurance, and encouragement to the parent to accompany the child, and cuddle the younger ones, is generally the best approach.

Paracetamol (acetaminophen) premedication (30mg/kg orally 1h pre-op.) allows the use of minimal opioid during the operation. Diclofenac or ibuprofen may also be given pre-operatively as adequate tissue levels will then be obtained at the time of surgery. Per-operative rectal non-steroidals, or IV ketorolac are often given, but it takes from 45 min (ketorolac) to more than 1h (rectal diclofenac) to achieve an analgesic effect.

Atropine should not be given orally at this time as it will cause distressing dry mouth. Intramuscular injections should be avoided in children. Blocking of the oculocardiac reflex should be part of the anaesthetic sequence rather than premedication.

Anaesthetic technique

Parental presence in the anaesthetic room is a matter for the anaesthetist's discretion, as is a

preference for intravenous or inhalational induction. Much will depend upon the age of the patient and the anaesthetist's ability to secure an intravenous cannula in smaller children. High quality assistance, of course, should always be available, but this is even more important in paediatric anaesthesia. Whichever agents are employed for induction and maintenance of anaesthesia, the paramount aim is to avoid PONV, which has a high incidence in strabismus surgery, up to 60% in some series⁹.

Choice of induction agent

For practical purposes, the choice of agent is between propofol and sevoflurane. Thiopentone and halothane are only rarely used nowadays in the UK, although thiopentone is still widely used in Europe and the USA. Thiopentone may cause nausea, even after a single dose. In Bristol, the change from thiopentone to propofol in the 1980s, while maintaining exactly the same volatile agent technique in every other respect, led to a fall in postoperative vomiting from 25% to 12%.

Maintenance of anaesthesia

The broad choice lies between total intravenous anaesthesia (TIVA) with propofol, and maintenance with a volatile agent, with or without nitrous oxide. The choice of volatile can be further refined to sevoflurane or isoflurane. Sevoflurane has little advantage over isoflurane for short procedures, and may cause more post-operative nausea. Personal experience suggests that added nitrous oxide seems to make little difference to PONV in children.

The lowest incidence of PONV in strabismus surgery is provided by TIVA with propofol¹⁰, even when supplemented by low-dose fentanyl¹¹ or sufentanil¹² or nitrous oxide¹². Children require significantly higher maintenance doses of propofol (12 – 15 mg/kg/h) than adults. Propofol infusion is not recommended for children less than 3 years, but single induction doses are widely used in small infants outside the neonatal period.

A single induction dose of propofol, followed by volatile agent maintenance, confers no

protection against PONV. The oculocardiac reflex, producing bradyarrhythmias, is more prominent after propofol TIVA (with nitrous oxide) compared to nitrous oxide-isoflurane (50% vs 15%)^{10,11,12}. The oculocardiac reflex can be abolished by conventional peribulbar block or a single caruncular injection of local anaesthetic (LA)¹³. Sinus arrest (lasting >10s) occurred in 15% of untreated patients in a study by Ruta et al¹⁴. Sinus arrest, rather than profound bradycardia, is more common in younger children.

The use of a caruncular injection of LA is not widely practised in the UK but deserves more attention. In the paper by Guerzider et al¹³, *none* of 37 children undergoing strabismus surgery with TIVA and caruncular LA manifested reflex bradycardia.

The use of LA avoids the need for prophylactic anticholinergics, which are usually given in high doses, which produce unwanted tachycardia. For prophylaxis, if LA is not used, glycopyrronium [glycopyrrolate] (5 micrograms/kg IV) is preferred as it produces less peak tachycardia and lasts longer than atropine. Onset of action is, however, rather slow, and atropine (10 – 20 micrograms/kg) is preferred to treat established bradycardia. The oculocardiac reflex can also be prevented by the topical application of local anaesthetic solution to the muscle after opening the conjunctiva¹⁴.



In a study by Tramer et al,¹⁵ the use of propofol TIVA resulted in a greatly increased incidence of reflex bradycardia (40% compared with isoflurane 14%), even after 20

micrograms/kg prophylactic atropine! Interestingly, the incidence of PONV in this study was similar in both groups. No nitrous oxide was used, and all children received alfentanil. This seems at variance with most other published work.

Many anaesthetists now routinely use the laryngeal mask airway in ophthalmology as there is less breath holding, laryngospasm or bronchospasm on removal than with a tracheal tube. Small children (<1 y), however, are more difficult to manage, especially when ventilated, as the LMA often does not fit well, there are large leaks, and the risk of displacement is high.

Intra-operative analgesia

Opioids seem to increase PONV more than nitrous oxide in this group of patients, who are mostly children in the published studies. This accords with clinical practice in many peoples' experience. A logical approach might be to use little or no opioid and to provide analgesia by a combination of paracetamol, NSAIDs and local anaesthetic block. If opioids are used, they should be short-acting e.g alfentanil or small doses of fentanyl.

Intraoperatively, nitrous oxide can be added for the duration of the initial dissection and then withdrawn.

The use of 0.1% diclofenac eye drops (Voltarol Ophtha^R) has been shown to produce much longer lasting analgesia than oxybuprocaine (benoxinate) when applied to the conjunctiva¹⁶. In addition, the oculocardiac reflex was not observed in the 40 children in the study by Morton et al. We have modified their approach and apply the drops directly to the muscle, under direct vision, before closure of the conjunctiva. Topical ketorolac has also been used for this purpose.

Neuromuscular blockade

Many anaesthetists still use spontaneous ventilation with volatile agents when providing general anaesthesia for strabismus surgery. In past times, when halothane was almost universally used, deep anaesthesia with this

agent could provide reasonable extraocular muscle relaxation, adequate for surgery.



This is no longer the case when isoflurane or sevoflurane are used for maintenance. The measured angle of squint will be inaccurate as the gaze tends to deviate from the straight ahead position, unless anaesthesia is very deep. The use of neuromuscular blockade provides a reproducible end-point, when there is no tone in the muscles, and the position of the eye is dictated by the fixed length of the muscles.

Any non-depolarising neuromuscular blocking agent may be used, and can be chosen to suit the expected duration of the operation. Atracurium, vecuronium and rocuronium are all commonly used. Full neuromuscular blockade must be maintained at least until a forced duction test has been performed, or the degree of resection/recession has been decided. Some surgeons request continuing paralysis for the whole of the surgery.

Using full neuromuscular blockade, a lighter level of general anaesthesia can be used, which reduces the doses of agents given, providing for a faster recovery. It is not clear whether this actually reduces PONV in these patients.

Anti-emetics

Many attempts have been made to reduce PONV by the use of antiemetic drugs. No one antiemetic is entirely efficacious. Ondansetron and granisetron¹⁷ appear to be useful in strabismus surgery, although evidence is conflicting. In the study by Tramer et al¹⁵, ondansetron 5mg/m² was given to children aged 3 to 16 years who received thiopentone-isoflurane without nitrous oxide. The

reduction in vomiting with ondansetron was from 26% to 8% at 6h and from 46% to 33% at 24h post-operatively. The benefit was seen largely in the early post-operative period. Late vomiting occurred despite the use of the short-acting opioid alfentanil and the avoidance of nitrous oxide. This late vomiting is a constant feature in strabismus patients, and is difficult to explain.

Other, older, antiemetics such as low dose droperidol (10 micrograms/kg), metoclopramide and phenothiazines are still used. The central effect of metoclopramide is attenuated by opioids and the side effects of both metoclopramide and phenothiazines (restlessness and possible dystonic reactions) may outweigh their benefit.

It is possible that patients who are prone to motion sickness are more prone to PONV. In an adult study¹⁸ Apfel et al showed that the most important risk factors in a group of ophthalmic patients, none of whom received prophylactic antiemetics, were female gender, young age, a previous history of PONV and a tendency to motion sickness.

It should be pointed out to parents and carers that violent cornering on the car journey home may provoke PONV which might not have occurred with a gentle driving technique!

Post-operative analgesia

With the use of paracetamol premedication, pre- or peroperative NSAIDs, diclofenac eye drops and caruncular local anaesthesia, there is virtually no requirement for postoperative analgesic medication other than paracetamol.

Very occasionally a small dose of opioid is required, sometimes after second or third strabismus operations, where there is much fibrosis, and dissection to find the muscle is more extensive. In this instance, repeated, *small*, incremental doses of morphine (20 micrograms/kg) can be given IV in the recovery room, giving just sufficient to provide adequate analgesia. Conventional large doses, e.g. 100 micrograms/kg, should be avoided, as they provoke nausea. The aim should be to give as little opioid as possible.

Tramadol may be useful and codeine or other weak opioids are frequently used in adults, often combined with paracetamol as co-dydramol or co-codamol, but these may also cause nausea, particularly in the higher strengths (30/500).

Conclusion

Because of the specific surgical requirements for strabismus surgery, the provision of a simple “keep still” anaesthetic is inappropriate. In addition, the high incidence of bradyarrhythmia, nausea and vomiting are major concerns which must be addressed.

Careful attention to preoperative analgesic regimens, the avoidance of opioids as far as possible, and the use of local anaesthesia and topical NSAID can result in little or no requirement for post-operative pain relief beyond paracetamol.

The combination of TIVA using propofol, minimal or no opioid, local anaesthetic block and anti-emetics is probably the best option.

References

- 1 Castenera de Molina A, and Giner-Munoz MLOcular alignment under general anaesthesia in congenital esotropia. *Journal of Paediatric Ophthalmology and Strabismus* 1991 **28**(5) 278-282
- 2 McCall LC, Isenberg SJ, and Apt L The effect of torsional muscle dysfunction and surgery on eye position under general anaesthesia. *Journal of Paediatric Ophthalmology and Strabismus* 1993 **30**(3) 154 – 156
- 3 Olsson GL and Hallen B. Laryngospasm during anaesthesia. A computer-aided incidence study in 136,929 patients. *Acta Anaesthesiologica Scandinavica* 1984 **28** 567 – 575
- 4 Keneally JP. Day Surgery in Paediatrics. *Clinics in Anesthesiology* 1985 **3** 679 – 696
- 5 Meursing AEE. Psychological effects of anaesthesia in children. *Current Opinion in Anaesthesiology* 1989 **2** 335 - 338.
- 6 Finley GA, Bissonnette B, Goresky GV et al

- The effect of oral ranitidine and pre-operative oral fluids on gastric fluid pH and volume in children. *Canadian Journal of Anaesthesia* 1989 **36** S95
7. Meakin G, Dingwall AE and Addison GM. Effects of fasting and oral premedication on the pH and volume of gastric aspirate in children. *British Journal of Anaesthesia* 1987 **59** 678 – 682
 8. Splinter WM, Stewart JA and Muir JG. The effect of pre-operative apple juice on gastric contents, thirst and hunger in children. *Canadian Journal of Anaesthesia* 1989 **36** 55-58
 9. Blanc VF, Ruest P, Brisson G et al. Serum gastrin and blood glucose levels during halothane-nitrous oxide anaesthesia and strabismus surgery in children. *Canadian Journal of Anaesthesia* 1991 **38** 43-48
 10. Snellen FT, Vanacker B, Van Aken H. Propofol-nitrous oxide versus thiopental sodium-nitrous oxide-isoflurane for strabismus surgery in children. *Journal of Clinical Anaesthesia* 1993 **5**(1) 37-41
 11. Larsson S, Asgeirsson B, and Magnusson J. Propofol-fentanyl anesthesia compared to thiopental-halothane with special reference to recovery and vomiting after pediatric strabismus surgery. *Acta Anaesthesiologica Scandinavica* 1992 **36**(2) 182-186
 12. Wilhelm S, and Standl T. Does propofol have advantages over isoflurane for sufentanil-supplemented anaesthesia in children for strabismus surgery (German with English abstract). *Anaesthesiologie, Intensivmedizin, Notfallmedizin, Schmerztherapie.* **31**(7) 414 – 419
 13. Guertzider V, Creuzot-Garcher C, Dupont G, et al. Combined general and caruncular anaesthesia for strabismus surgery in children. *Ophthalmologie* 1998 **12**(3) 137 – 140
 14. Ruta U, Gerding H, and Mollhoff T. Effect of locally applied lidocaine on expression of the oculocardiac reflex (German with English abstract). *Ophthalmologie* 1997 **94** (5) 354 – 359
 15. Tramer MR, Sansonetti A, Fuchs-Buder T et al. Oculocardiac reflex and post-operative vomiting in paediatric strabismus surgery. A randomised controlled trial comparing four anaesthetic techniques. *Acta Anaesthesiologica Scandinavica* 1998 **42** (1) 117 – 123
 16. Morton NS, Benham SW, Lawson RA et al. Diclofenac vs oxybuprocaine eyedrops for analgesia in paediatric strabismus surgery. *Paediatric Anaesthesia* 1997 **7** 221 – 226
 17. Fujii Y, Toyooka H, and Tanaka H. Antiemetic efficacy of granisetron and metoclopramide in children undergoing ophthalmic or ENT surgery. *Canadian Journal of Anaesthesia* 1996 **43** (11) 1095 – 1099
 18. Apfel CC, Greim CA, Goepfert C et al. Postoperative vomiting. A score for prediction of vomiting risk following inhalation anaesthesia (German). *Anaesthesist* 1998 **47** (9) 732 - 740

Preoperative Evaluation of Cataract Patients

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Preoperative evaluation of the adult ophthalmic patient is controversial because it involves the preparation of a high-risk patient for low risk surgery. The goals of preoperative evaluation are to establish a doctor-patient relationship, to psychologically prepare the patient, to assess risk, to plan peri-operative management, to

obtain informed consent, and to meet legal requirements.

There are additional benefits to the patient of preoperative evaluation. General medical screening can be good preventive medicine to find previously unknown conditions such as

hypertension and diabetes. This can lead to earlier treatment. Overall medical care can be improved for known conditions which are not yet optimised. Some patients require acute medical care. At least once yearly, we have sent patients directly from the pre-op unit to the Coronary Care Unit for treatment of myocardial infarction.

Preoperative evaluation presents potential problems as well. Rapport within the medical care team can be strained as differences of opinion on patient management arise. There can be inconsistencies in care and approach that can lead to inefficiencies and confusion and frustration to the patient and the medical care team. Last minute cancellation for preoperative issues leads to disruption of the operating room schedule.

Two questions must be answered:

1. What is an adequate preoperative evaluation?
2. How do we do this in a fiscally responsible and convenient way?

Regulatory agencies are of not much help. Our regional Peer Review Organisation, a guide for Medicare providers states that an appropriate and timely history and physical examination must be completed and the results be in the medical record. An explanatory note states that for general and regional anaesthesia, there must be an examination of the heart and lungs and mental status. For monitored anaesthesia, there needs to be an examination of the heart and lungs, but there must be at least two sentences. "Heart and lungs are normal" would be considered insufficient. For local anaesthesia, only an examination of the operative site and patient allergies must be documented. These regulations serve as a bare minimum, but do not answer the questions.

Ophthalmic surgery patients are high-risk. The average patient for cataract surgery in the USA is about 74 years old. There is a high prevalence of hypertension and diabetes. Patients with cataract tend to have a higher

mortality rate than the age-adjusted and mortality-adjusted population.

The surgery is low-risk. There is no blood loss or fluid shifts compared to even relatively minor general surgical procedures. Post-operative pain is easily manageable. High-risk patients, such as those with relatively recent myocardial infarction, have been shown to have a much lower complication rate with eye surgery, compared to general surgical procedures.

Because they are high-risk patients undergoing low-risk surgery, there is controversy regarding the best preoperative management. Some say that because cataract extraction is a low-stress, no-blood-loss procedure, like getting a haircut, no pre-op evaluation would affect outcome, so none is indicated. A recent publication of a large, multi-centre trial, showed no effect of preoperative blood tests and electrocardiogram on post-operative outcome. Others say that there is minor surgery, but there is no minor anaesthesia. Every patient must receive a full evaluation to include every possible test, to detect every possible finding, to institute every possible therapy, and to delay as long as possible, so that the patient can be in the best possible condition and have the lowest possible risk.

We do not want to ignore all risk. Neither do we want to reduce every risk to the lowest conceivable minimum. Our goal is to prepare the patient to present an acceptable risk at surgery. Acceptable risk is determined by the medical care team with the informed consent of the patient. Unacceptable risks present if a patient's condition would indicate inpatient admission for medical treatment, or if a reversible condition would likely lead to a peri-operative complication.

A consensus group was formed to discuss issues of preoperative management. It included anaesthesiologists, surgeons, and internists. The goal was to encourage guidelines which would encourage consistency of care and minimise disruption to patients and

the operating room. The following guidelines were developed.

Cardiac Ischaemia

If medically treated and stable for 3 months, proceed. If new in onset, untreated, or worsening, consult internal medicine. Do the patient's symptoms or electrocardiographic changes signify unstable cardiac disease? Recommend therapy if indicated.

Ventricular Ectopy

Obtain rhythm strip with twelve lead ECG. If 10 or fewer PVCs/minute, or trigeminy, or bigeminy, proceed. If PVCs > 10 per minute, or multifocality, couplets, or syncope, consult cardiology

Is the ventricular ectopy indicative of ongoing unstable cardiac disease? Are further evaluation or medical treatments indicated before surgery?

Sinus Bradycardia

If asymptomatic, elective surgery may be performed.

If symptomatic, consult internal medicine

Is the bradycardia indicative of significant unstable cardiac disease?

Recommend short term and long term treatment.

Congestive Heart Failure

If the patient can lie supine without dyspnea, elective surgery may proceed. If the condition is unknown or has been worsening, consult internal medicine. Do the patient's symptoms signify unstable cardiac disease? Recommend therapy to improve congestive failure.

Post-myocardial infarction

Assess for complications (ischaemia, arrhythmia, failure). Date the event. If 3 months or more has passed, surgery may proceed. If date unknown, consult internal medicine. Can the time of infarction be established? Is the patient clearly free of significant complications?

Atrial Fibrillation

Obtain rhythm strip with twelve lead ECG. If the condition is known and the heart rate < 100 proceed. If unknown, new onset, or heart rate > 100 consult internal medicine. Assess stability of the underlying cardiac disease. Recommend therapy for short-term and long-term heart rate control.

Pacemaker

Obtain rhythm strip with twelve lead ECG

Identify the type of pacemaker. If the heart rate < 60 beats per minute, or if pacemaker spikes do not capture, consult cardiology. Is the pacemaker working properly? Is any intervention necessary prior to surgery?

Valvular Disease

If symptoms are stable over three months, elective surgery may be performed. Antibiotic prophylaxis is not required for eye surgery. If symptoms are worsening, consult internal medicine

Are worsening symptoms indicative of unstable cardiac disease likely to interfere with surgery or lead to a peri-operative complication? Recommend therapy and follow-up.

Hypertension

If sustained systolic pressure is greater than 210 mm Hg or sustained diastolic pressure greater than 110 mm Hg: Consult internal medicine to recommend therapy and follow-up. Reschedule elective surgery after two weeks of anti-hypertensive therapy.

Conclusions

Adequate preoperative evaluation is a medical, ethical, and legal duty of the medical care team.

Ophthalmic patients are difficult, as they are high-risk patients having low-risk surgery.

Guidelines improve rapport, encourage consistency, and improve smooth functioning of the OR.

Outcome studies are needed and will be seen arising over the next several years to guide practice.

Learning to perform local anaesthesia blocks for eye surgery

Dr Guri Singh

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Historically in the UK quality of general anaesthesia has been very good, so that while regional anaesthesia for eye surgery has been widely practised in the rest of the world for over a hundred years, in the UK most eye operations were done under general anaesthesia till about ten years ago. There are occasions when general anaesthesia was not appropriate, regional anaesthesia, usually in the form of a retrobulbar block, was performed by the operator him/herself. Anaesthetists were not usually expected to take part in the procedure and they therefore either took a break or occupied themselves with alternative activities. They were not usually expected to know a great deal about this procedure for the FRCA (FFARCS) and most candidates got through the exam without knowing a great deal about the anatomy of the orbit. Of the current consultant anaesthetist, apart from those who do ophthalmic lists, regional blocks for eye surgery remain unknown territory.

The last ten years has seen the practice of anaesthesia for eye surgery in the UK change totally. This change came about as a result of reports of life threatening complications following retrobulbar injections as well as pressure to do eye surgery on day care basis to increase throughput and save money. Examination candidates these days rarely get through the various sections of the examination without getting asked about local anaesthesia for eye surgery at some point. Candidates are advised to prepare themselves for a question on this subject and if at all possible learn to do LA blocks themselves so that they can talk from experience. Examiners like candidates who use their clinical experience in answering clinical questions.

There is some evidence suggesting that incidence of complications with regional blocks for eye surgery is higher when trainees perform the blocks. A suggestion has been made that trainee anaesthetists or the

occasional ophthalmic anaesthetist should not be performing eye blocks¹. This is not surprising considering the vulnerability of the globe and the “blind” nature of both the retrobulbar and the peribulbar blocks. I inadvertently hold my breath when a trainee is introducing a sharp needle into the orbit under my supervision. There is also a feeling amongst surgeons that anaesthetists are not adequately familiar with the anatomy of the orbit and its contents¹. To counter such a charge I always discuss relevant anatomy with the trainee before letting him/her perform the block. While these are sensible precautions, as long as the potential for globe perforation and other complications reported with sharp needle blocks is there, they will occur however infrequently. So how do we prevent such sight threatening mishaps?

In my view the solution lies in teaching a technique that has an excellent safety record according to the literature so far. In a study of 3000 sub-Tenon blocks no systemic or orbital complications were found². On the other hand in a national survey, albeit over a very limited period, no clear conclusions could be drawn as to the relative safety of one type of block over the other³. The authors did comment upon the limitations of the survey. I find teaching the sub-Tenon block much kinder on my coronaries. While it has a longer and flatter learning curve and appears more complicated compared to the blocks using injections into the orbit, once the trainee develops a feel for the Tenon capsule and the marble floor appearance of the sclera it's a very simple and safe block to learn. Depending on the choice of local anaesthetic and the volume used it provides prolonged anaesthesia and akinesia adequate for most eye operations. Trainees treat it with more respect instead of the cavalier approach some adopt towards the injection type blocks. Once they achieve proficiency with this block and acquire relevant knowledge of the anatomy and a feel for the orbital structures

only then, if they wish, they may go and learn other blocks. There are times when sub-Tenon block is not the most appropriate e.g when due to previous surgery on the globe the conjunctiva and Tenon capsule might be adherent to the sclera. Other blocks not involving blind use of sharp needles are subconjunctival block, intracameral, deep fornix nerve block, topical and various combinations of two or more of these. These are usually performed by the surgeons and do not provide akinesia. They are therefore, only suitable for surgeons who do not require akinesia. Perhaps the British Ophthalmic Anaesthesia Society should provide guidelines on the subject of teaching and learning of eye

blocks, e.g. how many of the different eye blocks trainees should watch and then perform under supervision before they should be allowed to “fly” solo?

- 1 Boase DL. Local anaesthesia revisited. Eye 1996; 10: 531-532
- 2 Fukusaku H, Marron JA. Sub-Tenon pinpoint anaesthesia. J Cataract Refract Surg 1994; 20: 673.
- 3 Eke T, Thompson JR. The National Survey of Local Anaesthesia for ocular surgery. Safety profiles of local anaesthetic techniques. Eye 1999; 13: 196-204

Sub-Tenon anaesthesia an even simpler technique

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We recently read with interest a simple method of delivering Sub-Tenon's anaesthesia described by Dr Chandra Kumar and colleagues in Anaesthesia Journal ¹.

We in our department have also used the similar sort of technique with a slightly different approach. The technique used by us is essentially similar to Steven's technique ², but instead of the eye in the primary gaze, we ask the patients to look up and out. This helps to expose the curve of the eyeball, which provides a smooth path for the advancement of the cannula. The operator stands at the head – end of the patient. A 22-G intravenous cannula is introduced not more than 10-12 mm around the equator of the globe, through the incision made in the inferonasal compartment. Initially a small amount of LA is injected which helps to open up the anterior Sub-Tenon's capsule, and makes it easier to further advance the cannula in to the posterior capsule, at which point the desired amount of local anaesthetic is injected. We feel that if the injection is made in the primary gaze, the force is applied

longitudinally along the cannula, the tip of the cannula or the proximal end can easily kink. But when the cannula is placed along the globe circularly it wraps around the surface of the globe, which supports it, and the cannula does not kink during the insertion or the injection as shown in the **Fig.**



By using this technique, we have not encountered any problems of kinking of the cannula as experienced by Kumar et al. We have successfully used this technique to deliver

local anaesthetic even with a smaller simpler and most readily available intravenous cannula, in a number of patients without any problems or complications.

Reference

- 1 Kumar CM, Williamson S, Chabria R. A simple method of sub-Tenon anaesthesia delivery. *Anaesthesia* 2000; **55**: 12-13.
- 2 Stevens J D. A new local anaesthesia technique for cataract extraction by one quadrant infiltration. *British Journal of Ophthalmology* 1992; **76**: 670-674.

2001 BOAS Meeting London

28-29th June 2001

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Please visit our BOAS Website for Further information

<http://www.boas.org>

French Ophthalmic Anaesthesia Society (FOAS)

Members will be pleased to know that the French Ophthalmic Anaesthetists are in the process of establishing the French Ophthalmic Anaesthesia Society (FOAS). Dr Emile Calenda is co-ordinating the process. Emile is

in constant touch with both BOAS and OAS. Members will be notified of any developments. BOAS and OAS are very keen to help and support the French Anaesthetists.

International Ophthalmic Anaesthesia Society (IOAS)

The formation of an International Ophthalmic Anaesthesia Society (IOAS) is being considered. The idea originated this year in the BOAS meeting, Bristol. Many notable names which include Drs Robert Hustead (USA), Roy Hamilton (Canada), Gary Fanning (USA), Robert Johnson (UK), Marc Feldman (USA), Chris Dodds (UK), Stephen Mather (UK), Francis Forrest (UK), Emile Calenda (France), Chandra Kumar (UK) and others have discussed the idea informally. There was good support from BOAS members after an email shot. The BOAS Council will discuss this matter further in the very near future. OAS Board (equivalent to BOAS Council) debated

this idea at their September 2000 meeting in Chicago. They were all very supportive of the concept. Dr Gary Fanning on behalf of OAS has informed the BOAS Secretary regarding their decision to support the formation of such a Society. If the plan goes ahead we may see the first meeting of the IOAS held in the United Kingdom in the year 2004, just before or after the World Congress of Anaesthesiologists meeting in Paris 2004. It has been suggested that if the Society is established, then UK and USA should arrange alternate meetings every four years if possible coinciding with the World Congress.

Joint Colleges Working Party Report

A working party of the Royal Colleges of Anaesthesia and Ophthalmology has been sitting for more than a year to update the 1993 guidelines. A final draft was sent to both colleges for consultation some weeks ago and their response is expected at the end of September 2000. A final meeting of the working party is scheduled for October, and it

is to be hoped that the Guidelines will be ready for publication soon after. Hopefully they will be evidence based, and reflect changes in good practice, and increased knowledge. As soon as they are available, information will be posted on our web site.

Dr Robert Johnson, Bristol

No subscription for the retired members

It was the unanimous decision of the BOAS Council (June 2000) to waive the subscription fee for all the members of the society who retired from clinical practice. If any of the

retired members are paying subscription by direct debit, they are advised to write to the BOAS Secretary.

Income Tax Rebate to Society Members

BOAS is registered with Her Majesty's Inland Revenue for the purposes of Corporation Tax.

The members can claim income tax allowance against the BOAS subscription.

Change of address

Members are advised to inform the secretary if there is a change of postal or email address.

Contribution for the 4th BOAS Newsletter

We hope to publish the next Newsletter in March 2001. Please send your articles or any contributions for inclusion in the Newsletter by mid February to Dr Chandra Kumar, Secretary

BOAS, South Cleveland Hospital,
Middlesbrough TS4 3BW or email
secretary@boas.org

Acknowledgement

BOAS office is very grateful to Mr Stephen Moore, Information Officer, South Cleveland

Hospital, Middlesbrough for invaluable help in the production of Newsletter.

Important publications from Journals

J Cataract Refract Surg 2000 Aug;26(8):1253-5

Arteriovenous fistula induced by a peribulbar nerve block.

To EW, Chan DT

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Arteriovenous fistula (AVF) of the head and neck region is an uncommon clinical condition that can be of congenital or acquired etiology. We report a case of AVF of the left supraorbital vessels that developed after a peribulbar nerve block was given for cataract surgery.

Anesth Analg 2000 Oct;91(4):934-937

Hyaluronidase as an Adjuvant in Bupivacaine-Lidocaine Mixture for Retrobulbar/Peribulbar Block.

Kallio H, Paloheimo M, Maunuksela EL

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Hyaluronidase 7.5 IU/mL added to the local anesthetic improves peribulbar block, but smaller concentrations have not been shown to be effective. In this prospective, double-blinded study, 714 consecutive ocular surgery patients were randomized into three groups: no hyaluronidase (n = 241), hyaluronidase 3.75 IU/mL (n = 244), and hyaluronidase 7.5 IU/mL (n = 229). Retrobulbar/peribulbar block was performed with two injections of a 1:1 mixture of bupivacaine 0.75% and lidocaine 2%, 6-8 mL. Patient data were collected on demographics, initial volume of local anesthetic, need for supplementary block, and akinesia of the anesthetized eye. When hyaluronidase was used (3.75 or 7.5 IU/mL), the initial block was sufficient and the

anesthetized eye was akinesic significantly more often than in the group without hyaluronidase. The hyaluronidase groups (3.75 and 7.5 IU/mL) did not differ significantly in any respect. We conclude that the addition of hyaluronidase 3.75 or 7.5 IU/mL improved the success of the initial retrobulbar/peribulbar block and akinesia and reduced the need for supplementary block. Implications: We conclude that the addition of hyaluronidase 3.75 or 7.5 IU/mL improved the success of the initial retrobulbar/peribulbar block and akinesia and reduced the need for supplementary block.

Br J Anaesth 2000 Aug;85(2):314-6

Prospective evaluation of deep topical fornix nerve block versus peribulbar nerve block in patients undergoing cataract surgery using phacoemulsification.

Aziz ES, Samra A

Department of Anaesthesia, Faculty of Medicine, Cairo University, Zamalek, Egypt.

We compared the efficacy of deep topical fornix nerve block anaesthesia (DTFNBA) versus peribulbar nerve block in patients undergoing cataract surgery using phacoemulsification. We studied 120 patients, allocated randomly to two groups. Group 1 (n = 60) received peribulbar block with 5 ml of a 1:1 mixture of 0.5% plain bupivacaine and 2% lidocaine supplemented with hyaluronidase 300 i.u. ml⁻¹. Group 2 received DTFNBA with placement of a sponge soaked with 0.5% bupivacaine deep into the conjunctival fornices for 15 min. No sedation was given to either group. Analgesia was assessed by the reaction to insertion of the superior rectus suture and by questioning during the procedure. A three-point scoring system was used (no pain = 0, discomfort = 1, pain = 2). Scoring was repeated at keratotomy, hydrodissection and

hydrodelineation, phacoemulsification, irrigation and aspiration, and at intraocular lens insertion. If the patient's pain score was 0 or 1, no further action was taken. If the pain score at any stage of the operation was 2, intracameral injection of 1% preservative-free lidocaine was given. One patient in Group 2 needed intracameral lidocaine at the stage of phacoemulsification ($P > 0.05$) and four experienced discomfort at irrigation and aspiration ($P = 0.043$). We conclude that DTFNBA may be a useful needle-free anaesthetic technique in patients undergoing cataract surgery using phacoemulsification.

Anaesthesia 2000 Aug;55(8):750-6

Single injection peribulbar anaesthesia. Total upper eyelid drop as an end-point marker.

Frow MW, Miranda-Caraballo JI, Akhtar TM, Hugkulstone CE

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A prospective, observer blinded study on 51 patients undergoing cataract surgery was conducted to assess Total Upper Eyelid Drop as a new end-point marker to single injection peribulbar block. At present, no such clinical marker exists to stop clinicians injecting more than necessary volumes of local anaesthetic and therefore to prevent dangerous increases in intra-ocular pressure. Using this technique, satisfactory ocular akinesia was achieved in 90% of eyes 10 min after injection. Operating conditions were satisfactory in 98% of cases. The mean (range) volume injected was 9.1 (4-15) ml. The mean increase in intra-ocular pressure immediately after injection was 6.9 mmHg, decreasing to 0.7 mmHg after 5 min without the application of ocular compression. We found a negative correlation between the increase in intra-ocular pressure and the volume of injection ($p < 0.002$), which has never previously been reported. We conclude that Total Upper Eyelid Drop is a reliable endpoint marker for producing satisfactory

operating conditions for cataract surgery while minimising increases in intra-ocular pressure and its use may therefore avoid the risks associated with ocular compression.

Br J Anaesth 2000 Aug;85(2):242-5

Altered globe dimensions of axial myopia as risk factors for penetrating ocular injury during peribulbar anaesthesia.

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We measured the range of equatorial horizontal widths (EHW) in axially myopic eyes and identified the sites of staphyloma using B scan echography. One hundred eyes in 50 patients were studied. The axial lengths (ALs) were sorted into five groups of increasing severity of myopia. The group mean AL, group mean EHW and the ratio of EHW/AL was calculated for each range. The results suggest that the increase in the AL in an axially myopic eye is associated with an increase in the EHW. However, this increase in the group mean EHW is relatively small (2.3 mm) compared with the increase mean AL (8.2 mm) across the entire range. The ratio of EHW/AL decreased with an increase in the group mean AL. Therefore, the increase in EHW in an axially myopic eye is unlikely to be a significant risk factor for inadvertent ocular injury for peribulbar injections if a careful single medial canthal approach is used. There was high incidence of staphylomas in eyes with AL > 29 mm, most were inferior to the posterior pole of the globe, and there were none at the equator.

Reg Anesth Pain Med 2000 Sep-Oct;25(5):514-7

Alkalinized lidocaine and bupivacaine with hyaluronidase for sub-tenon's ophthalmic block.

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BACKGROUND AND OBJECTIVES: Alkalinization of local anesthetics has been shown to decrease the onset and prolong the duration of block for extraconal and intraconal application in ocular surgery. The objective of this study is to determine if alkalinization is also effective in sub-Tenon's block when hyaluronidase is added to the drug mixture. **METHODS:** Twenty-nine patients were randomly assigned to 2 groups in a double-blind, prospective fashion to receive 5.125 mL of either a plain mixture LBH (2.5 mL lidocaine 2%, 2.5 mL bupivacaine 0.5%, 5 IU/mL hyaluronidase, and 0.125 mL isotonic saline) or pH-adjusted mixture LBH-PH (2.5 mL lidocaine 2%, 2.5 mL bupivacaine 0.5%, 5 IU/mL hyaluronidase, and 0.125 mL sodium bicarbonate 8.4%) of local anesthetics in a 1-quadrant sub-Tenon's block. Time to onset and time to full akinesia were determined every 30 seconds.

RESULTS: No difference was found between the study groups.

CONCLUSION: pH adjustment of the local anesthetic mixture of lidocaine, bupivacaine, and hyaluronidase offered no additional benefit in sub-Tenon's technique in ocular procedures.

Anesth Analg 2000 Jul;91(1):107-9

Caruncle single injection episcleral (Sub-tenon) anesthesia for cataractsurgery: mepivacaine versus a lidocaine-bupivacaine mixture.

Ripart J, Lefrant JY, L'Hermite J, Borzli F, Nouvellon E, Fabbro-Peray P, Dadure C, Jaussaud A, Dupeyron G, de la Coussaye JE, Eledjam JJ

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We compared the quality of anesthesia provided by mepivacaine 2% or a mixture of lidocaine 2%-bupivacaine 0.5%, both with

hyaluronidase, in caruncle single-injection episcleral (sub-Tenon) anesthesia. Sixty patients undergoing cataract surgery were included in this randomized, double-blinded study. The time to the onset of blockade, maximal akinesia, need for supplemental injection, and time to recovery were recorded. With mepivacaine, the time to onset was slightly shorter, and the akinesia score higher, than with the mixture. Although statistically significant, these differences are small. With mepivacaine, the time to recovery was shorter. We conclude that the reproducible short duration of the block may be an advantage in outpatient surgery.

IMPLICATIONS: We compared the classic mixture of lidocaine 2% plus bupivacaine 0.5% to mepivacaine 2% for caruncle episcleral (sub-Tenon) anesthesia for cataract surgery. Mepivacaine provided a more efficient block with a quicker onset and a quicker recovery. However, these differences were very small and were of little clinical interest.

Acta Ophthalmol Scand 2000 Apr;78(2):196-9
Peribulbar anesthesia and sub-Tenon injection for vitreoretinal surgery: 300 cases.

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BACKGROUND AND OBJECTIVES: We carried out a prospective study in order to evaluate the efficacy and safety of peribulbar anaesthesia supplemented by a sub-Tenon injection in case of inadequate analgesia during vitreoretinal surgery.

METHODS: We performed 300 consecutive vitreoretinal procedures. Patients received a mean volume of 17+/-4.5 ml of a mixture of etidocaine 1%, bupivacaine 0.50% and hyaluronidase (25 UI/ml). Supplementation was represented by a sub-Tenon infiltration of lidocaine 2% (2 or 3 ml). This volume was not included in the mean volume.

RESULTS: Analgesia was adequate throughout surgery without any supplementation in 85% of cases and with a sub-Tenon infiltration in 99%. Akinesia was complete in 82%, mild in 15% and absent in 3% of cases. The sub-Tenon injection was performed immediately before starting the procedure in 58% of cases and during the surgery with a delay of 80+/-21 min in 42%. Eleven patients (3.66%) were agitated during surgery and two of them needed a general anaesthesia to allow for the procedure. Generalised epilepsy was encountered in two patients (0.66%) immediately after the peribulbar injection in one patient and 15 min later in the other. The systolic blood pressure severely decreased between 60 to 70 mm Hg 40 min after the accomplishment of the peribulbar in 2 patients and at 90 min in 2 others.

CONCLUSION: Our results demonstrate that peribulbar anaesthesia alone offers excellent analgesia in 85% of patients and supplemented by a sub-Tenon injection in 99%.

Br J Ophthalmol 2000 Apr;84(4):435-6

Sub-Tenon's local anaesthesia: the effect of hyaluronidase.

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AIMS: A prospective, randomised, double blind study was used to investigate the effect of hyaluronidase on the quality of block achieved with sub-Tenon's local anaesthesia. **METHODS:** 150 patients scheduled for elective cataract surgery were randomly allocated to either sub-Tenon's block with 3 ml lignocaine 2%/adrenaline 1:200 000 alone or with the addition of 30 IU/ml of hyaluronidase. The blocks were assessed for degree of akinesia and reduction of eyelid movement, and also post-injection and postoperative pain scores.

RESULTS: Akinesia and reduction of eyelid movement measured 10 minutes after injection were significantly better in the group with hyaluronidase added to the anaesthetic

solution. Postoperative pain scores were not significantly different between the two groups but the post-injection pain score was greater (marginally significant) in the group with hyaluronidase added.

CONCLUSION: The addition of hyaluronidase significantly improves the quality of the motor blockade achieved with sub-Tenon's local anaesthesia, but has no effect on the sensory blockade.

Eye 1999 Oct;13 (Pt 5):640-2

Comparison of sub-Tenon's anaesthesia by different delivery techniques in cataract surgery.

Tokuda Y, Onda K, Yoshitomi F, Inouye J, Amano S, Oshika T

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PURPOSE: To compare the analgesic effects of three different delivery techniques of sub-Tenon's anaesthesia in cataract surgery by assessing patients' response to the visceral stimulus.

METHODS: A prospective, randomised study was conducted on 345 eyes of 345 patients undergoing phacoemulsification and posterior chamber intraocular lens implantation. They received anaesthetic infiltration into the sub-Tenon's space through a conjunctival incision (115 eyes), infiltration into the posterior sub-Tenon's space (retrobulbar space) through a conjunctival incision (114 eyes), or injection into the intra-Tenon's space (subconjunctival space) without making a conjunctival incision (116 eyes). Pain scores were recorded when the anterior chamber was irrigated with an acetylcholine chloride solution to achieve miosis after lens implantation.

RESULTS: There were no significant differences in pain scores among the three groups (chi-squared test of homogeneity, $p = 0.814$). Approximately 10-20% of patients reported slight to severe pain at the time of acetylcholine administration.

CONCLUSIONS: The three anaesthetic delivery methods of sub-Tenon's anaesthesia possess similar and reasonable analgesic

effects in cataract surgery, but may not block visceral stimuli completely.

Retina 1999;19(4):291-6

Sub-Tenon's anesthesia in vitreoretinal surgery: a needleless technique.

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PURPOSE: To evaluate the safety and efficacy of "needleless" regional anesthesia via the sub-Tenon's route without adjunct facial nerve or subconjunctival block for vitreoretinal surgery.

METHODS: Forty-eight consecutive patients were included and studied prospectively. The number, time, and volume of anesthetic solutions given were recorded. Any complications such as severe intraocular pressure rise or orbital hemorrhage were noted. Within 24 hours after surgery, the patients were asked to grade their level of pain during the procedure using a standard 10-point visual analog scale. The use of postoperative analgesic agents was recorded from the nurses' notes. Patient demography, number of previous vitreoretinal operations, preoperative diagnosis, and operative procedures performed were recorded.

RESULTS: Thirty-seven (77%) patients needed only one or two infiltrations of anesthetic solution (range 1-5, mean 2.1). Ninety-two percent of patients reported a pain score of 0-2 on the visual analog scale (range 0-5, mean 1.17). Ninety percent of patients required no analgesic or just acetaminophen for the control of postoperative pain. The other patients received a single dose or multiple doses of codeine. All patients had adequate akinesia and anesthesia. No complications were encountered.

CONCLUSION:

Needleless regional anesthesia appears to be safe and effective and can thus be considered

as an alternative method of anesthesia in suitable vitreoretinal cases.

Clin Anat 1998;11(6):390-5

Medial canthus episcleral (sub-Tenon) anesthesia imaging.

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Medial canthus single injection periocular anesthesia is an alternative technique to classical regional anesthesia techniques for cataract surgery. The occurrence of a chemosis at the end of this injection has made us question ourselves about the real site of injection. The purpose of this anatomic study was to identify this site with precision, and to describe the spreading of the injected solution. Various volumes of colored liquid latex were injected when using this technique on 10 human orbits. They were deeply frozen and sectioned in thin slices. The site of injection is clearly the episcleral (sub-Tenon) space. This is a gliding space through which pass the ciliary nerves supplying the globe sensitivity. This could explain the high quality of the analgesia of the globe. With the larger volumes injected, spreading of the latex was detected in the orbicularis palpebra. This probably explains the good akinesia of the lids obtained without any facial block. Spreading of the latex to the rectus muscles sheaths should explain the good akinesia of the globe, but was only partially proved in this study. We conclude that the medial canthus single injection periocular anesthesia is an episcleral (sub-Tenon) injection which may explain good anesthesia.

Anesth Analg 1998 Jul;87(1):42-5

Medial canthus single-injection episcleral (sub-tenon anesthesia): computed tomography imaging.

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Single-injection medial canthus periocular anesthesia is a promising regional anesthesia technique for ophthalmic surgery. The purpose of this computed tomography (CT) study was to confirm that this technique is an episcleral injection and to explain why it provides a good akinesia of the globe. Four fresh nonpreserved cadavers (eight eyes) were injected with fractionated various volumes of a contrast media using a previously described technique. For each injection and each eye, CT scans were performed in three planes of the space, and the site and spread of the injection was observed. We confirm that single-injection medial canthus periocular anesthesia is, in fact, an episcleral anesthesia, which explains the good sensory block of the globe. When larger volumes are injected, the contrast media spreads to the lids and extraocular muscle sheaths. We believe that this may explain why this technique provides good sensory and motor block of the globe and eyelids. This technique is a promising alternative to both retro- and peribulbar anesthesia. Implications: We describe medial canthus single-injection periocular anesthesia by a computed tomography injection study in eight human cadaver eyes. It was confirmed to be an episcleral injection. Akinesia of the eyeball is provided by spreading of the local anesthetic solution from the episcleral space to the rectus muscle sheaths.

J Clin Pharm Ther 2000 Aug;25(4):271-277

Long-term effects of nitrous oxide anaesthesia on laboratory and clinical parameters in elderly Omani patients: a randomized double-blind study.

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AIMS: This study examined the long-term effects of nitrous oxide anaesthesia on serum levels of cobalamin and folate, red cell folate levels and haematological parameters, and neurological status in elderly Omani patients.

METHODS: Sixty-nine consecutive patients undergoing ophthalmic surgery were randomly and double-blind assigned to nitrous oxide or propofol anaesthesia. They met the following entry criteria: age 55 years or above, no major organ failure, no clinical signs or symptoms of cobalamin or folate deficiency, mean cell volume (MCV) \leq 96 fl, haematocrit (Hct) higher than 0.3 and no cobalamin and/or folate substitution therapy during the preceding months. Serum levels of cobalamin and folate, red cell folate levels, and haematological parameters were measured prior to anaesthesia and 3-5 weeks later. At that time, the patients also underwent thorough neurological examination.

RESULTS: Data of 51 patients were complete and considered for analysis. In both nitrous oxide and propofol group, the range of exposure time was comparable (\pm 1 h). In the nitrous oxide group, a slight but significant decrease in haemoglobin, Hct, and red blood cell count (RBC) ($P < 0.001$) was observed, whereas there was a mild increase in mean cell haemoglobin (MCH) and mean cell volume ($P < 0.05$). In addition, there was a significant decrease in serum folate levels ($P < 0.05$). Hct and RBC decreased slightly in the propofol

group ($P < 0.05$), whereas there was a small increase in MCH. There was no difference between the two anaesthetics with regard to serum cobalamin and red cell folate levels, but there was a significant decrease in serum folate levels in the nitrous oxide group compared to those in the propofol group. Three patients with pre-existing low red cell folate levels, who were randomized to nitrous oxide anaesthesia, developed clinical symptoms of folate deficiency.

CONCLUSION: This study showed that short-term (40-80 min) nitrous oxide anaesthesia did not affect cobalamin levels but reduced serum folate levels in this elderly population. Although this reduction was clinically irrelevant, some patients with pre-existing asymptomatic folate deficiency developed nitrous oxide-induced folate deficiency.

Anaesthesia 2000 Apr;55(4):380-4

Intra-ocular pressure and haemodynamic changes after tracheal intubation and extubation: a comparative study in glaucomatous and nonglaucomatous children.

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This prospective, controlled study was conducted to compare the effects of tracheal intubation and extubation on intra-ocular pressure changes and haemodynamic parameters in paediatric patients with and without glaucoma. The children were scheduled for intra-ocular surgery. Twenty children with normal intra-ocular pressure and 15 with glaucoma were studied. A standardised general anaesthetic was administered to both groups. After 5 min of anaesthesia, intra-ocular pressure, heart rate and noninvasive blood pressure were measured. These measurements were repeated 30 s and 2 min after tracheal intubation. Further measurements were taken

before, and 30 s and 2 min after extubation. The increase in intra-ocular pressure after intubation was greater in the glaucomatous group than in the normal group. The increase in intra-ocular pressure was greater after extubation than intubation in both groups, but was similar in the two groups. However, because of the already increased intra-ocular pressure in glaucomatous children, they may be at an increased risk of visual damage after intubation and extubation.

Acta Anaesthesiol Scand 2000 Apr;44(4):453-6

A catheter technique in ophthalmic regional anaesthesia. Clinical investigations.

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BACKGROUND: Usually general anaesthesia is chosen if ophthalmic surgery of longer duration is expected. Our goal was to introduce a flexible catheter preoperatively into the extra- or intraconal space and to provide sufficient anaesthesia by continuous administration of a local anaesthetic via the catheter.

METHODS: The continuous anaesthetic technique was applied in 28 patients undergoing vitreoretinal surgery. An indwelling catheter was introduced in 20 patients into the intraconal and in 8 patients into the extraconal space. In 6 patients, the position of the catheter was controlled by ultrasound examination prior to the injection of the local anaesthetic agent.

RESULTS: For all patients adequate anaesthesia could be achieved and maintained with continuous retrobulbar administration (CRA) of a local anaesthetic by catheter. There were two patients who experienced moderate pain intraoperatively during continuous peribulbar administration (CPA). No complications occurred with the placement of the catheters. The catheter did not disturb the

surgeon or the process of the ophthalmic surgery.

CONCLUSIONS: Continuous administration of a local anaesthetic agent via an indwelling catheter into the intraconal space allowed ophthalmic anaesthesia without time restriction. Thus, CRA is a good alternative to general anaesthesia for patients undergoing long-lasting ophthalmic surgery.

Acta Anaesthesiol Scand 2000 Apr;44(4):450-2
A catheter technique in ophthalmic regional anaesthesia. Cadaver experiments.

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BACKGROUND: Regional anaesthesia for ophthalmic surgery is generally accomplished by peri- or retrobulbar techniques. Depending on the duration of ophthalmic surgery, reblock might become necessary. Our goal was to invent a catheter technique for ophthalmic regional anaesthesia that enables the user to administer local anaesthetics intraoperatively into the peri- or retrobulbar space continuously. **METHODS:** Twenty-five adult cadaver orbits of normal size and anatomy were used for the experiments. A flexible catheter was introduced transcutaneously or transconjunctivally into the extra- or intraconal space. Methylene blue solution was injected through the catheter.

RESULTS: Using the same transcutaneous retro- and peribulbar technique, it was possible to introduce flexible catheters into a proper position of the cadaver orbits. The injected dye was found intra- or extraconally.

CONCLUSION: Examining the spread of the dye in the orbit, we concluded that it is possible to provide ophthalmic anaesthesia for surgery through an indwelling catheter. We proved that continuous or intermittent administration of a local anaesthetic agent into the extra- or

intraconal space can be achieved and this technique may allow us to maintain anaesthesia as long as it is necessary.

Br J Ophthalmol 2000 Apr;84(4):399-402

Oxygen application by a nasal probe prevents hypoxia but not rebreathing of carbon dioxide in patients undergoing eye surgery under local anaesthesia.

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BACKGROUND/AIM: Hypoxia and carbon dioxide rebreathing are potential problems during eye surgery in spontaneously breathing patients. The aim of the present study was to determine effectiveness of nasal application of oxygen to prevent hypoxia and carbon dioxide accumulation in spontaneously breathing patients undergoing cataract surgery.

METHODS: Oxygenation and carbon dioxide rebreathing were examined in 40 elderly patients using two different methods of oxygen supply-nasal v ambient air-with a constant flow of 2 l/min. Partial pressure of carbon dioxide under ophthalmic drapes, transcutaneous pressure of carbon dioxide, and the respiratory rate were measured during 25 minutes while oxygen was supplied via a nasal cannula or into the ambient air under the drapes.

RESULTS: In both groups carbon dioxide accumulation under the drapes, carbon dioxide rebreathing, tachypnoea, and an increase in peripheral oxygen saturation occurred. No significant differences were found between the two methods.

CONCLUSION: Nasal application of oxygen prevented hypoxia but did not prevent carbon dioxide accumulation in patients undergoing eye surgery under retrobulbar anaesthesia. Additionally, as a side effect when using nasal probes, irritation of the nose was described in half of the patients investigated.

Anaesth Intensive Care 2000 Feb;28(1):27-30

Effect of timing of ondansetron administration on incidence of postoperative vomiting in paediatric strabismus surgery.

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This prospective, randomized, double-blinded study evaluated the effect of the timing of ondansetron administration on its antiemetic efficacy in children undergoing elective strabismus surgery. One hundred and twenty children aged one to 15 years, ASA physical status 1 or 2, were randomly allocated to receive intravenous ondansetron 100 micrograms/kg either at induction (Group 1) or at the end of the surgery (Group 2). All patients had general anaesthesia induced and maintained with nitrous oxide and halothane, muscle relaxation with vecuronium, endotracheal intubation, reversal with neostigmine and glycopyrrolate, and pethidine 0.5 mg/kg analgesia. Episodes of nausea and vomiting were evaluated at 0 to 2, 2 to 6 and 6 to 24 hour intervals by a blinded observer. Demographic data, duration of anaesthesia, type of surgery, incidence of previous postoperative nausea or vomiting and motion sickness and number of patients who developed oculocardiac reflex requiring atropine treatment were similar in both groups. The incidence of emesis in the first 24 hours following surgery was similar in both groups (35% Group 1, 33.3% Group 2, $P = 1.00$). Severity of emesis (median number of emetic episodes, rescue antiemetic requirement and mean time to the onset of first episode of emesis) and mean time to discharge from the post anaesthesia care unit were also similar in

the two groups. We conclude that the timing of ondansetron administration either before or after the surgical manipulation of extraocular muscles had similar antiemetic efficacy following strabismus surgery in children.

Ann Acad Med Singapore 1999 Nov;28(6):783-6

Use of EMLA cream or alfentanil for analgesia during ophthalmic nerve blocks.

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This prospective double-blind study compared the effectiveness of EMLA with alfentanil and placebo in reducing the overall pain during ophthalmic nerve blocks. Seventy-five patients scheduled for cataract surgery were divided into three groups. Patients in the EMLA group had EMLA cream applied over skin areas corresponding to injection sites for retrobulbar and facial nerve blocks one hour before the nerve blocks, and placebo intravenous normal-saline injection 2 minutes before the first nerve block. The alfentanil group had placebo cream applied and intravenous alfentanil 10 micrograms.kg-1 while patients in the placebo group received placebo cream and intravenous normal-saline at similar time intervals prior to the nerve blocks. Patients then received facial nerve blocks and retrobulbar block by the same surgeon. Pain scores by patients and independent observers were significantly lower in the EMLA and alfentanil groups compared to placebo ($P < 0.005$) with no significant difference between the EMLA and alfentanil groups.

Minerva Anesthesiol 1999 Nov;65(11):775-83

Loco-regional block in ophthalmic surgery: single drug or drug combination with hyaluronidase? Randomized prospective study.

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The aim of this study is the comparison between the use of bupivacaine alone and a mixture of bupivacaine, mepivacaine and hyaluronidase in both retrobulbar and peribulbar blockades for eye surgery. Three hundred ninety-nine consecutive adult patients scheduled for cataract surgery with regional anaesthesia were included in this prospective, randomized and partially blind study. Peribulbar blockade was performed on 199 patients (group P). Ninety-nine of them received a mixture of local anaesthetics and hyaluronidase (sub-group M), while 100 received bupivacaine alone (sub-group B). Retrobulbar blockade was performed on 200 patients (group R): 100 of them received the mixture with hyaluronidase (sub-group M), while 100 received bupivacaine (sub-group B). The interval between anaesthesia and motor blockade (onset time), the presence of residual ocular movements, the need of further anaesthesia, the quality of anaesthesia, the ocular tone, the length of anaesthesia and possible complications were registered.

RESULTS: Retrobulbar blockade has the only advantage of a shorter onset time, while peribulbar blockade shows a longer anaesthetic effect. Mixture with hyaluronidase (the sub-group M) has a shorter onset time, a lesser need of further anaesthesia, fewer residual ocular movements and a better quality of anaesthesia.
CONCLUSIONS: Local anaesthetics mixture with hyaluronidase associated with peribulbar blockade presents the advantages of rapidity, duration and better quality without the risks of retrobulbar blockade side effects.

Anaesthesia 1999 Dec;54(12):1216-9

A survey of pre-operative fasting regimens before regional ophthalmic anaesthesia in three regions of the United Kingdom.

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A postal and telephone survey of the practice of fasting before regional ophthalmic anaesthesia with and without sedation was sent to 50 hospitals in three regions of the United Kingdom. Responses were received from 100% of hospitals. In most hospitals (58%), local anaesthetic blocks were performed by both surgeons and anaesthetists, with surgeons alone providing ophthalmic anaesthesia in only 14%. Eighty-six per cent of hospitals surveyed had a formal policy regarding pre-operative fasting, with 44% allowing patients to eat and drink freely until their operation. In those hospitals where a fast was imposed, the most common fasting periods were 6 h for food and 2 h for fluids. Twenty-six per cent of respondents would be prepared to give intravenous sedation to a non-fasted patient during eye surgery: small doses of benzodiazepine were the most frequently suggested method. National evidence-based guidelines for ophthalmic regional anaesthesia are needed.

J Cataract Refract Surg 1999 Nov;25(11):1532-4

Heat trapped under paper and plastic ophthalmic drapes during eye surgery using local anaesthesia.

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PURPOSE: To assess whether heat trapped under ophthalmic drapes is responsible for patient reports of being hot during cataract surgery using local anaesthesia.

SETTING: Departments of Anaesthesia and Intensive Care Medicine and of Ophthalmology and Optometry, Innsbruck University Hospital, Innsbruck, Austria.

METHODS: In a prospective, randomized, single-blind study, the temperature in the ambient air under 2 types of paper drapes (Group A: Barrier Ophthalmology Drape,

Johnson & Johnson; Group B: Steri Drape 1062, 3M) and a plastic drape (Group C: cotton drape + Steri Drape 1024, 3M) was measured for 25 minutes in 60 patients having cataract surgery under local anesthesia.

RESULTS: Three minutes after the patient's head was draped, the mean temperature under the drape began to increase significantly: Group A, 25.7 degrees C +/- 0.3 degree C (SD) to 29.17 degrees C +/- 0.9 degree C ($P < \text{or} = .001$); Group B, 25.87 degrees C +/- 0.4 degree C to 29.41 degrees C +/- 0.9 degree C ($P < \text{or} = .001$); Group C, 25.8 degrees C +/- 0.35 degree C to 29.4 degrees C +/- 0.6 degree C ($P < \text{or} = .001$). It continued to increase in all groups as the operation continued. No significant differences in temperature were observed among the 3 drape types studied. Subjective thermal discomfort was reported by 35% to 40% of patients.

CONCLUSION: Paper drapes did not cause less heat from being trapped than the plastic drape. Trapped heat may impair the comfort of patients having eye surgery under local anesthesia.

Br J Ophthalmol 1999 Oct;83(10):1131-4

Comparative effects of intravenous ketorolac and pethidine on perioperative analgesia and postoperative nausea and vomiting (PONV) for paediatric strabismus surgery

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BACKGROUND: Corrective strabismus surgery is associated with moderate pain and a very high incidence of postoperative nausea and vomiting (PONV). Ketorolac tromethamine, a nonsteroidal anti-inflammatory drug, is a popular analgesic in adults. There are only limited published data on the use of intravenous ketorolac for paediatric analgesia perioperatively. This study evaluated

and compared the emetic and analgesic effect of ketorolac with pethidine and its suitability for this kind of surgery.

METHODS: Following institutional ethics committee approval and parental consent, 52 ASA class I children of age 2.5 to 15 yr were randomised to receive either ketorolac 0.9 mg kg⁻¹ or pethidine 0.5 mg kg⁻¹ given intravenously (i.v.). A blinded observer assessed recovery by Steward's method immediately after arrival at the post anaesthesia care unit (PACU), pain by validated Objective Pain Score (OPS) at 0 h, 1/2 h and 1 h after arrival at the PACU and PONV by Numeric Rank Score at specified time intervals.

RESULTS: There were no differences in demographic data, anaesthesia time or surgery duration. Recovery scores, OPS and postoperative analgesic requirement were similar in both groups. PONV at various time intervals for the first 24 h, occurred more frequently in the pethidine group as compared to the ketorolac group ($P < 0.001$) There were no side effects observed with either drug. **CONCLUSION:** Ketorolac in a dose of 0.9 mg kg⁻¹ i.v. at the induction of anaesthesia is as effective as pethidine 0.5 mg kg⁻¹ i.v. as an analgesic and is associated with significantly less PONV.

Ophthalmic Physiol Opt 1998 Sep;18(5):393-400

Comparison of the tolerability and efficacy of unit-dose, preservative-free topical ocular anaesthetics.

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Several topical ocular local anaesthetics are available in preservative-free unit-dose applicators. There is little comparative data as to the efficacy and tolerability of these drugs. The purpose of this study was to compare the tolerability, and the depth and duration of corneal anaesthesia following instillation of

one drop of 0.4% oxybuprocaine (benoxinate), 0.5% amethocaine, or 0.5% proxymetacaine. The tolerability of each anaesthetic was assessed using a linear ten point arbitrary comfort scale. A group of 14 healthy male subjects, with a wide variation in iris pigment levels, participated in the study (mean age 26.6 years, range 18-40 years). Corneal sensitivity was measured using a slit-lamp mounted Cochet-Bonnet aesthesiometer prior to instillation, and at 1, 2, 5, 10, 15, 20 and 30 min after instillation, and continued if necessary until corneal sensitivity had returned to pre-instillation levels. For each anaesthetic, complete anaesthesia occurred within 1 min of instillation and a return to baseline sensitivity levels occurred by 45 min. No significant difference in anaesthesia was found between the drugs at each time point. Tolerability profiles indicated that proxymetacaine was significantly better tolerated than either amethocaine ($p < 0.01$) or oxybuprocaine (benoxinate) ($p < 0.001$). There was considerable inter-subject variability in the duration of anaesthesia, and practitioners should be alert to this when allowing patients to leave the practice following the production of corneal anaesthesia. There seems little to choose clinically between the three active agents as regards clinical effectiveness. Proxymetacaine was significantly better tolerated than either amethocaine or oxybuprocaine.

Br J Anaesth 1998 Oct;81(4):615

A complication of peribulbar block in a patient with exophthalmos.

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A patient with marked exophthalmos secondary to thyroid eye disease presented for tarsorrhaphy and removal of orbital fat. A single superolateral peribulbar injection was performed. After injection of 3.5 ml of local

anaesthetic solution, the globe suddenly dislocated anteriorly. This complication has not been described previously. In patients with exophthalmos, general anaesthesia should be considered as the method of choice for ophthalmic procedures.

Br J Anaesth 1999 May;82(5):777-9

Pulmonary oedema after peribulbar block.

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Local anaesthesia is now preferred for cataract surgery. Respiratory distress caused by pulmonary oedema is a rare, if well recognized, complication of the technique of retrobulbar block. We report this complication after the increasingly favoured peribulbar approach.

West Afr J Med 1999 Apr-Jun;18(2):87-90

Non-cardiac surgery and anaesthesia in children with congenital heart disease.

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Children with Congenital Heart Disease (CHD) presenting for non-cardiac surgery have various physiological and functional abnormalities and thus pose great challenges to the anaesthetist. This one year prospective study was undertaken to determine the incidence of CHD in children presenting for non-cardiac surgery, the type of lesions and anaesthetic course. Five patients (1.5%) out of a total of 324 children aged from birth to twelve years who had surgery during the study period were found to have CHD, ventricular septal defect (VSD) being the commonest cardiac lesion. Surgery was for cataract extraction and herniorrhaphy. Although all the

children had been previously treated or were on current treatment for additional medical problems, surgery under closely monitored balanced general anaesthetic technique was found to be safe.

Br J Ophthalmol 1999 Oct;83(10):1131-4

New equipment to prevent carbon dioxide rebreathing during eye surgery under retrobulbar anaesthesia.

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BACKGROUND: Carbon dioxide concentration under ophthalmic drapes increases during eye surgery under local anaesthesia. A new prototype has been designed which combines continuous suction of carbon dioxide enriched air and continuous oxygen insufflation under ophthalmic drapes to prevent carbon dioxide accumulation in spontaneously breathing patients undergoing cataract surgery. **METHODS:** In a prospective randomised single blind study the effectiveness of this new prototype was examined in 50 unpremedicated elderly patients. In 25 patients suction was applied under ophthalmic drapes, whereas in the other 25 patients no suction was used. In all cases oxygen was insufflated under the drapes at a constant flow of 2 l/min. Carbon dioxide concentration in the ambient air surrounding the patient's head under ophthalmic drapes, transcutaneous partial pressure of carbon dioxide, respiratory rate, and oxygen saturation were measured. **RESULTS:** Carbon dioxide concentration under the drapes, transcutaneous partial pressure of carbon dioxide, and respiratory rate remained unchanged in the suction group, whereas in the non-suction group these values increased significantly. Oxygen saturation rose significantly in both groups without differences between the groups. **CONCLUSION:**

Application of this new prototype for continuous aspiration of carbon dioxide enriched air prevents carbon dioxide rebreathing and subsequent hypercapnia associated with an elevated respiratory rate. This new equipment may therefore be useful in patients undergoing ophthalmic surgery under retrobulbar anaesthesia.

Br J Anaesth 1999 Apr;82(4):635-6

Patient-controlled sedation using propofol in elderly patients in day-case cataract surgery.

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Patient-controlled sedation (PCS) with propofol has been used successfully as an adjunct to local anaesthetic procedures. We studied a group of elderly patients (mean age 75.4 yr) undergoing cataract surgery and attempted to increase patient acceptability and comfort of local anaesthesia. Propofol was self-administered in a dose of 0.25 mg kg⁻¹ for patients more than 60 yr of age, with a lockout period of 3 min. A total of 14 of 20 patients used PCS; eight of 20 used the PCS only once and another six had three tries or less. Despite this, 18 of 20 patients claimed they found the PCS useful. However, while it is possible to administer PCS successfully to elderly patients undergoing cataract surgery and produce a decrease in the level of anxiety, we found it unacceptable because of head movement in two patients. These patients received only two and three divided doses, to a maximum of 29 and 30 mg, respectively. There were no other adverse events.

Eye 1999 Apr;13 (Pt 2):189-95

The National Survey of Local Anaesthesia for Ocular Surgery. I. Survey methodology and current practice.

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PURPOSE: To describe the current usage of the various techniques of local anaesthesia (LA) in the United Kingdom, and safety precautions taken. **METHODS:** An observational study of practice of LA in the whole of the United Kingdom was carried out over 3 months in late 1996. Staff in all ophthalmology theatres in the National Health Service were invited to report every LA given for the purpose of intraocular surgery during the first week, and thereafter to report adverse events only. **RESULTS:** Participation during the first week was calculated to be 72.8% overall. Anaesthesia techniques for intraocular surgery were: 70% LA alone, 5.8% LA with sedation and 24.2% general anaesthesia. LA techniques were: 65.6% peribulbar, 16.9% retrobulbar, 6.7% sub-Tenon's, 4.4% subconjunctival, 2.9% topical and 2.3% combinations. Of patients who were given LA, 96% were monitored, 84% had an anaesthetist available in theatres in case of a problem and intravenous access was established in 60%. **CONCLUSION:** Local anaesthesia is frequently used for intraocular surgery in the United Kingdom. A variety of techniques are used, and safety precautions are taken in most cases.

Anesthesiol Intensivmed Notfallmed Schmerzther 1999 Jun;34(6):345-9

Dolasetron, droperidol and a combination of both in prevention of postoperative nausea and vomiting after extracapsular cataract extraction under general anesthesia.

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BACKGROUND: Both, droperidol and the new 5-HT₃-antagonist (e.g. dolasetron) are effective drugs in the prevention of postoperative nausea and vomiting (PONV). It was the aim of this prospective double blind placebo controlled study to determine the efficacy of low-dose droperidol, dolasetron, and a combination of both drugs in the prevention of PONV after extracapsular cataract extraction. **METHODS:** 148 inpatients undergoing cataract surgery were stratified according to gender and then randomised to receive one of four antiemetic regimens: placebo, droperidol (10 micrograms x kg⁻¹), dolasetron (12.5 mg), or the combination of both drugs (10 micrograms x kg⁻¹ + 12.5 mg). The drugs were administered intravenously 5-10 minutes before the end of anaesthesia. General anaesthesia and the perioperative management of the patients were standardised: benzodiazepine premedication, induction with etomidate, alfentanil and mivacurium. Maintenance using desflurane in N₂O/O₂, and a continuous infusion of mivacurium was used. Postoperative analgesia (diclofenac or paracetamol) and antiemetic rescue medication (dimenhydrinate and metoclopramide) was standardised. Nausea, episodes of vomiting, retching and the need for additional antiemetics were recorded for 24-hours. The severity of PONV was categorised using a standardised scoring algorithm. The main aim of the study was the number of patients who stayed completely free from PONV. **RESULTS:** There were no differences between the two groups with regard to biometric data, type of surgery, and distribution of risk factors for developing PONV. In all three treatment groups significantly less patients suffered from PONV (placebo: 66%; droperidol: 89%, dolasetron: 92%, combination: 89%; p = 0.011). Furthermore, the severity of PONV was reduced (p = 0.012).

CONCLUSION: Low-dose droperidol and dolasetron are equally effective to reduce the incidence of PONV after cataract surgery under general anaesthesia. The combination of both drugs revealed no additional effect.

Anaesthesia 1999 Jun;54(6):596-8

The effects of EMLA and a topical formulation of 4% amethocaine (Ametop) on pain associated with retrobulbar injection.

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Retrobulbar block is commonly performed to provide anaesthesia for cataract extraction. This technique can cause significant discomfort. A prospective, randomised, placebo-controlled trial was carried out to investigate the efficacy of a eutectic mixture of local anaesthetics (EMLA) and a 4% amethocaine topical formulation (Ametop) in reducing the pain of retrobulbar injection. Ametop and EMLA proved to be of similar efficacy, both being superior to a placebo in alleviating the discomfort of retrobulbar block. No significant side-effects were observed with the use of either formulation.

Anaesth Intensive Care 1999 Jun;27(3):249-52

Comparison of 1% ropivacaine and a mixture of 2% lignocaine and 0.5% bupivacaine for peribulbar anaesthesia in cataract surgery.

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The purpose of the study was to compare 1% ropivacaine and hyaluronidase 75 units/ml with a 1:1 mixture of 2% lignocaine and 0.5% bupivacaine and hyaluronidase 75 units/ml for peribulbar anaesthesia in cataract surgery. We conducted a double-blind randomized trial involving 100 patients. Group 1 received a peribulbar injection of 8 ml of 1% ropivacaine and hyaluronidase 75 units/ml. Group 2

received a peribulbar injection of 8 ml of a 1:1 mixture of 2% lignocaine and 0.5% bupivacaine and hyaluronidase 75 units/ml. Parameters measured were ocular and eyelid movement scores, time suitable for surgery, need for supplementary injections, verbal pain score and complications. No statistical differences were found between the two groups regarding any of the study parameters. Both groups had excellent surgical analgesia and akinesia. We conclude that 1% ropivacaine is a suitable agent for single injection peribulbar anaesthesia for cataract surgery.

Anaesthesia 1999 Feb;54(2):137-41

Clinical efficacy and pharmacokinetics of 1% ropivacaine and 0.75% bupivacaine in peribulbar anaesthesia for cataract surgery.

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Peribulbar anaesthesia with 1% ropivacaine and 0.75% bupivacaine, both with hyaluronidase, was assessed in a prospective, randomised, double-blind study of 100 patients undergoing cataract surgery. Pharmacokinetic data were obtained from 22 subjects. Akinesia of the globe developed slightly more rapidly in the ropivacaine group, but this difference was only statistically significant at 2 min after injection of the local anaesthetic. Lid akinesia was significantly more complete in the ropivacaine group. There were no differences between the groups with respect to peri-operative analgesia or duration of akinesia. The dose-adjusted maximum concentration of ropivacaine was approximately twice that of bupivacaine with significantly higher values of the area under the concentration-time curves. No drug-related adverse effects were observed. We conclude that there are no clinically significant differences in the quality of the

sensory and motor block between 1% ropivacaine and 0.75% bupivacaine when used for peribulbar anaesthesia.

Anaesth Intensive Care 1999 Apr;27(2):179-81

Sub-Tenon's block: the effect of hyaluronidase on speed of onset and block quality.

Guise P, Laurent S

Department of Anaesthesia, Auckland Hospital, New Zealand.

The role of hyaluronidase on the onset time and quality of single quadrant sub-Tenon's block was studied in a prospective, randomized, double-blind controlled manner. One hundred and twenty consecutive patients undergoing cataract surgery under local anaesthesia received a sub-Tenon's block with either of two local anaesthetic solutions. One consisted of 2% plain lignocaine 3 ml with 0.5% plain bupivacaine 2 ml. The other consisted of 2% lignocaine 1 ml containing 150 i.u. per ml of hyaluronidase with 2% plain lignocaine 2 ml and 0.5% plain bupivacaine 2 ml. The development of akinesia and the resulting block quality were assessed. Akinesia scores were lower at all time intervals and were significantly lower ($P < 0.05$) up to 9 minutes after block in the hyaluronidase group. However, block quality as assessed by the surgeon was not significantly different between the groups. The addition of 150 IU hyaluronidase significantly speeds up the onset of surgical anaesthesia produced by a sub-Tenon's block.

Anaesthesia 1999 Jan;54(1):67-71

Peribulbar anaesthesia: a double-blind comparison of three local anaesthetic solutions.

Bedi A, Carabine U

Department of Anaesthetics, Royal Group of Hospitals Trust, Belfast, UK.

A prospective, randomised, double-blinded study comparing three agents for peribulbar anaesthesia is reported. Sixty patients undergoing extracapsular cataract extraction under local anaesthesia were randomly allocated to receive peribulbar anaesthesia with lignocaine 2% with adrenaline; prilocaine 3% with felypressin 0.03 IU.ml⁻¹ or 2% lignocaine and 0.5% bupivacaine in a ratio of 1:1, using a standardised two-injection technique. The pain of injection, time of onset of the block and the operating conditions at the start and finish of surgery were assessed. Peribulbar anaesthesia using lignocaine 2% was significantly more painful than the other solutions. The onset of anaesthesia adequate for surgery was similar in all three groups. Prilocaine 3% with felypressin was associated with the greatest number of blocks providing total akinesia of the eye. Inadequate duration of anaesthesia was seen in only one case; the solution used for this block was 2% lignocaine.

Anaesthesia 1998 Dec;53(12):1212-8

Transcutaneous CO₂/O₂ and CO₂/air suction in patients undergoing cataract surgery with retrobulbar anaesthesia.

Schlager A, Lorenz IH, Luger TJ

Department of Anaesthesia and General Intensive Care Medicine, University of Innsbruck, Austria.

We investigated transcutaneous partial CO₂ and O₂ pressures and respiratory rate in unpremedicated elderly patients of ASA physical status 1 to 3 who underwent cataract surgery under retrobulbar anaesthesia. In group A no air suction was used. In group B suction was applied under the sterile drapes to avoid rebreathing of CO₂. In group A transcutaneous partial CO₂ pressure and respiratory rate significantly increased compared with baseline, whereas in group B they remained constant. In both groups transcutaneous partial O₂ pressure and oxygen saturation as measured by pulse oximetry significantly rose after insufflating

oxygen 31.min-1. Heart rate and mean arterial blood pressure remained constant. Our results demonstrate that the application of suction near the patient's head prevents CO₂ rebreathing and subsequent hypercapnia associated with an elevated respiratory rate. The use of suction makes it unnecessary to raise oxygen administration. Suction combined with monitoring of partial CO₂ pressure using transcutaneous sensors should be used in all ophthalmological operations under retrobulbar anaesthesia.

Anaesthesia 1998 Dec;53(12):1160-4

Comparison of 0.75% levobupivacaine with 0.75% racemic bupivacaine for peribulbar anaesthesia.

McLure HA, Rubin AP

Magill Department of Anaesthetics, Chelsea & Westminster Hospital, London, UK.

In a single centre, randomised, double-blind study 50 patients scheduled for intra-ocular surgery received 0.75% levobupivacaine or 0.75% racemic bupivacaine for peribulbar anaesthesia. There were no significant differences in the mean (SD) volume of levobupivacaine (11 (2.7) ml) or racemic bupivacaine (10 (2.6) ml) required, time to satisfactory block (levobupivacaine-13 (5.6) min; racemic bupivacaine-11 (4.4) min), peri-operative pain scores or frequency of adverse events between levobupivacaine and racemic bupivacaine. The safer side-effect profile of levobupivacaine may offer significant advantages in the elderly population undergoing cataract extraction in whom intercurrent disease is common.

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LOCAL ANAESTHESIA FOR OPHTHALMIC SURGERY

Friday, 2nd February 2001, Middlesbrough

A CME approved meeting for anaesthetists and ophthalmologists on Local Anaesthesia for Ophthalmic Surgery will be held in **North Riding Infirmary, Middlesbrough on Friday, 2nd February 2001**. The meeting will include **lectures and live demonstration of orbital blocks**. Attendance is limited to 50 participants. Application form and information from Mrs Pat McSorley (**Course Administrator 01642-854601 email: cmkumar@globalnet.co.uk**). Registration fee is £200 (BOAS Members £175) (inclusive of catering). **Cheque payable to Cleveland School of Anaesthesia.**

PROGRAMME

09.00-9.25	Registration & Coffee (Staff Restaurant) <i>Lectures Ward 56 (Day Centre)</i>
9.25	Welcome <i>Dr Chris Dodds</i>
Chairman:	Dr A P Rubin, London
9.30-10.00	Anatomy Relevant to Orbital Blocks Dr Robert Johnson, Bristol
10.00-10.45	Review of Modern Ophthalmic Blocks Dr Jacques Ripart, France
11.00-11.30	Coffee Break (Staff Restaurant)
Chairman	Chris Dodds, Middlesbrough
11.30-12.15	Complications of Ophthalmic Blocks Dr Anthony P Rubin, London
12.50-13.45	Lunch
13.45 -17.00	Live Demonstration of Orbital Blocks(Ward 56)
Demonstration Co-ordinators: Drs Anthony Rubin, Chandra Kumar, Mr Tim Dowd, Mr Mamdou El-Naggar and Mr David Smerdon	
<u>Retro and/ or peribulbar</u>	
Hustead/Hamilton Technique	Dr Chandra Kumar, Middlesbrough
Medial Canthus Block	Dr Jacques Ripart, France
Other Needle Blocks	Dr Jacques Ripart, France
	Mr Bartley J McNeela, Middlesbrough
	Dr A P Rubin, London
	Dr Sean Tighe, Chester
	Dr Dave Ryall, Middlesbrough
<u>Sub-Tenon</u>	
Stevens' Technique	Dr Chris Dodds, Middlesbrough
	Dr Caroline Carr, London
Greenbaum's Technique (Modified)	Dr Chandra Kumar, Middlesbrough
<i>Live Internet Transmission from USA</i>	Dr Marc Feldman, USA
(Technology permitting)	
17.00	Closing remarks Dr Chris Dodds, Middlesbrough

**Meeting Organiser: Dr Chandra Kumar, Consultant Anaesthetist, Cleveland School of Anaesthesia, South Cleveland Hospital, Middlesbrough TS4 3BW.
Tel: 01642-854601, email: cmkumar@globalnet.co.uk**