

Practice tips: Directions in cataract surgery services and preventing postcataract endophthalmitis

BY ROD MCNEIL

Future directions in the delivery of high quality cataract surgery services and approved intracameral prophylactic approaches to lowering the risk of postcataract infective endophthalmitis were debated by consultant ophthalmic surgeons in a recent London seminar, held at the Royal Society of Medicine, organised and supported by Théa Pharmaceuticals.

Providing high-performing cataract surgery services in the 21st Century

Mr Paul Rosen (Oxford, UK) addressed central issues in the future service provision of cataract surgery, underpinned by the governing principle of free healthcare at the point of delivery.

There are approximately 405,000 cataract procedures performed in the UK each year, representing a cataract surgery rate of 6000 per one million population. "A forecast rapid rise in the proportion of the population aged 60 years or greater in coming decades will present challenges in maintaining integrated and high quality cataract surgery services," explained Mr Rosen.

Critical questions include funding, access and thresholds for cataract surgery, public vs. private provision, newer surgical devices and techniques promising better outcomes, and strategic direction from consultant ophthalmic surgeons. "Indications for cataract surgery and lens implant selection should be appropriate and sensible for the patient, and affordable to the health

economy, therefore it is important to distinguish between medical need and 'nice to have'," Mr Rosen said.

Competing providers

"The spiraling cost of healthcare delivery, combined with emerging new technology and an ageing population, present dilemmas and opportunities, reinforcing the need for greater efficiency and cost-effectiveness," added Mr Rosen. "There will be increasing competition from a range of alternate cataract surgery service providers. Patients will likely play an increasingly active role as a consumer in the selection and choice of available cataract surgery options.

"Consultant surgeons have a major role to play in shaping future cataract surgery service delivery, ensuring a

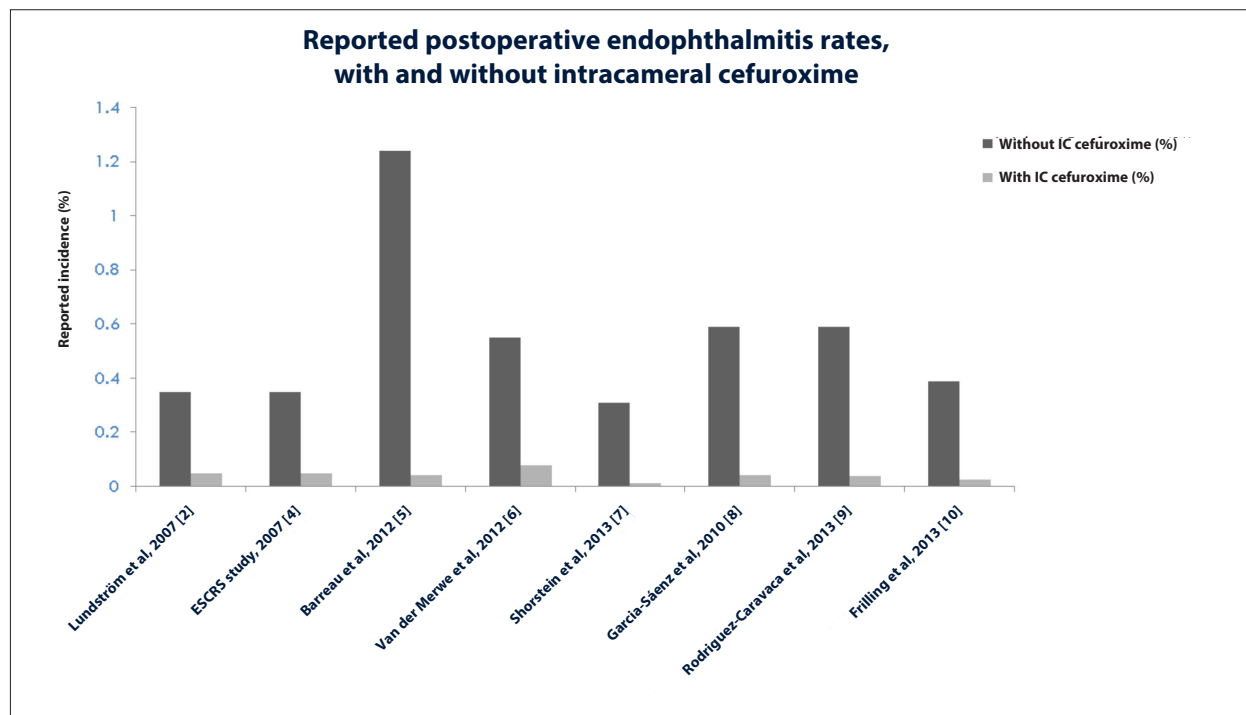


Figure 1: Published studies consistently show a striking reduction in postoperative endophthalmitis rates following adoption of intracameral cefuroxime at the close of cataract surgery. Figure adapted from: ESCRS Guidelines for Prevention and Treatment of Endophthalmitis Following Cataract Surgery: Data, Dilemmas and Conclusions 2013. ESCRS 2013, Dublin, Ireland.

cost-effective patient-oriented service performance. Demand will continue to be determined by primary care referrals, with providers expected to achieve an 18-week Referral to Treatment (RTT) target. As the adage says (Mats Lundstrom), if you don't count, you don't count (as a clinician): audit data, made available for care providers and commissioners, should routinely document visual and refractive outcomes and overall safety parameters."

Allied healthcare professionals will undoubtedly take on a greater role in the cataract care pathway but the cataract surgery service of the 21st century is best provided by skilled consultant ophthalmic surgeons, rather than by technicians overseeing an automated commoditised service, said Mr Rosen.

Enhancements and newer techniques

Delegates raised questions concerning tariffs and reimbursement coding for enhanced cataract surgery, healthcare insurance tariffs for private practice provision, and potential introduction of femtosecond laser-assisted cataract surgery in the NHS.

"Laser-assisted cataract surgery is an evolving technology," Mr Rosen noted. "The concept that it potentially gives better visual outcome results than a good surgeon performing phacoemulsification cataract surgery is still open to question [1]. Moreover, to justify the technology investment, there would need to be a 50% or greater increase in cataract surgery productivity. Nonetheless, lasers may ultimately prove to be a valuable surgical tool to improve productivity and cost-effectiveness."

Preventing postcataract endophthalmitis

"Evidence from multiple studies consistently supports the use of intracameral cefuroxime prophylaxis in all cataract surgery cases to prevent potentially devastating postoperative endophthalmitis infection," explained Mr Peter Barry (Dublin, Ireland), Chair of the ESCRS Endophthalmitis Study Group (Figure 1) [2-10].

"The incidence of suspected endophthalmitis after cataract surgery without perioperative antibiotics is estimated at approximately 0.35%. However, an early efficacy evaluation involving 32,180 cataract procedures by surgeons at St Eriks Hospital in Stockholm, Sweden, found that intracameral cefuroxime 1mg was associated with a low frequency of

postoperative endophthalmitis of 0.06%."

Data confirm efficacy of intracameral cefuroxime prophylaxis

A landmark academic multicentre study conducted by the ESCRS unequivocally confirmed that perioperative intracameral cefuroxime significantly and safely lowers the risk of endophthalmitis after cataract surgery, reporting a 0.05% endophthalmitis rate using intracameral cefuroxime versus 0.35% without intracameral cefuroxime [3,4]. Overall, administration of intracameral cefuroxime at 1mg in 0.1ml sodium chloride solution for injection resulted in a 4.92-fold decrease in the risk for total postoperative endophthalmitis.

"Subsequent independent studies provide robust supporting evidence that intracameral antibiotics administered during phacoemulsification cataract surgery markedly reduce the incidence of infective endophthalmitis following cataract surgery," said Mr Barry. "A Swedish national study reported a striking reduction in the incidence of endophthalmitis after cataract surgery in patients given intracameral cefuroxime (0.027% versus 0.39% for nonuse of intracameral antibiotics). A ten-year comparative study conducted in Madrid, Spain, found a >10-fold reduction in the rate of endophthalmitis following routine prophylactic use of intracameral cefuroxime after cataract procedures (0.59% before and 0.043% after the treatment protocol revision in 2005).

"In the United States, Shorstein et al. found a dramatic decline in the rate of postoperative endophthalmitis following adoption of intracameral antibiotics for all cataract procedures, from 0.31% in 2007, when patients primarily received postoperative antibiotic drops, to 0.014% in 2010-2011, when all patients received an intracameral antibiotic injection [7]. Posterior capsule rupture is associated with an elevated risk of endophthalmitis and these patients clearly benefited from the intracameral approach."

The correct dose for the right patient

In 2012, Aprokam 50mg intracameral cefuroxime injection (Théa Pharmaceuticals) was approved in the European Union for the prophylaxis of postoperative endophthalmitis after cataract surgery, representing the first licensed medicine for this specific antibiotic prophylaxis indication. Developed as one vial for single-patient use, administration of Aprokam

cefuroxime 50mg powder requires one simple reconstitution, lowering the risk of dilution errors and cross-contamination associated with the preparation of unlicensed intracameral antibiotics.

"The development and commercial availability of Aprokam 50mg powder eliminates the risks of serious visual impairment due to errors in dilution, contamination or toxic anterior segment syndrome (TASS) outbreak using unlicensed cefuroxime for intraocular injection into the anterior chamber," Mr Barry commented.

"Ophthalmic surgeons in Turkey last year reported four cases of haemorrhagic retinal infarction and ensuing blindness attributable to inadvertent overdose of cefuroxime after cataract surgery. The Royal College of Ophthalmologists earlier this year issued a warning of adverse ocular reactions resulting from dilution errors using cefuroxime for intracameral injection, advising that great care should be taken to ensure that only the recommended dose of 1mg in 0.1ml is given by intracameral injection."

Broadening support for better outcomes

Utilisation of intracameral antibiotic prophylaxis of endophthalmitis following cataract procedures varies widely across European countries, exceeding 90% in France and Denmark, under 30% in the Netherlands and Germany, while intracameral antibiotic prophylaxis is almost universal for cataract extractions in Sweden. Practice protocols are influenced by guideline recommendations from professional or governmental health bodies. In Scotland, intracameral antibiotic prophylaxis is recommended for cataract surgery by the Scottish Intercollegiate Guidelines Network.

"The weight of evidence supporting the effectiveness of intracameral antibiotic prophylaxis after cataract surgery in preventing endophthalmitis is very strong," Mr Barry observed. "Indeed, the ASCRS Clinical Cataract Committee agreed recently that approved commercial antibiotic preparations should increase the safety of cataract surgery by providing better endophthalmitis prophylaxis and reduced toxicity risk.

"A practice survey of ophthalmic surgeons across Europe revealed 75% of respondents always or usually use intracameral antibiotics in their cataract surgery procedures, while more than 90% said they would use cefuroxime

if an approved single-unit dose were commercially available [11].

“Intracameral antibiotic therapy is the best choice for preventing endophthalmitis after cataract surgery, reducing the relative risk of endophthalmitis to 0.12 (0.08; 0.18) when intracameral antibiotics were used, noted Kessel et al. in a published systematic review and meta-analysis [12]. The authors did not find evidence to conclude that topical antibiotic therapy prevents endophthalmitis.”

Dialogue

Attending ophthalmologists raised a series of related topics during a closing Q&A session, including use of antibiotic drops and differential diagnosis of TASS potentially masking underlying endophthalmitis. “My personal approach is to prescribe a 1-2 week course of postoperative antibiotic drops for most cataract cases,” said Mr Barry. “However, a 2013 report from the Swedish Cataract Register found no statistical benefit from add-on topical antibiotics – either preoperatively, postoperatively, or both – when intracameral antibiotics are also used.

“Regarding the risk of allergy or anaphylaxis, intracameral cefuroxime is safe for all cataract patients excluding those with cephalosporin allergy. If in doubt concerning a suspected case of endophthalmitis or TASS, treat the condition as an infection; if a clinical judgment is made that it is non-infective, then watch the patient like a hawk.”

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TAKE HOME MESSAGE

- The cataract service of the 21st century is best provided by skilled consultant ophthalmic surgeons, not technicians overseeing an automated commoditised service.
- Intracameral antibiotic therapy is the best choice for preventing endophthalmitis after cataract surgery.
- The rate of endophthalmitis is less than 1 in 1000 where intracameral cefuroxime is used routinely.
- The availability of single-use Aprocam cefuroxime 50mg eliminates the risks of serious adverse ocular reactions as a result of dilution errors, contamination or toxic anterior segment syndrome when using unlicensed products for intracameral prophylaxis.
- Evidence shows no statistical benefit from add-on topical antibiotics when intracameral antibiotics are also used.
- A majority of ophthalmic surgeons in Europe support intracameral cefuroxime prophylaxis in all cataract surgery cases to prevent postoperative endophthalmitis infection.



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