

REPLY: Small-incision cataract surgery is the terminology used as a result of the introduction of phacoemulsification and the development of foldable intraocular lenses, which reduce the size of the sutureless corneal incision to 3.2 mm or less.^{1,2} In our methods section, the exact surgical technique and corneal incision size implemented were defined. To prevent misinterpretation, “3.2 mm small-incision coaxial phacoemulsification” would have been more appropriate terminology than SICS.—*Guenal Kahraman, MD, Claudette Abela-Formanek, MD, Michael Amon, MD*

REFERENCES

1. Weikert MP. Update on bimanual microincisional cataract surgery. *Curr Opin Ophthalmol* 2006; 17:62–67
2. American Academy of Ophthalmology. Preferred Practice Patterns. Cataract in the Adult Eye. San Francisco, CA, the Academy, 2006. Available at: <http://www.aao.org/education/guidelines/ppp/cataract.cfm>. Accessed September 13, 2007

Reducing the risk of endophthalmitis after cataract surgery

I commend Ng et al.¹ for contributing a large retrospective population study of endophthalmitis. By analyzing their large database, they have identified certain factors and practices that appear to affect the rate of endophthalmitis. Some of the findings are consistent with well-accepted tenets, such as the efficacy of topical povidone-iodine antiseptic and the increased infection risk with vitreous loss.² However, I believe their conclusion that subconjunctival antibiotic injection appears to be beneficial for endophthalmitis prophylaxis deserves further discussion and qualification.

In January 2007, the American Society of Cataract and Refractive Surgery (ASCRS) Cataract Clinical Committee conducted an online poll of current endophthalmitis prophylaxis practices to which 1312 members responded. When asked whether antibiotics were administered at the conclusion of surgery, only 11% of the respondents said they used subconjunctival antibiotics. In comparison, 75% used topical antibiotics, 14% used an intracameral injection, 3% used a collagen shield, and 10% did not use antibiotics immediately after surgery. (The percentages total more than 100 because some respondents used multiple methods.) Because most respondents (89%) currently do not use subconjunctival antibiotics, the question of whether they should alter their antibiotic regimen based on this study may arise. I am concerned that statements such as “[w]e found that antibiotic prophylaxis was a significant benefit, but only if given as a subconjunctival injection” may be taken out of context.

Conducting this study required the authors to collect and analyze an enormous amount of data. We

always learn valuable information from such diligent efforts. However, we must be cautious about making practice recommendations based solely on retrospective population studies with multiple covariables. Furthermore, this study encompassed a 2-decade-long period during which most surgeons undoubtedly changed their surgical technique several times. This probably multiplies the number of confounding variables that can affect the rate of infection. Finally, in a retrospective study it is very hard to differentiate infectious endophthalmitis from noninfectious inflammation (eg, toxic anterior segment syndrome).

The most intriguing suggestion, of course, is that subconjunctival antibiotics appeared to protect against infectious endophthalmitis. If true, this might partially explain the increase in endophthalmitis rates associated with clear corneal incisions reported in other papers^{3,4} but not found in this study. For most surgeons, the transition to clear corneal incisions with topical anesthesia meant eliminating the subconjunctival antibiotic injection. Unfortunately, the study cannot properly address the question of whether subconjunctival injection is superior to topical or intracameral delivery of antibiotics. As Ng et al. acknowledge, there was insufficient statistical power to assess the benefit of topical or intracameral antibiotics. This is because most of the surgeons used topical antibiotics and did not use intracameral antibiotics.

Overall, I consider this study to be additional supporting evidence that an intracameral level of antibiotic (immediately postoperatively) is beneficial in preventing infectious endophthalmitis.⁵ Whether this is achieved by subconjunctival or intracameral injection, with an antibiotic-soaked collagen shield or by topical administration of fluoroquinolones with excellent intraocular penetration, I believe that at least one of these measures should be strongly considered at the conclusion of surgery.

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REFERENCES

1. Ng JQ, Morlet N, Bulsara MK, Semmens JB. Reducing the risk for endophthalmitis after cataract surgery: population-based nested case-control study; Endophthalmitis Population Study of Western Australia sixth report. *J Cataract Refract Surg* 2007; 33:269–280
2. Speaker MG, Menikoff JA. Prophylaxis of endophthalmitis with topical povidone-iodine. *Ophthalmology* 1991; 98:1769–1775
3. Cooper BA, Holekamp NM, Bohigian G, Thompson PA. Case-control study of endophthalmitis after cataract surgery comparing scleral tunnel and clear corneal wounds. *Am J Ophthalmol* 2003; 136:300–305
4. Taban M, Behrens A, Newcomb RL, et al. Acute endophthalmitis following cataract surgery; a systematic review of the literature. *Arch Ophthalmol* 2005; 123:613–620

5. Barry P, Seal DV, Gettinby G, et al. ESCRS study of prophylaxis of postoperative endophthalmitis after cataract surgery; preliminary report of principal results from a European multicenter study; the ESCRS Endophthalmitis Study Group. *J Cataract Refract Surg* 2006; 32:407–410

REPLY: Our finding that subconjunctival antibiotics reduced the risk for postoperative endophthalmitis by half is consistent with the finding in other studies,^{1–4} including the pooled results from 2 randomized controlled trials conducted in the 1960s.⁵ Unlike in the United States, in other countries the use of prophylactic subconjunctival antibiotics is more widespread.¹ We previously found that 44% of Australian and New Zealand ophthalmologists routinely used perioperative subconjunctival antibiotics.¹ Respondents to our survey¹ who routinely used subconjunctival antibiotics had half the self-reported incidence of postoperative endophthalmitis than nonusers—a result remarkably similar to our case-control study.

A recent study from the United Kingdom found no change in the incidence of postoperative endophthalmitis.⁶ This was similar to our previous population-based study of endophthalmitis after cataract surgery in Western Australia over 2 decades.^{7–10} These results contrast with the apparent increasing rate in the U.S.¹¹ Given that subconjunctival antibiotics are now less commonly used in the U.S. than in Australia and the United Kingdom, the changing pattern of prophylaxis rather than wound location (as others have suggested) may account for the U.S.'s increasing endophthalmitis rate.¹ This may also be a side-effect of using topical anesthesia for cataract surgery.^{1,12}

The large randomized trial from the European Society of Cataract & Refractive Surgeons¹³ provides the best available evidence to support chemoprophylaxis using intracameral cefuroxime. However, this found no benefit using topical levofloxacin. Given the cost and size of any randomized controlled trial to investigate the type and route of administering an agent to prevent endophthalmitis, it is unlikely there will be a trial to investigate the use of subconjunctival antibiotics.

To best prevent endophthalmitis after cataract surgery, ophthalmologists should use conjunctival antiseptic preparation preoperatively and administer intracameral antibiotics at the end of surgery. For those concerned about intracameral antibiotic use, we believe that subconjunctival antibiotics are also a suitable chemoprophylaxis option.¹⁴—*Jonathon Q. Ng, MBBS, PhD, Nigel Morlet, FRACS, FRANZCO*

REFERENCES

1. Rosha DS, Ng JQ, Morlet N, et al. Cataract surgery practice and endophthalmitis prevention by Australian and New

- Zealand ophthalmologists. *Clin Exp Ophthalmol* 2006; 34: 535–544
2. Lertsumitkul S, Myers PC, O'Rourke MT, Chandra J. Endophthalmitis in the western Sydney region: a case-control study. *Clin Exp Ophthalmol* 2001; 29:400–405
3. Colleaux KM, Hamilton WK. Effect of prophylactic antibiotics and incision type on the incidence of endophthalmitis after cataract surgery. *Can J Ophthalmol* 2000; 35:373–378; discussion by RA Morgan, 378
4. Lehmann OJ, Roberts CJ, Ikram K, et al. Association between nonadministration of subconjunctival cefuroxime and postoperative endophthalmitis. *J Cataract Refract Surg* 1997; 23: 889–893
5. Morlet N, Ng JQ. Postoperative endophthalmitis [reply to letter by RG Fiscella, J Pulido]. *Ophthalmology* 2006; 113:1473
6. Mollan SP, Gao A, Lockwood A, et al. Postcataract endophthalmitis: incidence and microbial isolates in a United Kingdom region from 1996 through 2004. *J Cataract Refract Surg* 2007; 33:265–268; erratum, 759
7. Morlet N, Li J, Semmens J, Ng J. The Endophthalmitis Population Study of Western Australia (EPSWA): first report. *Br J Ophthalmol* 2003; 87:574–576
8. Ng JQ, Morlet N, Pearman JW, et al. Management and outcomes of postoperative endophthalmitis since the Endophthalmitis Vitrectomy Study; the Endophthalmitis Population Study of Western Australia (EPSWA)'s fifth report. *Ophthalmology* 2005; 112:1199–1206
9. Semmens JB, Li J, Morlet N, et al. Trends in cataract surgery and postoperative endophthalmitis in Western Australia (1980–1998): the Endophthalmitis Population Study of Western Australia. *Clin Exp Ophthalmol* 2003; 31:213–219
10. Li J, Morlet N, Ng JQ, et al. Significant nonsurgical risk factors for endophthalmitis after cataract surgery: EPSWA fourth report; for Team EPSWA. *Invest Ophthalmol Vis Sci* 2004; 45:1321–1328
11. West ES, Behrens A, McDonnell PJ, et al. The incidence of endophthalmitis after cataract surgery among the U.S. Medicare population increased between 1994 and 2001. *Ophthalmology* 2005; 112:1388–1394
12. Garcia-Arumi J, Fonollosa A, Sararols L, et al. Topical anesthesia: possible risk factor for endophthalmitis after cataract extraction. *J Cataract Refract Surg* 2007; 33:989–992
13. Barry P, Seal DV, Gettinby G, et al. ESCRS study of prophylaxis of postoperative endophthalmitis after cataract surgery; preliminary report of principal results from a European multicenter study; the ESCRS Endophthalmitis Study Group. *J Cataract Refract Surg* 2006; 32:407–410
14. Morlet N. How might we halve the risk of endophthalmitis? [editorial] *Clin Exp Ophthalmol* 2007; 35:303–304

Combating endophthalmitis with microphakoniit and no-anesthesia technique

Both Garcia-Arumi et al.¹ and Ellis² have reported an increased incidence of endophthalmitis with the use of topical anesthesia. Clear corneal incisions³ have been implicated in increasing this incidence due to such factors as the incision opening from pressure of the eyelids during blinking and bacteria from periocular flora gaining entry into the eye through the incision site.