Re: Holland et al.: Antibiotic resistance in acute postoperative endophthalmitis
(Ophthalmology 2014;121:S1-S9)

Dear Editor:

I read with interest the article by Holland et al., in which they discussed the issue of acute postoperative endophthalmitis and antibiotic resistance, and believe it requires further discussion. Two important recent studies not mentioned by Holland et al. provide important insight into the role of different prophylaxis patterns of acute postoperative endophthalmitis.

Rudnisky et al. in a study based on 75,318 cataract extractions showed that the rate of endophthalmitis was not influenced by the use of preoperative topical, intracameral, or subconjunctival antibiotics. However, the use of postoperative second-generation or fourth-generation fluoroquinolone antibiotics was associated with a lower rate of endophthalmitis.

Friling et al., in a study based on 464,996 operations, demonstrated by logistic regression that nonuse of intracameral, cefuroxime increased the risk, whereas short-term topical antibiotics given as add-on prophylaxis to the intracameral regimen before, after, or before and after the operation did not confer a clear-cut benefit. Interestingly, the older Endophthalmitis Study Group, European Society of Cataract & Refractive Surgeons (ESCRS) prospective study based on 16,603 cataract surgeries also showed no benefit of topical fluoroquinolone in prophylaxis against endophthalmitis. All of these studies confirmed that preoperative topical antibiotics gave no protection against endophthalmitis. The American Academy of Ophthalmology (Cataract and Anterior Segment Preferred Practice Pattern Panel) in the guidelines from 2011 noted that, “retrospective studies suggest that topical antibiotic prophylaxis may be effective” (giving, however, no references for this) and that, “with respect to the timing, other studies support the practice of initiating topical antibiotics immediately following surgery [not referenced by Holland et al.] rather than waiting until the first postoperative day.” This shows that the American Academy of Ophthalmology (AAO) also recommends postoperative topical use only. Moreover, the AAO states that, “although topical antibiotics may reach intraocular therapeutic levels for many bacteria, only intracameral antibiotics at the end of the case guarantees suprathreshold antibiotic levels for an extended period of time.”

The recent 2013 update of the ESCRs Guidelines for Prevention and Treatment of Endophthalmitis Following Cataract Surgery concludes that “not only has no clear benefit been established for the administration of antibiotic drops preoperatively, but ... bacterial resistance may be induced, and complete bacterial eradication on the ocular surface is not achieved.” When facing increasing bacterial resistance to many antibiotics, their use should be limited, unless specifically justified. Thus, the preoperative use of topical antibiotics should be reevaluated and discontinued.

Holland et al. pointed out that preoperative povidone–iodine (PVI) antisepsis was most strongly supported by the current literature, but it should be supplemented with the important recent finding that PVI alone does not promote bacterial resistance or a discernible change in conjunctival flora.

Holland et al. referenced the study that showed that intracameral vancomycin significantly reduced the incidence of postoperative endophthalmitis after cataract surgery. The antibacterial effectiveness and low bacterial resistance of vancomycin is well-known. It should be, however, clearly pointed out that vancomycin as a first-line antibiotic used in the treatment of endophthalmitis should not be used for prophylaxis.

In conclusion, there is enough scientific evidence to recommend preoperative PVI use as safe and effective for endophthalmitis prophylaxis, to consider postoperative topical antibiotics use as ineffective and probably not safe, and to recommend intracameral antibiotic use as probably effective and safe (especially when used on label), with the exception of vancomycin, which should be reserved for endophthalmitis treatment only.

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The authors of the article declined to reply.

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References