

## Commentary: Dropless cataract surgery with intracameral antibiotic: An informed approach

Cataract surgery is the most commonly performed surgery by ophthalmologists.<sup>[1]</sup> The advancement in surgical techniques and intraocular lens designs have made the duration of surgery and postoperative recovery shorter to the point of a day care procedure.<sup>[2]</sup> With intracameral antibiotics at the end of cataract surgery, the postoperative care is shifting toward drop free approach. Lesser eye drops after surgery means better patient compliance as well. Though the safety of phacoemulsification procedures has increased many folds; the dreaded risk of postoperative endophthalmitis is still real.<sup>[3]</sup> Postoperative endophthalmitis is a vision and organ threatening complication of one of the most commonly performed surgeries on human beings.

Adequate asepsis during surgical steps and the surgical environment are the mainstay for prevention of postoperative endophthalmitis after cataract surgery.<sup>[4]</sup> In addition to intra and perioperative asepsis, antibiotics play a crucial role in the prevention of post-cataract surgery endophthalmitis. Topical eye drops have been the commonly followed method of instillation of postoperative antibiotics until the European Society of Cataract and Refractive Surgeons in 2007 conclusively reported the efficacy of intracameral cefuroxime at the end of surgery in prevention of postoperative endophthalmitis.<sup>[5]</sup> Cefuroxime, moxifloxacin, and vancomycin are the most commonly used antibiotics administered through intracameral route at the end of cataract surgery. Intracameral antibiotic injection is an additional step at the end of cataract surgery and carries its own risks. Hemorrhagic occlusive retinal vasculitis has been

reported after intracameral vancomycin injection.<sup>[6]</sup> Certain preparations of intracameral cefuroxime are also linked with loss of vision after cataract surgery due to development of retinal infarcts.<sup>[6]</sup> At higher intracameral dosage it can also cause macular edema, intraocular inflammation and decreased retinal vitality.<sup>[6]</sup> Increasing use of higher generation fluoroquinolone like moxifloxacin as routine intracameral injection at the end of cataract surgery is fraught with risks of another sort. Frequent use of intracameral moxifloxacin is likely to render it relatively ineffective in treatment of postoperative endophthalmitis due to development of drug resistance.<sup>[6,7]</sup> Emergence of multidrug-resistant coagulase negative *Staphylococcus* species which are resistant to all fluoroquinolones may prove a greater disadvantage in management endophthalmitis.<sup>[7]</sup> Hence the need is to weigh the clinical and socioeconomic advantages as well as disadvantages, before we embrace the practice of intracameral antibiotics for prevention of postoperative endophthalmitis with open arms.

Present study is a step in right direction. It was a prospective, comparative, non-randomized interventional study conducted across 15 centers in India.<sup>[8]</sup> It compared eyes receiving intracameral cefuroxime or moxifloxacin with or without topical antibiotics at the end of cataract surgery. It studied the occurrence of postoperative endophthalmitis in these two groups over the period of 6 weeks and found no significant difference between the groups. They conclude that there was no difference in incidence of acute endophthalmitis in eyes receiving intracameral antibiotics with or without topical antibiotics. The inference of this study is encouraging toward role of intracameral antibiotics in prophylaxis of postoperative endophthalmitis. However for the reasons mentioned; of possible adverse events with intracameral antibiotics and risk of drug resistance; it will be wise to interpret these inferences with caution until the evidence in favor become more robust. The

authors rightly conclude that the scope of the study conclusions is limited due to non-randomized study design.

The study included patients above 18 years of age. It means the operated eyes had both pre-senile and senile cataracts. It would have been a better comparison if only senile cataract was included in the study. The study also included both phacoemulsification and small incision cataract surgeries performed by experienced cataract surgeons as well as trainee cataract surgeons. The guideline regarding which patient will receive or not receive topical antibiotic was not discretely defined in the study and left to surgeon's discretion. This aspect is likely to have brought in bias and influenced the outcome. The study reports to have used topical moxifloxacin, ciprofloxacin and ofloxacin eye drops in selected cases but does not provide rationale for selection among them. The decision and selection of use of topical antibiotic in this study is an area which leaves it wanting in design. The study does come up with data from a large number of cataract surgeries and shows a possible role of intracameral antibiotics in prophylaxis of endophthalmitis in Indian scenario. A randomised study design and discrete treatment criteria are needed take the outcomes of this study further.

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