

## Incidence of postoperative endophthalmitis with and without use of intracameral moxifloxacin

Dear Editor,

With modern operating rooms and advanced autoclave facilities, the reported incidence of postoperative endophthalmitis ranges from 0.01% to 0.367%, with incidence varying among different surgical procedures, various studies and different countries.<sup>[1-3]</sup> Usage of intracameral (IC) antibiotics, at end of intraocular surgery as a prophylaxis to reduce occurrence of endophthalmitis, has been recommended by the American Society of Cataract and Refractive Surgery.<sup>[4]</sup> Small incision

cataract surgery (SICS) is commonly done in India, especially in trust hospital as a low-cost high-volume strategy. We conducted a retrospective study over a period of 2 years to evaluate IC moxifloxacin as prophylaxis to reduce rate of endophthalmitis, in cases before and after initiation of IC moxifloxacin in a high-volume surgical set-up where SICS was done in all cases.

We evaluated a total of 40,392 cataract surgery performed at our hospital. Total of 20,533 patients belonged to group 1 who didn't receive IC moxifloxacin while group 2 had 19,859 patients who received IC moxifloxacin. In Table 1, the rate of endophthalmitis is statistically insignificant with  $P=0.092$ . The endophthalmitis incidence in group 1 was 0.04%, whereas group 2 was 0.015%.

**Table 1: Comparison between group 1 and group 2 endophthalmitis rate**

Without IC moxifloxacin (group 1)		With IC moxifloxacin (group 2)		Total		P
Surgeries n (%)	Endophthalmitis Rate, n (%)	Surgeries	Endophthalmitis Rate, n (%)	Surgeries n (%)	Endophthalmitis Rate, n (%)	
20,533 (50.8%)	10 (0.04%)	19,859 (49.2%)	3 (0.015%)	40,392 (100%)	13 (0.03%)	0.092

Numerous clinical trials and retrospective studies have been carried out to check the efficacy of IC antibiotics and all of them have showed positive outcomes in controlling the rate of endophthalmitis.<sup>[5]</sup>

Community-based cataract surgeries are performed in large numbers in India when compared to western countries; considering this huge difference in sample size, the rate of endophthalmitis is only 0.014% with IC moxifloxacin in our study, which is consistent with meta-analysis of cefuroxime study conducted by Linertová *et al.*<sup>[6]</sup> The study conducted on IC moxifloxacin by Haripriya *et al.* showed that IC moxifloxacin prophylaxis reduced the overall endophthalmitis rate by 3.5-fold (three-fold for M-SICS and nearly six-fold for phacoemulsification).<sup>[5]</sup> It also showed a statistical benefit for eyes complicated by posterior capsular rent (PCR) (PCR). Likewise, our study also shows no endophthalmitis in eyes complicated by PCR as well as a significantly near three-fold decrease in endophthalmitis rate in patients without complication. Due to illiteracy and poverty, pre- and postoperative patient hygiene and compliance with medication is the biggest challenge in rural population. These were the reasons, we chose to give IC moxifloxacin at end of the surgery.

Matsuura *et al.*<sup>[7]</sup> studied on IC moxifloxacin drug kinetics and drug concentration in anterior chamber and concluded that considering the half-life of moxifloxacin was >1 h, a final concentration of 150 µg/ml (0.15 mg/ml) results in a 2-h concentration of 38 µg/ml (0.03 mg/ml), which was beyond the minimum inhibitory concentration required to inhibit the growth of 90% of bacteria for most resistant pathogens. A dose of 0.5 mg in 0.1 ml of moxifloxacin exceeds the median minimum inhibitory concentration of most endophthalmitis causing pathogen by almost 300-folds.<sup>[7]</sup>

We have a large sample size and a longer duration time which helps in including populations from various parts of Central India, different surgeons conducting surgeries during different seasons throughout the year. We believe that IC moxifloxacin is effective in reducing rate of endophthalmitis. We found it helped in achieving a reduction of endophthalmitis rate by three-fold. Moxifloxacin is cost-effective, so can be used in community-based surgery where large numbers of surgeries are conducted daily throughout the year.

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#### Conflicts of interest

There are no conflicts of interest.

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