The use of perioperative levofloxacin did not reduce the incidence of presumed or proven endophthalmitis significantly. In the group that received neither perioperative levofloxacin nor intracameral cefuroxime there were nine cases of proven endophthalmitis, compared to seven cases in the group that received the levofloxacin drops but no intracameral injection. Similarly, in the group that received no drops but did receive cefuroxime there were two cases of endophthalmitis, while in the group that received both the drops and the intracameral injection there was one case. The infective organisms identified in patients with proven endophthalmitis included Staphylococcus in 11 cases, Streptococcus in eight cases, Propionibacterium acnes in two cases, a complex of E. Coli, Salmonella and Shigella in one case, and Gemella haemolysins in one case. Only three of staphylococcus cases were in the cefuroxime groups while all the cases of streptococcal infections occurred in the groups that did not receive cefuroxime. Final visual acuity among cases with streptococcal infection ranged from 20/20 to 20/60 and none were legally blind (20/200 or less). Final visual acuity among eyes with streptococcal infection ranged from 6/6 to no light perception and five eyes were legally blind.

PCR detects false negatives

Dr Barry noted that many cases would not have been identified without PCR analysis. Among the 11 cases with staphylococcus infection, four that tested negative with both Gram stain and culture tested positive with PCR. Among the eight cases with streptococcal infection, only one was Gram stain positive, while two cases which tested negative for Gram stain and culture tested positive with PCR.

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The incidence of proven endophthalmitis among patients who received neither cefuroxime nor perioperative levofloxacin (0.23 per cent) was higher than that generally reported in the literature, Dr Barry pointed out. He suggested that there were three possible reasons this was so. “Retrospective studies are prone to under-reporting. The studies have variations in prophylactic regimes, which obscure the true rates. Finally and importantly the utilisation of PCR adds a new dimension when proving infection.”

Risk factors identified

Potential risk factors for endophthalmitis identified by the study included the use of a silicone IOL and clear corneal incisions. Silicone IOLs increased the likelihood of presumed endophthalmitis by over three-fold (p = 0.002), and of proven endophthalmitis by nearly six-fold (p = 0.002). Clear corneal incisions increased the likelihood of presumed endophthalmitis by nearly six-fold (p = 0.021) and that of proven endophthalmitis by over seven-fold (p = 0.055).

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“This last result requires a caution. Only two out of the 24 participating clinics used a scleral tunnel incision. It is therefore theoretically possible that there was a hospital or centre effect, but this is not likely,” he added.

Applying the findings of the ESCRS endophthalmitis study will pose a difficulty to cataract surgeons, Dr Barry acknowledged. Those who use cefuroxime as used in the study will be using the agent in an unapproved and off-label fashion. Moreover, cefuroxime is unavailable in the formulation used in the study. In-house preparation of the injection could in theory lead to dilution errors, TASS outbreaks, and contamination, he noted.

“I would therefore appeal wholeheartedly to the industry to provide us with a single sterile unit dose of cefuroxime for the many millions of cataract procedures that are performed annually worldwide,” Dr Barry added.