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SAME-DAY SURGERY

Endophthalmitis rates for bilateral cases using intracameral injections lower than for unilateral

by Howard Larkin in Paris

Two large-scale retrospective reviews presented at the XXVIII Congress of the ESCRS found that postoperative rates of endophthalmitis were as low or lower for patients who underwent immediate sequential bilateral cataract surgery with intracameral antibiotics than for patients who underwent similar unilateral procedures. Injected IC antibiotics, are very effective to greatly reduce the risk of bilateral endophthalmitis when combined with proper bilateral surgical technique. Of the antibiotics commonly used intracamerally – cefuroxime, vancomycin and moxifloxacin – moxifloxacin is simplest to prepare, and seems to offer advantages over the others, according to Steve A Arshinoff MD, Toronto, Canada, president of the International Society of Bilateral Cataract Surgeons (iSBCS).

"The most common fear for same-day bilateral cataract surgery is bilateral infection," Dr Arshinoff said.

He looked at the experience of all the members of the iSBCS for both bilateral and unilateral cataract cases. 30 centres in 10 countries responded, including six in Canada, five in Spain, three each in England and Finland, and one each in South Africa, the US, the Philippines, Belgium and India. All submitted data on all bilateral cases from their first case forward for a total of 95,254. Some also provided unilateral case information.

Infection rates reported for bilateral and unilateral cases were very similar. For the bilateral cases, 17 cases of endophthalmitis, all unilateral, were reported for a rate of one in 5,603. "This is lower than we would see in other studies and the reason is bilateral cataract surgeons tend to be very meticulous, good surgeons, and do not perform their anticipated most difficult cases as bilateral procedures," said Dr Arshinoff.

For the 23,847 bilateral cases in this study that were done without intraocular antibiotics the endophthalmitis rate was only one in 1,987. This nearly matches the weight averaged infection rate for cases that did use IC antibiotics reported in six major published studies, including the ESCRS study and involving over half a million patients, he said.

For the bilateral cases in this study that used IC antibiotics, the results were far better – just five in 71,407 cases for a rate of one in 14,281. All five endophthalmitis cases occurred among the 46,073 cases using cefuroxime. No cases of endophthalmitis were recorded for 15,240 bilateral cases using intracameral Vancomycin or the 10,094 using moxifloxacin.

For statistical analysis purposes, Dr Arshinoff added in unilateral cases reported in the study for Vancomycin and moxifloxacin. There was one case of endophthalmitis in 35,194 for moxifloxacin and nil cases in 19,722 cases for Vancomycin, with the overall rate for all cases using IC antibiotics at one in 16,832. This represents a reduction of 88 per cent compared with the endophthalmitis rate without IC antibiotics observed in this study, which is very much in line with the 80 per cent to 90 per cent reduction observed in other studies, he added.

In terms of risk of a bilateral infection using IC antibiotics, Dr Arshinoff squared the observed rate of one in 16,832 for all IC cases and multiplied it by a linkage factor of about three. Even with plenty of fudging he still ends up with a chance of one case of bilateral endophthalmitis in about 100 million.

Dr Arshinoff said he used Vancomycin for 10 years without any complications, but stopped when the only supply available in Canada was limited to a generic product linked with TASS. He presented evidence that moxifloxacin may currently be the best choice due to its broad spectrum of coverage, low incidence of allergic reaction and ease of preparation. To ensure sufficient potency to kill resistant pathogens, he recommends injecting 0.2 cc of 150 mcg moxifloxacin/0.1 cc BSS. Currently, surgeons must dilute the solution from Vigamox 0.5 per cent, but projects are under way to make a single-use preparation for intracameral use, he noted.

Infection rates lower in Sweden

For cases recorded in the Swedish National Cataract Registry from 2003 through 2009, endophthalmitis rates were significantly lower following same-day bilateral cataract surgery than after unilateral procedures, according to a study by Björn Johansson MD, PhD, Linköping University Hospital, Sweden, who is also secretary of the iSBCS. He said he chose 2003 as the start of the study period because all Swedish cataract centres had switched to using prophylactic IC antibiotics in 2002. Bilateral case volume increased from about 1,000 cases in 1999 to about 3,000 to 4,000 from 2006 through 2009, or about four per cent to five per cent of the total, he noted.

For the 24,214 bilateral cases reported to the registry, two unilateral infections occurred for a rate of one in 12,107, or 0.008 per cent. During the same period, 489,325 unilateral cases were reported with 184 infections for a rate of one in 2,660, or 0.038 per cent, a difference found statistically significant at $P<0.02$, Dr Johansson said.

Strategies for minimising endophthalmitis after bilateral surgery include proper preparation of the operating field to minimise cross-contamination, complete separation of the two surgeries, including using separate instruments, different batches of viscoelastics and BSS; and surgeons at minimum re-gloving between procedures, Dr Johansson said. Many Swedish centres also add intracameral ampicillin to cefuroxime to cover additional pathogens, he added.

Patient selection is also a key, Dr Johansson said. Patients in the bilateral group are more functional and have fewer co-morbidities and other risk factors. "Probably the patients selected for bilateral operations are less prone to infection than those receiving surgery in one eye only," he said.