

# The Advantages of Immediate Sequential Bilateral Cataract Surgery

According to recent ASCRS and ESCRS surveys, cataract surgery practice patterns are changing.

BY ROBERT KAUFER, MD

Major advances in cataract surgical practice patterns have occurred in the past decade.<sup>1-5</sup> In addition to better IOL designs, such as multifocals, which allow many patients to achieve spectacle independence after surgery, improvements in topical and intracameral antibiotics and in sterile techniques have reduced the incidence of endophthalmitis and toxic anterior segment syndrome (TASS). Despite this progress, the threat of complications still makes some surgeons hesitant to adopt immediate sequential bilateral cataract surgery (ISBCS) as routine practice.

The rate of endophthalmitis after cataract surgery is quite low. The 2007 American Society of Cataract and Refractive Surgery (ASCRS) survey on prophylaxis of endophthalmitis after cataract surgery found that 42% of respondents reported no incidence of endophthalmitis.<sup>2</sup> About 90% had an infection rate of 0.1% or lower, and only 3% had a rate of 0.3% or higher. Not surprisingly, 98% of respondents reported use of topical antibiotics after surgery; 73% said they discontinued use within 1 week postoperative with no taper. The ASCRS practice pattern survey from 2008 reported that 13% of survey respondents saw a case of TASS, compared with 19% in 2007 and 18% in 2006.<sup>3</sup>

Preliminary results of the European Society of Cataract and Refractive Surgeons (ESCRS) Endophthalmitis Study showed that the rate of postoperative endophthalmitis was reduced approximately fivefold with the use of

## TAKE-HOME MESSAGE

- Quicker visual rehabilitation is expected after ISBCS, which is particularly important for elderly patients.
- Average hospital costs have been reported to be lower with ISBCS compared with DSBCS.
- For the surgeon, the main benefits of ISBCS involve time and efficiency.

cefuroxime.<sup>4</sup> However, this result has been controversial. A survey conducted in the United Kingdom found that 55% of respondents reported using intracameral cefuroxime.<sup>5</sup> Most of those who report not using this regimen listed the threat of dilution errors as their main concern, as a commercial formulation of intracameral cefuroxime is not available. This and other concerns regarding the risk of sight-threatening infections are often cited as reasons not to adopt ISBCS. Infrequent surgical complications, such as cystoid macular edema and corneal decompensation, also prevent ISBCS from becoming more widely adopted.<sup>6</sup>

## FAVORABLE RESULTS

On the other hand, many surgeons believe that ISBCS has numerous clinical benefits. Most of the evidence in the literature comes from retrospective studies. In one study,<sup>7</sup> intra- and postoperative complication rates in 259 consecutive patients (518 eyes) who underwent

ISBCS were similar to those in previous reports of delayed sequential bilateral cataract surgery (DSBCS). Endophthalmitis occurred in only one eye (0.19%), and there were no bilateral complications that resulted in visual loss.

Another study evaluated 144 patients (288 eyes) who underwent ISBCS over a 10-year period in the same department.<sup>8</sup> The final BCVA was 6/9 or better in 87% of eyes, and there were no major bilateral complications, including corneal decompensation or endophthalmitis. The authors concluded that outcomes after ISBCS were comparable to those of DSBCS, suggesting that the procedure was safe under strict surgical protocol.

A large retrospective study<sup>9</sup> by the International Society of Bilateral Cataract Surgeons (iSBCS) showed similar safety. In 24,847 bilateral cases completed without intraocular antibiotics, the endophthalmitis rate was one in 1,987. For bilateral cases in which intracameral antibiotics were used (n=71,407), the rate was one in 14,281. In all cases of infection, cefuroxime was used. For DSBCS cases, the endophthalmitis rate was one in 35,194 with intracameral moxifloxacin and zero in 19,722 with intracameral vancomycin.

Another large study of surgeries recorded in the Swedish National Cataract Registry from 2003 to 2009 reported a lower endophthalmitis rate for the ISBCS patient group than for the DSBCS group (one in 12,107 vs one in 2,660;  $P<.02$ ).<sup>9</sup> Lastly, a recent prospective clinical trial evaluated 94 patients who underwent ISBCS and 100 patients who underwent DSBCS.<sup>10</sup> There was no significant difference between the two groups in terms of BCVA ( $P=.061$ ); 96.8% of eyes in the ISBCS group and 97.0% in the DSBCS group were within 1.00 D of the mean absolute error. Furthermore, no sight-threatening intra- or postoperative complications were observed in either group.

## PROPOSED BENEFITS

For some patients, ISBCS provides benefits beyond favorable visual acuity outcomes. For instance, in patients requiring sedation, it would be necessary to undergo the procedure only once. Quicker rehabilitation is also expected with ISBCS, which is particularly important for elderly patients.<sup>6</sup> This could translate into an increased quality of life for their remaining lifetime.

Economic benefits, although secondary to visual outcomes, are also considerable.<sup>6</sup> ISBCS techniques translate to fewer visits to the eye clinic, reducing the burden of finding transportation for the elderly patient and fewer missed days at work for the younger patient. It has recently been suggested that, due to the reduced number of office visits, there is about a 1.5- to twofold

reduction in risk of death due to a traffic accident for the ISBCS patient compared with the DSBCS patient.<sup>11</sup>

Health care systems also enjoy economic benefit from the implementation of ISBCS. One study compared the effect on hospital costs for 22 consecutive patients undergoing ISBCS with posterior chamber IOL implantation and a randomly selected group of 22 patients undergoing similar DSBCS during the same period.<sup>13</sup> The average hospital costs were significantly reduced with ISBCS ( $P<.0001$ ), with pre- and postoperative in-hospital care accounting for 54% of the difference. ISBCS could potentially allow a health care system to reallocate resources to other areas.

For the surgeon, the main benefits of ISBCS involve time and efficiency. One study showed approximately 15% greater efficiency in the number of daily operations.<sup>12</sup> Furthermore, ISBCS can lead to greater administrative, laboratory, and nursing efficiencies for institutions, with minimal increases in the overall complexity of the surgical technique.

## IDENTIFYING GOOD, BAD CANDIDATES

ISBCS is not appropriate for all patients. Below is a partial list of those who could be considered for the procedure.

- Patients with similar cataracts in both eyes,<sup>6</sup> as it is easier to explain the rationale for ISBCS;
- Patients with good motivation for fast visual rehabilitation, such as active patients, patients who drive, and hyperopic patients who could become anisometropic if only one eye is operated on and achieves emmetropia; and
- Those who are poor candidates to undergo surgery or receive anesthesia.

ISBCS could become the preferred option for cataract surgery for a large percentage of patients. However, patients who are poor candidates for ISBCS include those with a specific contraindication that increases the risk of complications or infections:<sup>6,14</sup>

- Pathologic crystalline lenses, such as dark brown cataracts, with an anticipated need for high ultrasound levels;
- Eyes with extreme axial lengths;
- Unreliable biometry;
- Corneal endothelial dystrophy, edema, or decompensation;
- Pupils requiring mechanical dilation;
- Signs of macular changes or proliferations in patients with type 2 diabetes;
- Previous refractive corneal surgery;
- Elevated intraocular pressure;
- Ocular inflammation; and
- Retinal detachment.

An informal survey suggested that up to one-third of patients would be excluded using several of these criteria.<sup>14</sup>

One study showed approximately 15% greater efficiency in the number of daily operations with ISBCS.

**CONCLUSION**

ISBCS has several advantages for the patient, the physician, and the health care system. With careful screening of patients, the use of aseptic surgical technique (including topical and, potentially, intracameral antibiotics), and precise surgical technique, ISBCS may become the preferred option for a majority of cataract surgery patients in the near future. ■

Robert Kaufer, MD, is Medical Director of the Kaufer Clinica de Ojos in Buenos Aires, Argentina. Dr. Kaufer states that he no financial interest in the products or companies mentioned. He may be reached at tel: +54 1 1 4733 0560; e-mail: robert@kaufer.com.



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