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Same Day Bilateral Cataract Surgery—Who Benefits?

Samuel Masket, MD - *Los Angeles, California*

There was a time when decision making in health care followed a simple credo: If the treatment process was good for the patient, it was good for the doctor and good for the healthcare industry. That was a different day; times have changed. We are presently in an era when concerns about costs and convenience of healthcare delivery and third-party profit margins may, and sometimes do, seemingly exceed the interests of the individual patient. To my sense, **routine** simultaneous same-day bilateral cataract surgery (SDBCS) is emblematic of that shifting paradigm. Is the patient the true beneficiary of SDBCS; if not, who is?

What are the risks of SDBCS to the patient? Certainly, the most significant concern is that of bilateral potentially blinding complications such as endophthalmitis or toxic anterior segment syndrome.¹ The proponents of SDBCS indicate that given current surgical techniques, use of prophylactic intracameral antibiotics and undergoing second eye surgery with a new sterile prep and drape, a new fully sterilized instrument set, and separate batches of disposable products from disparate lots should reduce risks to infinitesimally small numbers; they also indicate that the world's literature has but few cases of bilateral infection after surgery.² Although the latter is true, there is a concern that complications of SDBCS could be underreported because there is a potential disincentive bias to publish severe postoperative complications. Although potentially devastating complications can be mitigated to small numbers, they are severely life changing for the individual and his/her family and potentially avoidable with surgery on separate days. Regarding risk reduction, should the surgeon also consider using sclerocorneal tunnel incisions for SDBCS, given earlier reports of increased rates of infection with temporally oriented clear corneal incision surgery?^{3,4} Is the surgeon at greater medico-legal risk with SDBCS?

Although rare major complications are sobering and cause for sizeable concern among many eye surgeons, there are less severe risks that should be entertained. Given improved intraocular lens (IOL) prediction formulae and intraoperative aberrometry, significantly wrong power IOL is fortunately less likely than in the past, but always a concern when the optical outcome in the first eye cannot be evaluated before second eye surgery. Moreover, even in the best of circumstances, accuracy of optical outcomes of cataract surgery cannot compete with that of LASIK, allowing the latter to be performed bilaterally on a routine basis. Another condition that does not seem to be mentioned by the proponents of SDBCS is pseudophakic dysphotopsia or self-reported patient observations of undesired optical imagery after surgery. Somewhat surprisingly, the incidence of dysphotopsia, in some form, has been reported to be as high as 49%, and it has been suggested that dysphotopsia

is the leading cause of dissatisfaction after otherwise uncomplicated contemporary cataract surgery.⁵ Most typically, dysphotopsia is noted on the first postoperative day and may be disconcerting to the patient. Considering negative dysphotopsia, the incidence has been reported at 19% immediately after surgery.⁶ Although the majority of cases with negative dysphotopsia resolve over time and are nondebilitating, occasional cases require secondary surgery.^{7,8} Same-day bilateral cataract surgery exposes patients to the risk of bilateral symptomatic dysphotopsia, whereas nonimmediate second eye surgery allows the patient and the surgeon the opportunity to evaluate undesired optical side effects of surgery and consider an alternative IOL or surgical approach for the second eye; this is particularly true for multifocal dysphotopsia associated with diffractive optic IOLs.

What are the purported patient benefits? It is reported that SDBCS offers a more rapid visual outcome and stabilization in cases with high ametropia, fewer visits for postoperative care, less time away from work, reduced travel time for surgery and postoperative visits, and less dependence on others for supportive care.⁹ A randomized clinical trial compared SDBCS with a waiting period of 2 months between procedures.¹⁰ In that investigation, patients who had delayed second eye surgery had greater difficulty with daily life activities and binocular contrast sensitivity compared with the immediate same-day bilateral surgery group during their waiting period; as would be anticipated, at 4 months after the second surgery there were no differences between the 2 groups with regard to responses to a standardized questionnaire.¹⁰ The findings of that study are not surprising when the comparison is between a 2-month hiatus between first and second eye surgeries versus SDBCS. However, the visual adaptive advantages of the latter are true only if there is a prolonged time period between surgeries, and although time for adaptation to pseudophakia is shortened by SDBCS, the risks remain. However, save for 1 postoperative visit, the proposed benefits of SDBCS virtually disappear if second eye surgery is performed perhaps 2 days after the first. In that scenario, the patient has first eye surgery on day 1 followed by a postoperative visit and second eye surgery on day 3. Given that strategy, the concerns about prolonged visual recovery, anisometropia, and extra postoperative visits are all but eliminated.

So then, who benefits most from SDBCS? Although third-party reimbursement strategies vary across countries and healthcare delivery systems, in the United States, physicians and surgery centers are reimbursed just 50% for second eye surgery performed on the same calendar day under traditional fee-for-service Medicare; this creates a significant financial disincentive for SDBCS.¹¹ Under that scenario, societal

healthcare costs savings can be substantial. A 2014 cost-minimization analysis study revealed that SDBCS could provide more than \$500 million annual savings to Medicare and an additional societal savings of approximately \$250 million could be garnered from the viewpoint of lost wages, travel time, and so forth associated with nonimmediate sequential surgery.¹² It is interesting to note that in capitated healthcare systems in the United States and in countries with comprehensive national health services, SDBCS is practiced to a far greater extent than in the United States. A study from Finland suggests that compared with sequential bilateral cataract surgery, simultaneous bilateral cataract surgery provided comparable clinical outcomes with substantial savings in health care and non-healthcare-related costs.¹³ It would appear that surgeons benefit from increased surgical time efficiency and reduced office visits for postoperative care, but in some settings, the United States in particular, surgeons are financially penalized for SDBCS, leaving the bulk of the benefit to third-party payers.

All of that said, SDBCS may be beneficial to patients under certain circumstances. Patients who must travel great distances for surgery, those who require general anesthesia, and those with very limited social support systems are among those where risks may be outstripped by potential gain. Recent release of an optically adjustable IOL in the

United States (RxSight) presents another potential avenue for SDBCS. Because the optical correction of the IOL is adjustable postoperatively, and patients require several weeks waiting time while wearing special goggles between surgery and adjustment, it would be logical to offer surgery for both eyes in the same setting.

Finally, how does the current Coronavirus Disease 2019 pandemic affect the decision to perform or not to perform SDBCS? No doubt, patients would prefer to reduce the likelihood of exposure to the virus by visiting surgery centers and physicians' offices as infrequently as possible, and SDBCS offers the chance to have bilateral surgery with 1 rather than 2 exposures. However, given the generally elective nature of cataract surgery, it is hard to fathom an emergency situation where bilateral cataract surgery would be mandated. What about the backlog of elective procedures created by the pandemic? Likewise, why would the surgeon be willing to accept financial compromise and why should the patient accept the added risks, however small, of SDBCS, when surgery could be performed sequentially, just days apart as described above? At present, at least with regard to surgery in the United States under traditional Medicare, it appears as though the surgeon is financially compromised and the patient put at greater risk, whereas the third-party payer is the ultimate beneficiary of SDBCS.

Footnotes and Disclosures

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Correspondence:

Samuel Masket, MD, Advanced Vision Care, 2080 Century Park East, Suite 911, Los Angeles, CA 90067. E-mail: avcmasket@aol.com.

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