

CATARACT

New Data Focus on Safety, QOL, and Cost Benefits of Cataract Surgery

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INTERVIEWING JULIE BELKIN, MD, ANNE L. COLEMAN, MD, PHD, FLORA LUM, MD, LYNN B. MEULENERS, PHD, AND CYNTHIA DWSLEY, PHD

Years of outcomes research have taught us that removing cataracts not only improves vision but also enhances quality of life (QOL). Now, research is continuing to accumulate on the safety and possible cognitive benefits for elders.

Two recent studies provide new data supporting the safety benefits of cataract surgery in reducing the risk of hip fractures¹ and car crashes.² In addition, an ongoing study is investigating whether cataract surgery improves the cognitive abilities of patients with Alzheimer disease and dementia.

This research has implications for social and health care policy. It also provides evidence to help doctors, patients, and families weigh the risks and benefits of cataract surgery.

“There are so many physical and mental benefits to improving vision,” said Flora Lum, MD, a coauthor of the hip fracture study and executive director of the H. Dunbar Hoskins Jr., M.D. Center for Quality Eye Care. “Aside from improved vision, cataract surgery improves social and physical function. All those things multiply the effect of the benefit. It comes down to what matters to the patient. What things are important to them? Can they walk? Can they drive?”

These studies suggest that for many patients the answer is, yes, they can.

Hip Fracture Findings

Cataract surgery to improve vision has the added benefit of reducing the risk

of falling and breaking a hip, according to a recent study conducted by the Hoskins Center and the University of California, Los Angeles.¹ What is perhaps most striking, the oldest patients benefited most from cataract removal.

Significant risk reduction. Overall, cataract surgery was associated with a 16 percent reduction in the one-year incidence rate of hip fractures when the model was adjusted for age, ocular and systemic comorbidities, and other confounders. Patients who had severe cataracts removed showed an even greater benefit: a 23 percent reduction in the one-year rate of hip fractures compared with patients with severe cataracts that were not removed.

“The greatest reduction in the one-year rate of hip fractures was seen in patients who had cataract surgery when they were in their 80s,” said Anne L. Coleman, MD, PhD, the study’s lead author.

The power of a large database. Although this retrospective study is not the first to show that cataract surgery reduces the rate of fractures in older patients with vision loss, it is the largest such study to date, said Dr. Coleman, who is professor of ophthalmology at the Jules Stein Eye Institute at UCLA and director of the Hoskins Center. Dr. Coleman said the study demonstrates the benefit of large databases and advanced statistical methods in providing insights into the management and causality of diseases.

The study tracked the hip fracture incidence in a 5 percent random

Keep on Walking



A new, large database study demonstrates the benefit of cataract surgery in reducing falls and hip fractures among elders.

sample of Medicare Part B beneficiaries. That sample included 1.1 million beneficiaries with cataracts, of whom 410,000 had their cataracts removed from 2002 through 2009. Medical records of the patients who had cataract surgery were analyzed for hip fractures that occurred within one year following surgery. These data were compared to the hip fracture incidence in a matched group of patients with cataracts who did not have cataract surgery.

Age need not be a barrier. Perhaps the biggest lesson derived from this study is that age, in itself, should

not be a barrier to cataract surgery. “There is no magic age that makes a person too old to have their cataracts removed,” Dr. Coleman said. “Even if they also have meaningful infirmity, patients with visually significant cataracts should be evaluated for cataract surgery.”

Car Crash Data From Two Continents, Two Decades

Recent Australian data. In a country where people can wait up to a year for cataract surgery, a finding that removing cataracts reduces car crashes may have an impact on public policy.

That, at least, is the hope of researchers in Perth, Western Australia, who conducted a whole population study on the effectiveness of cataract surgery in reducing motor vehicle crashes. The research team, led by Lynn B. Meuleners, PhD, reviewed all (some 30,000) cataract surgeries performed in Western Australia from 1997 to 2006. They linked those surgeries to police crash data.

Their results showed that first-eye cataract surgery significantly reduced the frequency of all police-reported crashes by 13 percent. The reduction in crashes remained significant even after accounting for potential confounding factors including age, gender, driving exposure, and health. The corresponding cost savings totaled \$4.3 million Australian dollars.

“This study has shown that, in addition to vision and quality-of-life benefits, first-eye cataract surgery can reduce crash risk and provide cost savings to society,” said Dr. Meuleners, who is associate professor and director, Curtin-Monash Accident Research Centre, School of Public Health, Curtin University.

The findings may influence how patients who drive are prioritized for surgery, Dr. Meuleners said. And they may affect the advice ophthalmologists give to patients who drive regarding the benefits of undergoing cataract surgery and their increased crash risk if they do not elect surgery.

Earlier U.S. data. The Australian findings add to the evidence reported

Hoskins Center for Quality Eye Care

The recently published study on cataract surgery and risk of hip fractures shines a light on the work of the Hoskins Center. Although this is the first major study to emerge from the center, other studies, all intended to improve quality of eye care, are in the pipeline.

The San Francisco-based Hoskins Center, which is housed within the Foundation of the American Academy of Ophthalmology, was established in 2010 as an evidence-based nonprofit quality-of-care and health policy research center. It is named for H. Dunbar Hoskins Jr., MD, the Academy's former executive vice president, who retired in 2009 after serving 16 years in that role.

“The center's major purpose is to generate data and information to help improve public policy and health policy for eye care in this country,” said Hoskins Center director Anne L. Coleman, MD, PhD.

The center's executive director, Flora Lum, MD, said, “The Hoskins Center serves the profession by seeking new evidence and interpreting new evidence to improve clinical practice and give ophthalmologists the tools to practice evidence-based medicine.”

Currently, the center is engaged in a prospective study comparing glaucoma medication to surgery. The Registry in Glaucoma Outcomes Research study has enrolled 2,600 patients at 47 sites. All enrollees have open-angle glaucoma and are on medication. The study will explore what happens at a branch point: Does the patient receive more medication or go on to surgery? What influences those decisions? Who fares better with surgery at that point?

The study isn't a randomized clinical trial; rather, it is part of an increasingly prominent field known as comparative effectiveness research. “We're observing real-world practice and what happens to patients,” Dr. Lum said. Results are expected in 2013.

The hip fracture risk and cataract surgery study exemplifies the center's mission. By applying advanced statistical methods to large databases, researchers found new evidence that may improve patient outcomes. “The finding that the greatest reduction in hip fracture risks was in patients who had cataract surgery when they were in their 80s led to the recommendation that no one should be considered too old for cataract surgery,” Dr. Coleman said.

10 years ago by Cynthia Owsley, PhD, and colleagues.³ Their prospective cohort study identified 277 surgery-eligible patients who were deciding whether to have their cataracts removed. The researchers compared the motor vehicle collision rate of the group that opted for surgery to the rate of the group that declined it.

The study results showed that patients who underwent surgery and received IOLs were involved in approximately 50 percent fewer crashes over the four to six years following surgery than those who did not have surgery. Further, during the follow-up period, the crash rate for those who elected to have cataract surgery increased 27 percent, while the crash rate for those who opted out rose 75 percent compared

with the five-year period before study enrollment.

Dr. Owsley speculated that a difference in study design might explain why her study and the Western Australian investigation reported widely different crash reduction rates. “But both of the studies are important because they converge on this idea that cataract surgery has a driver safety benefit for older adults,” said Dr. Owsley, who is professor of ophthalmology at the University of Alabama at Birmingham. Together, the studies provide evidence that driving problems are another reason a patient may want to consider cataract surgery, she said. “These studies illustrate that driving should be part of the dialogue ophthalmologists have with their older patients.”

Improved Cognition?

French findings. Two common diseases of aging—cataract and Alzheimer disease—often occur in the same person. A study conducted at Tenon Hospital, Paris, involving 38 patients with coexisting mild Alzheimer-type dementia and debilitating cataract has demonstrated some benefit of cataract removal in this population.⁴

All the patients had standard cataract surgery with IOL implantation. One month before the surgery, and three months after, each patient had a neuropsychological assessment of mood, behavior, independent functioning, and cognitive status.

The study found that cognitive status improved in 25 percent of patients, sleep behaviors improved in almost 50 percent, and depression was relieved in many of them. However, surgery had no apparent effect on patients' ability to function independently.

U.S. study currently under way.

Now, an ongoing study is looking at whether removing cataracts will improve perception, independent functioning, and QOL in patients with Alzheimer disease.⁵ It will also try to define the characteristics of patients who benefit most from surgery.

The study was designed, in part, to overcome the reluctance of family members, and even ophthalmologists, to consider cataract surgery for patients with dementia, said study director Julie Belkin, MD, who is an assistant professor of ophthalmology at Case Western Reserve University and a comprehensive ophthalmologist at University Hospitals Eye Institute, Cleveland.

Although Dr. Belkin has never ruled out cataract surgery for this group of patients, she has encountered resistance from family members who question its value. And because these patients may not complain of symptoms, it is a challenge for the ophthalmologist to encourage elective surgery. "It's not like an appendix burst," she said. "You can't really talk someone into doing something when there's no evidence for it." Soon there may be evidence.

The ongoing Therapeutic Effects of Cataract Removal in Alzheimer's Disease study plans to divide 210 patients with cataracts and Alzheimer's into two groups. Both groups will receive an initial evaluation by a neurologist. Then one group will receive immediate surgery, and the other group will wait six months for surgical intervention. All subjects will receive a postsurgical neurological evaluation.

The study is still recruiting patients. Dr. Belkin encouraged community ophthalmologists to get involved. "They do the cataract surgery; we do the study part," she said. Cataract surgeons who are interested in participating should contact Tatiana Riedel (tatiana.majer@case.edu) for further information.

1 Tseng VL et al. *JAMA*. 2012;308(5):493-501.

2 Meuleners LB et al. *Ophthalmic Epidemiol*. 2012;19(1):23-28.

3 Owsley C et al. *JAMA*. 2002;288(7):841-849.

4 Girard B et al. Does cataract surgery improve outcomes for Alzheimer disease patients? Paper presented at: Annual Meeting of the American Academy of Ophthalmology; Oct. 25, 2011; Orlando, Fla.

5 www.clinicaltrials.gov; NCT00921297.

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Inform Your Patients

The Academy provides many tools you can use to help patients understand cataracts and their treatment options. Visit the Academy Store (www.aaopt.org/store), click on "Patient Education," and select "Cataract/Anterior Segment" to browse relevant booklets, brochures, and videos.

And be sure to refer your patients to EyeSmart (www.geteyesmart.org), where they can explore a wealth of information on cataract and other eye disorders.

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