THE LITERATURE

BY EDMUND TSUI, MD, AND LAURENCE SPERBER, MD


OFFICE-BASED CATARACT SURGERY: POPULATION HEALTH OUTCOMES STUDY OF MORE THAN 21 000 CASES IN THE UNITED STATES

Ianchulev T, Litoff D, Ellinger D, et al[1]

ABSTRACT

Ianchulev and colleagues performed a retrospective, consecutive case series of cataract surgeries in minor procedure rooms of a large US integrated health care center. The investigators examined 21,501 eyes of 13,507 patients who underwent office-based cataract extraction from 2011 to 2014 in Kaiser Permanente Colorado. Primary outcome measures in this study were BCVA and the incidence of intraoperative and postoperative adverse events.

Phacoemulsification was performed in 99.9% of cases, and extracapsular cataract extraction was performed in 0.01%. Patients were re-evaluated 1 day and 1 month postoperatively. Mean postoperative BCVA was 20/28. The researchers reported no life- or vision-threatening intraoperative or perioperative adverse events. No cases of endophthalmitis were reported within 30 days after surgery. Intraoperative adverse events included capsular tear (0.55%) and vitreous loss (0.34%). Postoperative adverse events included iritis (1.53%), corneal edema (0.53%), and retinal tear or detachment (0.14%). A second surgery was performed on 0.70% of eyes within 6 months postoperatively.

The patient sample had a mean age of 72.6 years, was 59% female, and had systemic comorbidities of hypertension (54%), diabetes mellitus (22%), and chronic obstructive pulmonary disease (9%). Ocular comorbidities in these patients included nonexudative macular degeneration (21%), glaucoma (18%), and exudative macular degeneration (2%). All patients were required to have seen their primary care provider within 1 year prior to their surgery.

This is the largest study in the United States to investigate the safety and efficacy of office-based cataract surgeries performed in minor procedure rooms. The investigators concluded that the outcomes of these office-based cataract surgeries were excellent and had a safety profile expected of cataract surgery procedures performed in ambulatory surgical centers or hospital outpatient departments.

DISCUSSION

Cataract surgery is one of the most commonly performed surgical procedures in the United States. Advances in the surgical technique of cataract extraction have allowed its transition from the inpatient setting to ambulatory surgery centers and hospital outpatient departments.[1] Interest has grown in an office-based approach to cataract surgery, which the study's authors suggest will further minimize waiting times, preoperative laboratory evaluations, and the use of other valuable hospital resources.[1]

Importantly, the authors noted that, in these office-based procedures, no dedicated anesthesia personnel are involved, preoperative laboratory tests generally are not needed, and intravenous access is not established.[1] Prior studies have evaluated cataract surgery without an anesthesiologist present and have used respiratory therapists to administer monitored anesthesia care; this research has demonstrated low complication rates.[2] A retrospective study from the Netherlands showed that phacoemulsification under topical anesthesia without an anesthesiologist present was safe, without the need for a preoperative laboratory or electrocardiographic workup.[3]

The complication rates in this study were similar to those reported in previously published research, with a 0.14% retinal detachment rate similar to the 0.27% seen 1 year postoperatively in the Rochester Epidemiology Project.[4] The investigators in the current study also cited low rates of posterior capsular rupture and vitreous loss, comparable to what other studies have reported.[5]

In conclusion, the authors suggested that office-based cataract surgery achieves visual acuity results and adverse event profiles that are consistent with the expectations of modern cataract surgery.

CATARACT SURGERY OUTCOMES IN UVEITIS: THE MULTICENTER UVEITIS STEROID TREATMENT TRIAL

Sen HN, Abreu FM, Louis TA, et al[6]

ABSTRACT

Sen and colleagues performed a nested prospective cohort study of patients enrolled in a randomized clinical trial. In the Multicenter Uveitis Steroid Treatment (MUST) Trial, 117 eyes of 82 patients underwent cataract surgery during the first 2 years of follow-up. Eyes that had a concurrent fluocinolone acetonide intravitreal implant and cataract surgery were excluded. Of the 117 eyes, 28 had received standard systemic therapy (systemic corticosteroids and immunosuppressive medications), and 89 had received a fluocinolone acetonide intravitreal implant. Patients were evaluated 3, 6, and 9 months postoperatively. The main outcome measure was BCVA. IOL placement

occurred in 97% of the group, while 3% were left aphakic, with no significant difference between treatment groups.

Overall, visual acuity increased by 23 letters from preoperatively to the 3-month follow-up visit and remained stable at 9 months of follow-up. Eyes that were graded as having a severe cataract (measured by an inability to grade vitreous haze) demonstrated an additional 42 letters beyond the 13 letters gained by eyes that had a gradable vitreous haze.

The investigators also found that black race, a longer time from uveitis onset, and hypotony were associated with worse preoperative visual acuity but not with worse postsurgical recovery. After completing an adjustment for other risk factors, the researchers found no statistically significant difference in improvement in visual acuity between the steroid and implant groups.

The authors concluded that patients undergoing cataract surgery whose uveitis was treated with either a fluocinolone acetonide intravitreal implant or standard systemic therapy achieved similarly substantial and sustained improvements in visual acuity.

DISCUSSION

One of the most common sequelae in patients with uveitis is the development of cataracts owing to inflammation and also corticosteroid treatment. Previous studies have demonstrated that controlling inflammation preoperatively results in better visual outcomes in eyes with uveitic cataracts,[7] with the general recommendation's being at least 3 months free of inflammation prior to surgery.

Routine preoperative management for uveitic patients with cataracts includes systemic corticosteroids. Alternatively, a fluocinolone acetonide intravitreal implant may be used that can deliver sustained, steady levels of corticosteroids directly to the eye for 3 years. The MUST Trial is a multicenter, randomized clinical effectiveness trial comparing implant therapy to systemic therapy with corticosteroids and immunosuppression for patients with noninfectious intermediate uveitis, posterior uveitis, and panuveitis. The study demonstrated that systemic and implant therapy for uveitis achieves similar visual acuity outcomes.[8]

In the study by Sen and colleagues, 62% of eyes had a postoperative visual acuity of 20/40 or better, which is similar to the 70% with a visual acuity of 20/40 or better from a meta-analysis of outcomes in uveitic cataract surgery.[7] Additionally, a study by Sheppard et al demonstrated that eyes with noninfectious posterior uveitis treated with the fluocinolone acetonide intravitreal implant had better visual acuity outcomes after cataract surgery than fellow nonimplanted eyes.[9]

The authors demonstrated that, in patients with uveitic cataracts, the fluocinolone acetonide intravitreal implant and standard systemic therapy produce similar visual acuity outcomes.

EFFECT OF PRIOR ANTI-VEGF INJECTIONS ON THE RISK OF RETAINED LENS FRAGMENTS AND ENDOPHTHALMITIS AFTER CATARACT SURGERY IN THE ELDERLY

Hahn P, Yashkin AP, Sloan FA[10]

ABSTRACT

Hahn and colleagues performed a retrospective, longitudinal cohort analysis of Medicare beneficiaries with a history of receiving intravitreal antivascular endothelial growth factor (anti-VEGF) injections who underwent cataract surgery. Using the 5% Medicare claims database from 2009 to 2013, the investigators analyzed a total of 203,643 Medicare beneficiaries. The primary outcome measure was the rate of lens fragment removal within 28 days after cataract surgery. Secondary outcome measures were the rate of acute (< 40 days postoperatively) or delayed-onset (> 40 days postoperatively) endophthalmitis and the risk of a new primary open-angle glaucoma (POAG) diagnosis within 1 year after cataract surgery.

Prior intravitreal injections were associated with a 129% increased risk of acute endophthalmitis and a 265% increased risk of delayed-onset endophthalmitis. A history of anti-VEGF intravitreal injection was also associated with a 126% increase in the risk of requiring retained lens fragment removal within 28 days of cataract surgery. Prior injections did not increase the risk of a new POAG diagnosis.

The researchers concluded that prior intravitreal injections might be a risk factor for cataract surgery-related complications and endophthalmitis.

DISCUSSION

The growing use of intravitreal injections for diabetic retinopathy, neovascular age-related macular degeneration, vein occlusion, and uveitis has dramatically changed the management of patients with these conditions over the past decade. Prior studies have evaluated systemic complications and other intraocular complications, but few have studied complications associated with cataract surgery.

This study found that a history of intravitreal injections might be a risk factor for intraoperative complications and postoperative endophthalmitis. Interestingly, the authors did not find an association with the development of POAG after receiving intravitreal injections. Conversely, other studies have reported transient and sustained elevations in IOP after intravitreal injections.[11]

A recent study by Lee et al investigated 1,935 eyes that received prior intravitreal therapy (either anti-VEGF or corticosteroids).[12] Those researchers found that the likelihood of posterior capsular rupture was 1.04 times higher per injection and 2.59 times higher in patients who had received 10 or more injections prior to cataract surgery.[12] In consideration of the technique of an intravitreal injection and the associated intraocular anatomy, the

investigators postulated that previous injections might have inadvertently induced zonular trauma or damage to the lens capsule.[12]

Regarding endophthalmitis, the authors of the current study found no difference in chronic endophthalmitis rates between cases diagnosed less than 40 days or more than 40 days postoperatively. They suggested that the increased risk of endophthalmitis seen in cases diagnosed 40 days or longer after surgery might not represent a risk from cataract surgery but rather acute endophthalmitis from needing ongoing intravitreal therapy.

Given the results of their study, the authors suggested that a prior history of intravitreal injections should alert cataract surgeons to the possibility of an increased risk of postoperative endophthalmitis and intraoperative complications. ■

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Section Editor Edward Manche, MD
- director of cornea and refractive surgery, Stanford Laser Eye Center, Stanford, California
- professor of ophthalmology, Stanford University School of Medicine, Stanford, California
- edward.manche@stanford.edu

Laurence Sperber, MD
- clinical professor, residency program director, and director of Cornea Service, Department of Ophthalmology, NYU Langone Medical Center, NYU School of Medicine, New York
- (212) 263-2573; laurence.sperber@nyumc.org

Edmund Tsui, MD
- ophthalmology resident, NYU School of Medicine, New York
- edmund.tsui@nyumc.org