

Ophthalmology *Update*

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Delaying Cataract Surgery Causes Decrease in Quality of Life

Delaying cataract surgery can have dire consequences, including an increased loss of vision, a decrease in quality of life, loss of driver's license, depression, and adverse events including falls and fractures, according to a literature review by Gimbel from Loma Linda University, California and Dardzhikova, a private practitioner from Alberta, Canada (*Curr Opin Ophthalmol* 2011). Consequences are both quantitative and qualitative in nature, ranging from progressive vision loss to a decrease in quality of life from factors other than vision loss, the authors wrote.

Timing of cataract surgery is an increasingly critical issue; according to the study, the most common cause of surgically remediable poor vision in the aging population is cataract, and the U.S. census predicts that by 2030, 20% of the U.S. population will be older than 65 years of age.

"Consequences of waiting for cataract surgery are multivariate in nature and easily extend beyond the clinical setting into sociodemographic realms and public health costs and policy arenas," the article noted. For their study,

the authors conducted a concise review of primary research articles about the consequences of waiting for cataract surgery, including a landmark review paper by Hodge et al (*CMAJ* 2007) that found that patients who waited for more than 6 months for cataract surgery usually experience significant vision loss, a reduced quality of life and an increased rate of falls.



Several studies have looked at the relationship between depression and delays in cataract surgery. According to a study by Freeman et al (*Can J Ophthalmol* 2009), researchers found that patients with worse visual acuity were more likely to be depressed while waiting for cataract surgery and hypothesized that shortening wait times could reduce the risk or shorten the duration of depression in these patients.

Because wait lists may become longer with aging populations, the consequences of waiting for cataract surgery may become even more multivariate, involving several biopsychosocial health determinants, the authors wrote. "This will require a shift in priorities and services including evaluation of the consequences of waiting for cataract surgery," they concluded.

Upcoming CME Seminars

September 18, 2013

Overview of Cataracts: Signs, Symptoms & Solutions

5 pm registration and dinner, 6 pm - 8 pm program
Bucks Run Golf Club, Mt. Pleasant

November 7, 2013

Droopy eyelids: Evaluation and Treatment

5 pm registration and dinner, 6 pm - 8 pm program
University Club of MSU, East Lansing

For more information or to RSVP, please call Kyrie at 517.337.1283 or email her at kelliott@loeye.com.

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Cerebral Damage and Vision Loss Among Children Born Premature

Cerebral damage may be the primary risk factor for visual impairment in preschool children who were born extremely premature, according to the results of a study conducted by Slidsborg et al from the Copenhagen University Hospital, Denmark (*Arch Ophthalmol* 2012). These results stand in contrast with the results of earlier studies, which have identified retinopathy of prematurity (ROP) as the primary risk factor.

The study used data from 178 children who were part of a Danish national cohort of children born extremely premature, as well as a matched control group comprising 56 term-born children. All study participants were evaluated for visual acuity, foveal sequelae, maximum ROP stage and the presence of global developmental deficits.



At the completion of the study, the researchers found that both global developmental deficits and foveal sequelae occurred more often in extremely preterm children than in term-born control children and increased with ROP severity. In addition, global developmental deficits, moderate-to-severe foveal abnormality and ROP treatment were independently associated with visual impairment.

“For many years, ROP has been considered the main cause of visual impairment in extremely preterm children,” the study authors wrote. “However, this study demonstrates that cerebral damage is the primary risk factor for visual impairment Furthermore, in visually impaired children ... 4 of 12 children (33.3%) with foveal abnormalities ... also have cerebral damage when first examined,” they added. “This raises concerns that ... ROP sequelae are given too much importance and cerebral damage is given too little importance when attributing the cause of visual impairment.”

These results should encourage physicians to look beyond ROP and to consider cerebral damage

in all premature infants, even in cases in which blindness or visual impairment may be explained by the current ROP sequelae, the authors advised. Eye care professionals “should be alert to whether cerebral damage (and, consequently, cerebral visual impairment) is present in children born extremely premature,” the study authors wrote. “This will ensure that relevant measures are taken to refer children with cerebral damage to a multidisciplinary team specializing in the clinical evaluation and rehabilitation of children with cerebral visual impairment.”

Visually Impaired Seniors at Risk for Social Isolation

Between 40% and 50% of older, visually impaired adults limit their physical activity due to a fear of falling, and that limitation may cause many of these patients to become socially isolated, according to a study conducted by Wang et al from Hôpital Maisonneuve-Rosemont, Canada (*Invest Ophthalmol Vis Sci* 2012).

For their cross-sectional study, the researchers recruited 345 participants older than or equal to 65 years of age, including men and women who suffered from 1 of 3 eye diseases: age-related macular degeneration (AMD), Fuchs corneal dystrophy or glaucoma. The group also included 97 control participants with normal vision. In addition to answering questions about activity limitation and fear of falling, visual acuity, contrast sensitivity and visual field were measured, and medical records were reviewed for each patient.

At the end of the study, the researchers found 51% of patients with AMD, 49% of patients with Fuchs' corneal dystrophy and 42% of those with glaucoma reported that they limited activity due to a fear of falling, compared with only 16% in the control group. After adjusting for age, gender, race, number of comorbidities, cognition and lens opacity, they found that patients with Fuchs corneal dystrophy were most likely to report activity limitation due to a fear of falling, followed by the glaucoma group and the AMD group. “Although this compensatory strategy may protect against falls, it may also put people at risk for social isolation and subsequent disability,” the authors wrote.

Understanding the link between visual impairment

and the potential for social isolation is important for older patients and their families and for physicians caring for older patients with eye disease, they added. "We should strive to keep older adults with eye disease as mobile as safely possible to help prevent morbidity associated with a sedentary lifestyle, mobility disability, and mortality," they wrote.

LASIK Found to Be Stable at Extreme Altitudes

An initial study evaluating the eyes of a small group of active-duty U.S. Air Force crew members indicates laser in situ keratomileusis (LASIK) remains stable at extreme altitudes for periods of up to 30 minutes. The study was conducted by Aaron et al from the U.S. Air Force School of Aerospace Medicine, Ohio (*Aviat Space Environ Med* 2012).

Although the Air Force approved LASIK for aircrews in 2007, concerns about corneal stability at high altitudes have persisted. Previous studies have shown that lower levels of oxygen can cause a myopic shift in eyes treated with LASIK. In addition, mountain climbers have reported decreased acuity in eyes treated with LASIK at altitudes greater than 22,000 feet.

The study aimed to evaluate visual and refractive stability after LASIK under conditions simulating an aviation mission. Because of the potential risks of the study, the researchers limited the size of the cohort to 12 Air Force crew members and 24 eyes that had undergone LASIK 1 month or more previously.

The researchers measured high- and low-contrast visual acuity, refractive error, and keratometry at ground level after a 2-hour oxygen prebreathe, which is typically performed prior to flying in high altitude maneuvers to avoid decompression sickness. Measurements were taken again after 30

minutes of exposure to conditions simulating 35,000 feet, using a hypobaric chamber.

After comparing values, the researchers found that LASIK eyes demonstrated no clinically or statistically significant changes at altitude compared with ground level for any of the 4 measurements included in the study. No eyes showed more than plus or minus 0.25 diopters (D) of change on keratometry, and none had a myopic shift greater than 0.25 D.

"Our study suggests that LASIK eyes exposed to extreme altitude under operational conditions, where the exposure time is limited, are expected to remain stable," the authors wrote. They added, however, that a larger study is necessary to substantiate the study's findings.

Visual Impairment Increases Dramatically with Age

According to a recent analysis evaluating short-term and long-term changes in visual impairment (VI), about 15% of men and women 85 years of age or older can expect to experience a significant increase in visual impairment during 5-year intervals. The analysis, conducted by Klein et al from the University of Wisconsin School of Medicine and Public Health (*Ophthalmology* 2013), relied on data collected over a 20-year period during the Beaver Dam Eye Study.

Baseline data was collected from 4926 individuals between 1988 and 1990, and 3721, 2962, 2375 and 1913 of those patients took part in 4 follow-up examinations spaced 5 years apart over the 20-year period ending in 2010, respectively. VI was said to have occurred in any patient whose best-corrected visual acuity (BCVA) in 1 or both eyes declined from 20/40 or better to poorer than 20/40 over any 5-year interval. Severe VI was said to have occurred in any patient whose BCVA in 1 or both eyes declined from better than 20/200 to 20/200 or worse over any 5-year period.

At the conclusion of their study, the researchers found that

*overall incidence of VI between examinations was 1.4%, varying from 0.1% in individuals 50 to 54 years of age to 14.6% in those 85 years of age or older



*overall incidence of severe VI was 0.35%, ranging from 0.0% in those who were 50 to 54 years of age to 6.9% in those who were 85 years old or older

Age-related macular degeneration (AMD) remained the leading cause of severe VI in the older patient population, with 54% of eyes in this group having incident-severe VI.

The authors noted that the data "show a relatively high long-term incidence of VI (21%) and severe VI (7%) in persons 85 years of age and older" and that the results point to the potential significant public health burden of the visually impaired in the United States, especially as the population continues to age.

"Continued national epidemiologic surveillance is needed to monitor changes in the incidence and prevalence of VI and the diseases that cause them to estimate the costs and benefits of new ophthalmologic interventions after they are introduced," they concluded.

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