A HISTORY of premature birth, even without retinopathy of prematurity, puts adult patients at a substantially increased risk for developing cataracts at a younger age, and for developing post-surgery complications such as retinal tears and detachments, reported researchers at the annual meeting of the Association for Research in Vision and Ophthalmology (ARVO).

Because of this increased risk, cataract surgeons should ask their adult patients if they were born prematurely, even when retinas appear healthy in fundus images prior to cataract removal, according to Gregory Fenton, MD, Wills Eye Institute, Philadelphia, Pennsylvania.

In general, patients who have a history of ROP are known to have increased incidence of retinal complications, retinal tears and detachments later in life. Researchers questioned whether premature birth alone, even without ROP, could indicate increased risk, he told EuroTimes in an interview.

Researchers had access to a large, long-term database of adult patients who had a history of premature birth. The goals were to determine the age of onset of cataract of patients with a history of ROP, determine what the visual results after cataract removal were, and rates of complications.

A retrospective chart review was done of patients with a history of prematurity, but who had presented as adults to one of two clinics: the Wills Eye Institute (W EI) and the Beaumont Eye Institute (BEI). A total of 49 eyes of 36 patients from Beaumont (between the years 1982 to 1998), and 17 eyes of nine patients (from years 1965 to 1995) from W EI were included. All patients had a birth weight of 2200 grams or less, or had gestational age of 32 weeks or less.

Overall, patients had a median follow-up of 9.9 years with some being followed-up for 38 years.

Overall, a total of 66 eyes from 45 patients underwent cataract surgery, and 37 eyes had minimal cicatricial changes from ROP. A total of 25 eyes (38 per cent) had at least one line of improvement in vision, 20 (30 per cent) had no change in vision and 21 (32 per cent) had a decline in vision post cataract removal.

Postoperative complications of a retinal tear or retinal detachment occurred in 15 of the 66 eyes (23 per cent), and rates between the two centres were similar, researchers reported.

"That is a very high percentage relative to cataract surgery done on ‘normal’ patients," Dr Fenton said.

The researchers also found that the baseline severity of the fundus changes from ROP did not correlate with the likelihood of developing surgical complications after cataract removal.

"This led us to conclude that a history of premature birth alone, even in the absence of significant cicatricial changes from ROP, is an important risk factor for the development of retinal tears or detachments after cataract surgery," he said.

Generally, the visual results of these patients were less satisfactory than what would be expected in healthy patients with no history of premature birth. Plus, cataracts tended to develop at a younger age in this population than what would normally be expected. At the time of cataract surgery, patients in the study had a mean age of 40.3 years.

"Simply having a history of premature birth is an important risk factor for the development of retinal complications after cataract surgery. Therefore it’s important for ophthalmologists to enquire about a history of premature birth in their patients in order to calculate all their various risks from cataract surgery," Dr Fenton said.

Patients who have a history of prematurity need to be followed by ophthalmologists long term, even years after cataract surgery.

"Patients with a history of prematurity require close follow-up. Out of 15 patients who developed retinal complications, one developed complications 136 months after surgery. It’s important that patients be followed their entire lives, closely, to monitor for these complications," Dr Fenton said.

"I think this study highlights the importance of following postop cataract patients for complications. Patients who present at a young age with cataracts have eyes which are not normal and may be less healthy," said George Beiko, MB, assistant professor of ophthalmology at McMaster University in Hamilton, Ontario, Canada. He was not part of the study group, but provided a non-partisan comment.

Knowing in advance that premature birth may be associated with cataracts and retinal problems would “allow an ophthalmologist to educate his patient about the risks, and importantly, about the symptoms that the patient should be wary of. The patients can also be informed of the potential of a less than ideal outcome to their cataract surgery as the visual results are certainly less than the usual expectation of 95 per cent improvement of vision," he said.

ghfenton@gmail.com
georgebeiko@sympatico.ca

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Torsional handpiece proves safe and efficient complement to microcoaxial phaco

Speaking at the annual meeting of the French Implant and Refractive Surgery Association (SAFIR), Dr Weiser said that he is convinced that the trend towards microincision surgery will continue apace.

“Bearing in mind the fact that there is a clear merging of cataract and refractive surgery, with an improved ability to control induced astigmatism and with better quality of multifocal implants than ever before, I am convinced that we will see incisions of less than 2.2mm becoming standard.”

Dr Weiser noted that while bimanual phaco has grown in popularity in recent years, the approach is not without its drawbacks.

“There is a considerable learning curve for bimanual phacoemulsification, it requires specific, expensive surgical instruments and the incisions are less watertight. Moreover, the fluids are less stable because of the reduced infusion flow rates, with an increased risk of thermal burn, and no proven benefit in terms of safety and results compared to microcoaxial phaco,” he said.

Dr Weiser added that currently available intracapsular implants suitable for bimanual surgery have not been clinically proven over time, notably in terms of decentration rates and resistance to posterior capsule opacification.

By contrast, Dr Weiser said that microcoaxial phaco offers clear advantages over bimanual phaco in terms of learning curve, instrumentation, infusion flow rates, incision integrity, and compatibility with full size IO L implantation.

“There is no modification of surgical technique, so there is no steep learning curve with this approach. It works for all grade of cataract and there is no need for specialised equipment. The fact that we can use classic phaco infusion means a more stable anterior chamber and the ability to use higher phaco parameters if necessary,” he said.

Turning to recent advances in microcoaxial techniques, Dr Weiser noted...
A SUTURE-FREE posterior chamber lens offers a stable hold in highly traumatised eyes, where conventional scleral-sutured IOLs would fail, according to Annette Kutschman MD, an eye surgeon at the Asklepios Klinik in Hamburg, Germany.

“This lens provides a viable option as a secondary implant and a recommendable alternative to suture-fixed posterior chamber lenses. It can be implanted in severely traumatic eyes without causing any additional intra-operative trauma and assumes a stable position in spite of aphakia,” she said.

Dr Kutschman reported on her experience with the Binderflex II suturesless PCL (IO LUTOI N, Itzeheo, Germany) at the 21st Congress of the DGII (German-Speaking Society for Intraocular Lens Implantation and Refractive Surgery).

Dr Kutschman implanted the Binderflex II one-piece, foldable, acrylic posterior chamber lens in 15 highly complicated eyes. All but one of these eyes had multiple surgeries and most had at least one of the following: aphakia with congenital cataract, nystagmus and amblyopia; aphakia with multiple vitreo-retinal surgery; endophthalmitis; explosion with oil surgery; spontaneous luxation of scleral-sutured lenses; anterior chamber lens explantation with removal of lens and capsule remnants from the anterior and posterior eye segments; and posterior chamber lens removal from vitreous body. She was able to implant the lens in 14 of 15 eyes. In one eye, retropupillary synechiae in a case with heavy trauma snagged the haptic anchor causing it to rip off. In another eye, although stably fixated at last, posterior synechiae kept the haptics from lodging properly in the ciliary sulcus.

Thoroughly clearing away the retro-iridal area of fibrotic tissue, synchiae, and of lens and capsule remnants in eyes damaged by trauma is an important step in the surgical process with this lens, according to Helmut Binder MD, who invented and designed the Binderflex lens.

“Fibrotic tissue has to be meticulously sectioned and removed, with particular attention to debridement as far as the peripheral retro-iridal areas, where the iridotomies are placed and the haptic anchors buttoned-in. Fine debridement is a pre-requisite for the secondary implantation of this and any other device, whether, spontaneous, post-traumatic or PEX related,” said Dr Binder, who has implanted seven Binderflex lenses himself, also in severely traumatic, pre-operated eyes.

He added that filling the retro-iridal space with a viscoelastic substance such as Methocel helps create space for the implantation and allows the IOL to glide more easily.

Dr Kutschman used a clear corneal cut to implant the Binderflex lens (6.0mm optic diameter, 15.0mm long haptics). She explained that along with the benefits of minimally invasive surgery, the advantage of this lens was that it was stabilised in two different parts of the eye, by two specially designed IOL features. With hite the extra-long haptics extend through and get supported in the ciliary sulcus, the haptic ends (anchors) button through peripheral iridotomies, fastening the device in place.

As a posterior chamber lens, this device causes no lentodonesis, Dr Kutschman noted. It can be implanted through a clear corneal incision, even in eyes with a scarred sclera and, unlike iris claw lenses, does not affect the pupil in any way. On the other hand, she noted that in four cases the IO L optic lay too far back in the retropupillary space, which meant a slight additional visual correction for these patients.

AQUA LAS 6.0 mm and OZil 6.0 mm both underscored the trend towards gentler, more targeted procedures and most had at least one of the following: aphakia with congenital cataract, nystagmus and amblyopia; aphakia with multiple vitreo-retinal surgery; endophthalmitis; explosion with oil surgery; spontaneous luxation of scleral-sutured lenses; anterior chamber lens explantation with removal of lens and capsule remnants from the anterior and posterior eye segments; and posterior chamber lens removal from vitreous body. She was able to implant the lens in 14 of 15 eyes. In one eye, retropupillary synechiae in a case with heavy trauma snagged the haptic anchor causing it to rip off. In another eye, although stably fixated at last, posterior synechiae kept the haptics from lodging properly in the ciliary sulcus.

“With OZil there is greater control and safety of the entire phacoemulsification, with a stable anterior chamber, better retention of viscoelastic, and therefore greater protection of the endothelium, and better overall use of energy into the eye. We are able to use reduced aspiration rates and continuous mode without risk of corneal burn, he added.

Dr W eiser noted that using a Kelman mini-flared tip enables maximum cutting efficiency with torsional phaco. The reduced angulation of the tip allows for good visualisation during the surgery, and the geometry of the curved tip used in a side-to-side displacement generates more efficient cutting and reduced heat production at the incision site.

Looking to the future, Dr W eiser said he was convinced that there will be a continuous effort for further innovation in ultrasound and fluidics to deliver safe and non-distorted true sub 2.0mm incisions, resulting in surgery that is moreatraumatic for the patient.

“Micro coaxial phaco with torsional ultrasound is extremely effective, very safe and is the perfect match for these micro-incisions. W e will continue to see improvements in technology, with reduced need for BSS, less energy delivered into the eye and the evolution of new injector devices and D-cartridges for delivery of the new generation of implants coming on stream,” he said.

Weisermann@tcom