Risk factors identified for glaucoma following paediatric cataract surgery

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in Paris

Mean preoperative axial length was 21.4 ± 2.4 mm in eyes without glaucoma compared to 18.6 ± 2.5 mm in eyes diagnosed with glaucoma, a statistically significant difference. Mean K1 keratometry measurements were 44.1 for glaucoma-free eyes compared with 46.3 for those that did develop glaucoma. Similarly, mean K2 measured 45.6 for nonglaucomatous eyes compared 47.3 for glaucomatous eyes.

She pointed out that serial postoperative axial length measurements are helpful in detecting the abnormal axial elongation that may be associated with glaucoma in very young eyes.

Further, she said her review associated piggyback IOLs more often with the development of glaucoma than with single IOLs overall: 8.7% in piggyback cases versus 3.4% with single IOLs. However, this may be because more eyes operated at younger age were implanted with piggyback IOLs.

Paediatric cataracts may carry inherent glaucoma risk

Paediatric ophthalmologists attending the congress argued that although factors such as age and corneal diameter may indeed play an important role, it is the cataract surgery itself that brings complications such as ocular hypertension to the fore in paediatric cases. Dr. Trivedi explained that even with severe microcornea, glaucoma does not seem to occur without the cataract. Cataract may have associated anomalies of the angle structure and surgery to remove the cataract may trigger a cascade of events that may lead to elevated IOP/glaucoma in these predisposed eyes, early on or even 5 to 15 years later.

Dr. Trivedi allowed that not all researchers concurred on this point. For example, an earlier trial performed by Asrani published in J AAOPS (1999) suggests that pseudophakia may protect against glaucoma. Dr. Asrani’s results showed that aphakic eyes (mean age 2.7 years, mean follow up 7.2 years) developed glaucoma in 11.3% of cases. Pseudophakic eyes developed glaucoma in only 0.26% of cases (mean age 5.1 years, mean follow up 3.9 years).

Dr. Trivedi pointed out that they have also noted a low incidence of glaucoma in post-cataract patients who have received implantation of an IOL. However, perhaps this represents a selection bias since the microphthalmic eyes and eyes associated with ocular anomalies are the ones least likely to be implanted with an IOL. The more recent use of IOLs even in these higher risk eyes may lead to higher incidence of glaucoma especially with long-term follow-up.

Dr. Trivedi noted that recent literature reported aphagic glaucoma occurred in 2.1% of eyes, and the crucial age to develop glaucoma was in patients younger than nine months.

Dr. Trivedi said the literature has reported the incidence of aphagic glaucoma between five percent and 41%. The duration of the follow up period, age at the time of surgery, diverse inclusion and exclusion criteria and varying definitions of glaucoma itself account for the widespread, she said. Researchers need to devise studies that standardised relevant parameters.

Long follow-up necessary

As paediatric glaucoma lacks both a universally accepted aetiology and treatment, and ranks as one of the leading causes of irreversible vision loss following cataract surgery, she stressed that an awareness of the risk factors is imperative. Eyes operated early in life for cataract-IOL surgery should be routinely followed over the long term, to detect and treat glaucoma at the earliest sign of disease. The risk of asymptomatic glaucoma after paediatric cataract-IOL surgery reinforces the need to follow these children for regular, long-term follow-up. In high risk patients, EUA (at least yearly) for measurement of IOP and examination of the anterior and posterior segments of the eye is recommended until the children get old enough to allow these examinations awake.

The average postoperative follow-up time was 47.0 months (SD 25.8) and 37.7 months (SD 30.9) (P = 0.21), following cataract surgery in the 3.5 and 0.2 year age groups respectively. Glaucoma was diagnosed at an average of 9.1 months (SD 13.8 months, median 3.5 months, range 0.8 – 44.0 months) after surgery.

The study included consecutive primary pseudophakic patients who were treated for glaucoma. It excluded all eyes with traumatic cataract.