IOP after penetrating keratoplasty requires careful monitoring and rapid intervention

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in Rome

POST-PENETRATING keratoplasty (post-PK) glaucoma is one of the leading causes of graft failure, but its incidence may be reduced if clinicians monitor IOP on a regular basis after corneal transplantation and treat aggressively if the pressure is found to be elevated, according to an Indian study.

"Post-PK glaucoma is a serious clinical problem because of difficulty in diagnosis and management. Uncontrolled IOP after penetrating keratoplasty is a leading cause of graft failure and visual loss. Despite clear grafts, optimal visual outcome may not be obtained in all patients, so it is mandatory to evaluate IOP on a regular basis and intervene promptly to treat the problem," Sonika Gupta MD told delegates attending the 13th ESCRS Winter Meeting.

Defining post-PK glaucoma as elevated IOP greater than 21 mmHg with or without associated visual field loss or optic nerve head changes, Dr Gupta said that the purpose of her study was to analyse the incidence, risk factors, treatment modalities, graft status and visual acuity outcomes in those patients with glaucoma after PK.

The retrospective study carried out at the Government Medical College and Hospital, Chandigarh, India, included 260 eyes of 260 consecutive patients who had undergone PK between 2003 and 2007. The medical records of those patients diagnosed with post-PK glaucoma were reviewed with respect to age, sex, indication for PK, preoperative visual acuity, evidence of existing glaucoma, and use of anti-glaucoma medications and surgeries performed.

Dr Gupta noted that the relevant intraoperative data reviewed included the details of the type of surgery, the graft size and also whether the PK was combined with other procedures such as cataract surgery, intraocular lens removal or exchange, secondary IOL implantation or anterior vitrectomy.

The postoperative information gleaned from the review included visual acuity data, status of corneal graft, status of anterior chamber, intraocular pressure as measured by Goldmann applanation tonometry and disc evaluation in patients where the lens media was clear. Dr Gupta said that the type of postoperative management – medical therapy, glaucoma filtering surgery, or cyclocryotherapy – was also taken into consideration, as were the final visual outcome and status of the graft.

Looking at the overall data, Dr Gupta reported that 30 of the 260 eyes (11.5 per cent) were found to have post-PK glaucoma. The age range was from eight to 76 years and included 20 males and 10 females, with a mean follow-up period of 15 months.

The indications for PK in those patients that were diagnosed with post-PK glaucoma included adherent leucoma in 26 per cent, perforated corneal ulcer in 20 per cent, aphakic bullous keratopathy in 20 per cent, infectious keratitis in 17 per cent, failed graft in 10 per cent and pseudophakic bullous keratopathy in seven per cent.

Associated aphakia was found in 13 eyes (43 per cent) and an additional surgical procedure had been carried out in seven eyes (23 per cent), including cataract surgery in four eyes and anterior vitrectomy in three eyes. Pre-existing glaucoma was present in six eyes (20 per cent) out of which four eyes had previous glaucoma filtering surgery. The mean graft size was 8.03mm, said Dr Gupta.

Of the 30 patients diagnosed with post-PK glaucoma, 18 patients were treated with medical therapy, seven with trabeculectomy and mitomycin C, four with cyclodestructive procedures and one patient with malignant glaucoma was treated with vitreous aspiration and air injection.

Looking at the final outcomes, Dr Gupta said that the researchers found a clear graft in only 15 eyes (50 per cent), with a visual acuity of 20/200 or better in eight eyes (27 per cent). In terms of risk factors, she noted that aphakia (with an odds ratio (OR) of 9.71) and associated surgical procedures (OR 2.18) were found to be the most common risk factors in this series.

Putting the results in perspective, Dr Gupta said that the study outcomes were broadly in accord with those already published in the scientific literature. She cited a study by Chander et al in the *Indian Journal of Ophthalmology* which reported a post-PK glaucoma of 27 per cent, and which identified risk factors.

Another study by Sihota et al in the *Australia and New Zealand Journal of Ophthalmology* found an incidence of post-PK glaucoma of 10.6 per cent (79 out of 747 patients), and concluded that a high incidence of post-PK glaucoma occurs in eyes with adherent leucomas.

Dr Gupta said that post-PK glaucoma remains one of the most common causes for irreversible visual loss and the second leading cause for graft failure after rejection.

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