**GLAUCOMA**

**LENSES EXTRACTION**

Cataract extraction effective in treatment of primary angle-closure glaucoma

by Roibeard O’Hearneachain in Copenhagen

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Cataract extraction alone is enough to resolve angle closure and reduce IOP to optimum levels in many eyes with primary angle-closure glaucoma (PACG), and clear lens extraction may also be a justifiable option in select cases, said Augusto Azuara-Blanco MD, PhD, University of Aberdeen, Aberdeen, Scotland.

“At the moment, laser peripheral iridotomy plus medication is the primary treatment that we use. But perhaps in some patients lens extraction may have a role, or perhaps we should only consider lens extraction in those patients in whom laser iridotomy does not open the angle, as is the case in at least a quarter of patients,” Prof Azuara-Blanco told the 10th European Glaucoma Society Congress.

The growth of the lens with age is the most important factor in the pathogenesis of angle-closure glaucoma, he noted. That is why the condition occurs much more commonly in older people, he added.

There are additional ocular factors that may predispose some patients to the disease. They include the position of the ciliary process, the thickness of the peripheral iris, and the level of insertion of the iris and the anatomy of the anterior part of the lens. But it is the increased volume of the lens that ultimately precipitates angle-closure in the majority of cases, Prof Azuara-Blanco said.

“With increased lens volume there is a shallowing of the anterior chamber and an increase in the relative pupillary block and this can result in angle-closure in eyes that are predisposed,” he added.

**For angle closure and cataract**

Prof Azuara-Blanco noted that a fairly strong argument can be made in favour of cataract extraction as a first line treatment in eyes with angle-closure and cataract. However, the evidence in favour of that approach is mainly restricted to numerous case-series studies, the first of which was published in 1988 (Greve E L. Int Ophthalmon 1988. 12157–162.162).

The case-series studies have consistently shown that lens extraction is associated with a good reduction in IOP and a reduction in the number of medications required to control IOP. However, a Cochrane review, which did not include case-series studies, concluded that there was no reliable evidence (ie, from randomised controlled trials) in favour of the procedure for that indication.

On the other hand, the results of two randomised studies published more recently indicate that cataract surgery can achieve IOP control similar to that achieved by combined phaco-trabeculectomy (Tham et al Arch Ophthalmol. 2010;128(3):303-311). Both studies were carried out at the same centre in Hong Kong. The first study involved 72 angle-closure glaucoma patients with cataract whose IOP was well controlled with medication. They were randomised to undergo phacoemulsification alone or with trabeculectomy. At a follow-up of two years, there was no significant difference in terms of IOP between those who underwent phacoemulsification alone and those who underwent phaco-trabeculectomy.

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In the second study, which involved 51 patients with poorly controlled IOP, angle-closure glaucoma and cataract, those who underwent phaco-trabeculectomy had significantly lower IOP than those who underwent phaco alone, at a follow-up of two years. As in the other study, the phaco-trabeculectomy group also required fewer medications and also had more complications.

“At the moment, laser peripheral iridotomy plus medication is the primary treatment that we use.”

Prof Azuara-Blanco said that he currently offers the procedure to patients either as a primary intervention or after laser iridotomy has been unsuccessful. He added that in eyes with poorly controlled IOP and in those with severe glaucomatous damage he combines phacoemulsification with trabeculectomy plus mitomycin C in order to bring the pressure under control as much as possible as soon as possible.

Performing phacoemulsification in an eye with angle-closure glaucoma entails several important considerations. For example, such eyes tend to have shallower anterior chambers, which necessitates the use of non-dispersive viscoelastic to allow more room for manoeuvring. In addition, there will also be an increased risk of iris prolapse, because the iris in such eyes is closer to the cornea, he noted.

Moreover, if the patient has had previous acute attacks of angle-closure there may be a compromised endothelium and weakened zonules. Pupil dilatation may also be poor especially if the eye has undergone previous iridotomy.

He added that there have been studies suggesting that peripheral synchysis can enhance the IOP-lowering effect of cataract extraction. The procedure may be performed with a cohesive viscoelastic or with a spatula using a gonioscopic lens.

**Clear lens extraction**

Lens extraction in eyes with angle-closure glaucoma but without cataract is more controversial because it can mean removing a healthy lens from an eye with good vision.

“I do follow the EGS guidelines. If there is a clear lens I start with laser iridotomy and I consider phaco only in those patients with glaucomatous damage in whom the angle remains closed after laser iridotomy and intraocular pressure is not well controlled,” he explained.

To provide a clearer picture of the longer term effects of cataract extraction on angle closure glaucoma, Prof Azuara-Blanco and several other investigators are conducting a multicentre, randomised controlled study which will follow a cohort of patients with angle closure glaucoma but without cataract who have undergone either primary lens extraction or laser peripheral iridotomy.

Called the EAGLE study, it has completed its recruitment phase and now includes 419 patients. The study involves collaboration between 23 sites in the UK, seven in Asia and one in Australia, he noted (see: https://vis.abadra.ac.uk/hra/eagle).

“The results of this study will leave us in a much better position to be able to answer the question of whether clear lens extraction in primary angle-closure glaucoma patients can be justified,” Prof Azuara-Blanco added.