

Canaloplasty, phaco provide effective IOP reduction in glaucoma patients

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in Chicago

CANALOPLASTY alone or in combination with phacoemulsification cataract surgery provides effective IOP lowering in patients with glaucoma. Moreover, even phacoemulsification alone appears to provide significant benefits to this patient population, according to reports at the annual meeting of the ASCRS.

Norbert Koerber MD, Köln, Germany provided an update of the 18-month interim results of an ongoing international study of canaloplasty for the treatment of open-angle glaucoma. He presented results from 120 eyes treated at three European sites. The four surgeons in this subgroup were all experienced viscocanalostomy surgeons.

Canaloplasty evolved from viscocanalostomy. The non-penetrating procedure achieves dilation and 360-degree tensioning of Schlemm's canal. The procedure is designed to keep Schlemm's canal and the ostia open and place the canal under tension. The procedure is described in detail in a related article (on page 8), and in a *EuroTimes* podcast (www.ascrs.org/publications/eurotimes/podcast.asp).

The patients, average age 68 years, had exfoliative or primary open-angle glaucoma. Patients with two or more previous filtering surgeries or chronic uveitis were excluded from the study. The researchers used high-resolution ultrasound biomicroscopy to evaluate postoperative suture tension.

The mean intraocular pressure in this patient group decreased from 23 mmHg preoperatively to 15.3 mmHg following canaloplasty. The mean medication use dropped from 1.8 before surgery to 0.6 afterwards.

The procedure was safe with no major complications including hypotony, hyphema, or choroidal effusion. There were three cases of Descemet's separation associated with excessive injection of viscoelastic, which resolved after two or three months.

"We did see trace blood in the anterior chamber in 20 per cent of eyes. However, in our experience this is not a complication but a good sign," he noted.

Canaloplasty plus phaco cataract surgery

Bradford Shingleton MD, incoming president of the ASCRS, presented the 12-month interim results of a multicentre study that is looking at the effects of combined canaloplasty plus phaco cataract surgery in glaucoma patients.

The 54 eyes in the study all had

untreated pressures above 21 mmHg, although some had treated pressures as low as 16 mmHg at the time of the study. The average patient age was 76 years.

At one year, 74 per cent of eyes had successful dilation with suture placement. Mean IOP dropped from 24.2 mmHg preoperatively to 14.1 mmHg following surgery. Patients required significantly fewer medications and had significant improvements in visual acuity. Mean visual acuity improved from .4 to .2, similar to what would be obtained with cataract surgery alone or with other combined cataract surgery techniques, he noted.

The most common problem was occasional obstruction of the collector channels. This was seen more with novice surgeons, and less with the more experienced European surgeons in the study, he said. Gross hyphaema occurred in three eyes. There was also one Descemet's separation, and one significant pressure spike.

"These findings suggest that canaloplasty in combination with cataract surgery is a very effective way of successfully rehabilitating vision, with consistent pressure lowering and significant reduction in the need for anti-glaucoma medications," said Dr Shingleton.

Phaco – the next big thing for glaucoma therapy?

Even phacoemulsification alone appears to offer promise in the treatment of glaucoma.

Brooks J Poley MD, Hilton Head, South Carolina and colleagues looked at the relationship between pre-surgical IOP and long-term IOP reduction in glaucomatous eyes after phacoemulsification and IOL implantation.

"In looking at the literature we find the average pressure reduction following phaco surgery runs anywhere from 1.6 to 4.4 mmHg. We wanted to know how phaco alone affects glaucomatous eyes," he said.

The study looked at the records of 124 eyes of patients with glaucoma. It considered all comers, including those on medication, those with visual field or optical nerve loss, and those who had undergone surgery or laser iridotomy. Preoperative pressures ranged from 29 to 5.0 mmHg. The patients were stratified according to pressure at surgery. Pressures were recorded pressures before surgery, one year post-op, and at final chart measurement, an average of five years.

In the group that began with highest pressures, mean IOP dropped from 24.7 mmHg to 16.3 mmHg. Every eye in that group experienced IOP reduction. The highest post-op pressure in that group

was 23 mmHg. There were 40 eyes with initial pressures above 20 mmHg before surgery, and only nine after surgery.

The pressures remained low or even decreased at final chart review. This is very similar to results reported previously in non-glaucomatous eyes, he noted.

In the group with the second highest pressures, 97 per cent had decreases and three per cent were unchanged. In the cohort with the lowest initial pressures, some pressures increased and some decreased, with a mean increase of 15 per cent.

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Bradford Shingleton MD

Overall, the IOP reductions seen after phaco were proportional to pre-surgical pressure. The pressure reductions achieved at one year are sustained. This suggests that phaco surgery and IOL implantation provides an effective treatment for ocular hypertension and glaucoma.

"Phacoemulsification cataract surgery and IOL implantation may be the most often used, but unrecognised, operation to treat ocular hypertension glaucoma. These and further studies may help us recognise the value of phaco IOL surgery for treating ocular hypertension and glaucoma," said Dr Poley.

How does phaco surgery reduce IOP? Dr Poley postulated that as the lens ages it becomes a major cause of ocular hypertension. The lens constantly enlarges – front to back and side-to-side with advancing age. The rest of the eye stays the same size. So compression of the ciliary body, trabecular meshwork and canal of Schlemm occur. This is relieved by phaco IOL surgery, which expands the trabecular meshwork and the canal of Schlemm, he explained.

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