Treatment of coexisting cataract and glaucoma


CRD summary
This review assessed surgical treatment for people who had both glaucoma and cataract. The authors found strong evidence that glaucoma surgery increased the risk of postoperative cataract. They also found strong evidence that adding a glaucoma procedure to cataract surgery lowered intraocular pressure more than cataract surgery alone. The review was well conducted and the conclusions appear fair.

Authors' objectives
To assess the surgical treatment of coexistent glaucoma and cataract, and drugs used as ancillary therapy in conjunction with surgery.

Searching
The Cochrane Controlled Trials Register (Issue 1, 2000) and MEDLINE were searched. MEDLINE was searched up to July 2000 (start date unspecified) and the strategy was reported. Five named ophthalmology journals were searched by hand (to April 2000). Only English language articles were included in the review. Abstracts from meetings were excluded.

Study selection
Study designs of evaluations included in the review
The included studies were randomised controlled trials (RCTs), non-randomised controlled trials, cohort studies, case-control studies and clinical series. Studies that were not controlled trials or case series reporting on at least 100 eyes were excluded.

Specific interventions included in the review
The review addressed specific questions about the following: cataract surgery; glaucoma surgery; staged versus combined cataract and glaucoma surgical procedures; antifibrosis agents in combined procedures; trabeculectomy versus endoscopic laser or deep sclerectomy/viscocanalostomy; single-versus two-site operations; and nuclear expression and phacoemulsification. Studies of surgery with or without other procedures or treatments were included.

Participants included in the review
Studies in adults (18 years and older) with coexistent cataract and open-angle or primary closed-angle glaucoma were eligible for inclusion. Studies of intracapsular cataract extraction only, and studies of full thickness glaucoma surgery only, were excluded. There was a low proportion of African-Americans in the included studies.

Outcomes assessed in the review
The outcomes of interest were specific to the various review questions. They included the long- and short-term effects on intraocular pressure (IOP), IOP control, lowering of IOP, development or progression of cataract, and early and late complications. Short term was defined as outcomes reported at 24 hours' follow-up, while long term was defined as follow-up of 6 months or more.

How were decisions on the relevance of primary studies made?
Two reviewers selected studies for inclusion independently. The review team resolved any disagreements.

Assessment of study quality
A quality score was derived for controlled trials and cohort studies using an 18-item checklist. The items were grouped in five categories: study population, bias and confounding, description of the intervention, outcomes and follow-up, and statistical quality and interpretation. Each item was assigned a score from 0 to 2. The final score was the average of the
categorical scores. The evidence was graded as strong, moderate, weak, or insufficient (see Other Publications of Related Interest no.1). A standard form was used, but the authors did not state how many reviewers performed the assessment.

**Data extraction**
One reviewer extracted the data using a standard form, which was then checked by a second reviewer. Any disagreements were resolved by consensus.

**Methods of synthesis**
How were the studies combined?
The studies were grouped under 7 review questions and the findings summarised in a narrative. A study could provide evidence for more than one question.

How were differences between studies investigated?
The narrative was separated into evidence from RCTs and evidence from non-randomised studies. Studies of the effect on long-term IOP of cataract surgery in open-angle glaucoma were first grouped according to the types of procedure. The tables presented enabled comparisons between the characteristics of the individual studies.

**Results of the review**
One hundred and ten studies were included in the review: 36 RCTs, 7 non-randomised controlled trials, 38 cohort studies, 6 case-control studies and 23 clinical series. The number of eyes enrolled ranged from 16 to 776 in those studies that reported it.

The mean quality score for the controlled trials and cohort studies was 53% (range: 3 to 88); the lowest scoring category was bias and confounding, with a mean of 28%.

What follows is a brief summary of the principal findings. Readers who require more detail should consult the particular sections of interest in the full report.

Findings for which there was strong evidence: glaucoma surgery was associated with an increased risk of post-operative cataract, and the addition of a glaucoma procedure to cataract surgery lowered IOP more than surgery alone.

Findings for which there was moderate evidence: the use of 5-fluorouracil with combined surgical procedures did not further lower IOP, whereas the use of mitomycin-C with combined surgical procedures produced lower long-term IOP.

Findings for which there was only weak evidence: two-site compared with one-site procedures, and combined procedures using phacoemulsification rather than nuclear expression, resulted in lower long-term IOP.

Complications were described as reported in the individual studies. The data were not synthesised.

**Authors' conclusions**
The authors stated that their conclusions were the principal findings. In brief: glaucoma surgery is associated with an increased risk of post-operative cataract; adding a glaucoma procedure to cataract surgery lowers IOP more than surgery alone (strong evidence); mitomycin-C, but not 5-fluorouracil, with combined surgical procedures produces lower long-term IOP (moderate evidence).

**CRD commentary**
This review was well conducted. It described how the review questions were developed and how studies were selected for inclusion. Steps were taken to minimise reviewer bias and errors in the data extraction and quality assessment of the included studies. The report gave reasons why studies were excluded. There was the possibility of language and publication bias in the review, which could have meant that studies with positive findings were more likely to have been
included. A narrative summary was appropriate given the differences between the study characteristics. Although the assessment of study quality was thorough, too much significance should not be attached to the composite scores. The conclusions appear to be a fair interpretation of the findings, although judgment is limited to some extent by the lack of clear integration of the evidence of benefit with the evidence of complications.

**Implications of the review for practice and research**

**Practice:** The authors stated that the literature did not indicate one optimal strategy for the control of IOP in people who need surgery for coexisting cataract and glaucoma.

**Research:** The authors stated that in studies of glaucoma outcomes other than IOP, optic nerve appearance, visual field, patient preference and quality of life need to be evaluated over at least 5 years. In addition, more African-Americans need to be included in glaucoma studies. With regard to cataracts, the authors stated that future studies should use standard grading systems. In general, they stressed that all studies needed better comparability between the comparator groups, adjustment for baseline differences and objective outcome assessment. The authors listed 8 specific questions that remain to be answered.

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