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[Intervention Review]

Iridotomy to slow progression of visual field loss in angle-closure glaucoma

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ABSTRACT

Background

Primary angle-closure glaucoma is a type of glaucoma associated with a physically obstructed anterior chamber angle. Obstruction of the anterior chamber angle blocks drainage of fluids (aqueous humor) within the eye and may raise intraocular pressure (IOP). Elevated IOP is associated with glaucomatous optic nerve damage and visual field loss. Laser peripheral iridotomy (often just called 'iridotomy') is a procedure to eliminate pupillary block by allowing aqueous humor to pass directly from the posterior to anterior chamber through use of a laser to create a hole in the iris. It is commonly used to treat patients with primary angle-closure glaucoma, patients with primary angle closure (narrow angles and no signs of glaucomatous optic neuropathy), and patients who are primary angle-closure suspects (patients with reversible obstruction). The effectiveness of iridotomy on slowing progression of visual field loss, however, is uncertain.

Objectives

To assess the effects of iridotomy compared with no iridotomy for primary angle-closure glaucoma, primary angle closure, and primary angle-closure suspects.

Search methods

We searched the Cochrane Central Register of Controlled Trials (CENTRAL; 2017, Issue 9) which contains the Cochrane Eyes and Vision Trials Register; MEDLINE Ovid; Embase Ovid; PubMed; LILACS; ClinicalTrials.gov; and the ICTRP. The date of the search was 18 October 2017.

Selection criteria

Randomized or quasi-randomized controlled trials that compared iridotomy to no iridotomy in primary angle-closure suspects, patients with primary angle closure, or patients with primary angle-closure glaucoma in one or both eyes were eligible.

Data collection and analysis

Two authors worked independently to extract data on study characteristics, outcomes for the review, and risk of bias in the included studies. We resolved differences through discussion.

Main results

We identified two trials (2502 eyes of 1251 participants) that compared iridotomy to no iridotomy. Both trials recruited primary angle suspects from Asia and randomized one eye of each participant to iridotomy and the other to no iridotomy. Because the full trial reports are not yet available for both trials, no data are available to assess the effectiveness of iridotomy on slowing progression of visual field loss,

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change in IOP, need for additional surgeries, number of medications needed to control IOP, mean change in best-corrected visual acuity, and quality of life. Based on currently reported data, one trial showed evidence that iridotomy increases angle width at 18 months (by 12.70°, 95% confidence interval (CI) 12.06° to 13.34°, involving 1550 eyes, moderate-certainty evidence) and may be associated with IOP spikes at one hour after treatment (risk ratio 24.00 (95% CI 7.60 to 75.83), involving 1468 eyes, low-certainty evidence). The risk of bias of the two studies was overall unclear due to lack of availability of a full trial report.

Authors' conclusions

The available studies that directly compared iridotomy to no iridotomy have not yet published full trial reports. At present, we cannot draw reliable conclusions based on randomized controlled trials as to whether iridotomy slows progression of visual field loss at one year compared to no iridotomy. Full publication of the results from the studies may clarify the benefits of iridotomy.

PLAIN LANGUAGE SUMMARY

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What was the aim of this review?

The aim of this Cochrane Review was to find out whether iridotomy compared to no iridotomy can slow progression of visual field loss in (1) people with primary angle-closure glaucoma, (2) people with primary angle closure, and (3) people who are suspected of having primary angle closure. We collected and analyzed all relevant clinical trials to answer this question and found two studies awaiting full publication of results.

Key messages

At the time of review, it is uncertain whether iridotomy can slow progression of visual field loss. When they become available, full publication of the results from the two studies may clarify the benefits of iridotomy.

What did we study in this review?

Glaucoma is a group of eye diseases that cause damage to the nerve in the eye. If untreated, glaucoma can lead to blindness. Primary angle-closure glaucoma is a type of glaucoma which happens when the drainage canals ("angles") in the eyes get blocked, like a sink with something covering the drain. This blockage may lead to increased eye pressure and hence a decrease of the total area in which objects can be seen in side vision ('visual field').

Iridotomy involves using a laser to create a hole in the eye's iris, the colorful disc around the pupil. This opening allows fluid to flow again, which helps control eye pressure and may slow progression of visual field loss.

What were the main results of this review?

At the time of conducting this review, we identified two trials with publication of the full trial results still under preparation. Both trials recruited participants from Asia. One eye of each participant received iridotomy and the other eye did not receive iridotomy. No data are available to assess the effectiveness of iridotomy on slowing progression of visual field loss. Low- to moderate-quality evidence from one trial suggests that iridotomy increases width of the drainage angle ('angle width') at 18 months post-treatment and may be associated with adverse events, such as 'spikes' of increased eye pressure at one hour post-treatment.

How up to date is the review?

We searched for studies that have been published up to 18 October 2017.