WHEN TO PERFORM A PERIPHERAL IRIDOTOMY


The procedure may not benefit all patients with angle closure, but it plays an important role in some cases.

BY ALANNA JAMES, MD, AND BENJAMIN XU, MD, PHD

FOURTEEN-YEAR OUTCOME OF ANGLE-CLOSURE PREVENTION WITH LASER IRIDOTOMY IN THE ZHONGSHAN ANGLE-CLOSURE PREVENTION STUDY

Yuan Y, Wang W, Xiong R, et al[1]
Industry support: None

ABSTRACT SUMMARY

A community-based randomized controlled trial enrolled 889 bilateral primary angle-closure suspects (PACSs) from Guangzhou, China. Participants were categorized as PACSs if the trabecular meshwork was not visible in two or more quadrants, peripheral anterior synechiae (PAS) were absent, baseline IOP was 21 mm Hg or less, and IOP increased by no more than 15 mm Hg after a dark-room prone-position test. Participants received a laser peripheral iridotomy (LPI) in one eye. The contralateral eye served as a control. The primary outcome measure was progression to PAC, which was defined as an IOP greater than 24 mm Hg, the formation of at least 1 clock hour of PAS, or an episode of acute PAC (APAC).

The study reported the 14-year progression rates from the Zhongshan Angle-Closure Prevention (ZAP) trial. Overall, the risk of progression was three times lower in treated versus control eyes (hazard ratio = 0.31), primarily owing to a lower risk of PAS formation. The risk of progression, however, was low (1.4% per eye year) even among control eyes, although it was higher than in the primary 6-year ZAP trial analysis (0.8% per eye year[2]). Yuan and colleagues recommended against widespread LPI for PACS because the overall risk of progression to PAC remained low over the 14-year study period.

STUDY IN BRIEF

▶ The randomized controlled Zhongshan Angle-Closure Prevention (ZAP) trial assessed the ability of laser peripheral iridotomy (LPI) to reduce the risk of progression from primary angle-closure suspect (PACS) to PAC. The 14-year data reinforced findings and conclusions from the 6-year trial data. Although the incidence of PAC was found to be three times lower after LPI, the cumulative risk of progression was low even among untreated eyes.

WHY IT MATTERS

LPI is often recommended for patients with narrow angles. Long-term data from the ZAP trial, however, suggest that most PACS eyes derive little benefit from LPI because the long-term risk of progression is low without treatment. LPI, moreover, may slightly increase long-term IOP and contribute to cataract formation. In addition, LPI significantly reduces the risk of progression primarily by lowering the risk of peripheral anterior synechiae formation, which is of questionable clinical significance.

DISCUSSION

Can PACS eyes benefit from LPI?

Progression to PAC occurred three times more often in the control group than in the LPI group (105 vs 33 cases, hazard ratio = 3.23). Of the three study endpoints, however, only the rate of PAS formation differed significantly between the groups. Five patients in the control group and one patient in the LPI group developed APAC, but the difference was not statistically significant ($P = .1$). The number needed to treat to prevent one case of PAC was 12.4, and only two LPI and four control eyes developed PAC glaucoma.

The 14-year ZAP trial findings are largely consistent with the 6-year study findings, indicating that the benefit of LPI is low among PACS eyes.

Are high-risk patients likely to benefit from LPI?

Study participants with a baseline IOP greater than 15 mm Hg, a Van Herrick grade of less than 15%, and an IOP increase after a dark-room prone-position test of less than 4 mm Hg were two to three times more likely to

experience progression from PACS to PAC. Recent research using ZAP trial data suggested that PACS eyes with narrow angles on anterior segment OCT imaging may be at increased risk of progression both before and after LPI.[3,4] Further studies are required, however, to predict which PACS eyes are at increased risk of severe angle-closure disease.

POTENTIALLY MISSED OPPORTUNITIES IN PREVENTION OF ACUTE ANGLE-CLOSURE CRISIS

Wu AM, Stein JD, Shah M[5]
Industry support: M.S., Consulting fees outside the study (Allergan/AbbVie, Ivantis, Katena, ONL Therapeutics)

ABSTRACT SUMMARY

A population-based retrospective cohort study sought to determine factors associated with the risk of developing an acute angle-closure crisis. Researchers evaluated electronic health record data on 1,179 Medicare beneficiaries with an International Classification of Diseases diagnosis of APAC. Eligible patients underwent LPI, cataract extraction, or glaucoma surgery within 1 week after initial APAC diagnosis, thereby confirming the diagnosis. Primary outcome measures included the proportions of patients with at least one eye care visit, an International Classification of Diseases diagnosis of open-angle glaucoma, or a prescribed medication associated with an increased risk of angle closure before APAC diagnosis.

The study found that 68% of patients had been seen by an ophthalmologist or optometrist and 33% had undergone documented gonioscopy in the 2 years before their APAC diagnosis. Among those for whom gonioscopy was documented, 43% had been coded as having narrow angles, and 35% had received a gonioscopic examination within 1 to 4 weeks of APAC diagnosis. The study found that 35% of patients diagnosed with APAC had previously received one or more medications associated with an increased risk of angle closure.

DISCUSSION

Are providers detecting patients at risk of APAC?

Of the 1,179 patients diagnosed with APAC, approximately two-thirds had been examined during the preceding 2 years, but only one-third of them had a record of undergoing gonioscopy, despite the AAO's recommendation that glaucoma evaluations include gonioscopic examination.[6] The findings represent missed opportunities to prevent an APAC attack and highlight a need to better educate eye care providers on how to use and perform gonioscopy.

Is it possible to identify patients at high risk of APAC who may benefit from LPI?

In the study, 35% of APAC patients had received at least one high-risk systemic medication (selective serotonin reuptake inhibitor, monoamine oxidase inhibitor, antihistamine, carbonic anhydrase inhibitor, or topiramate). These were the only medications studied, but other drugs also carry a warning for APAC. Because all the analyzed patients had been diagnosed with APAC, the study was not designed to identify who in the general population is at increased risk of APAC and could benefit from LPI. ■

STUDY IN BRIEF

- A population-based retrospective cohort study of electronic health record data found that two-thirds of 1,179 patients diagnosed with acute primary angle closure (APAC) had received an eye exam in the preceding 2 years, 33% of those examined had a record of undergoing gonioscopy, and 43% of those with a documented history of gonioscopy had been diagnosed with narrow angles.

WHY IT MATTERS

Gonioscopy is crucial for identifying individuals at risk of APAC and PAC glaucoma. As the Zhongshan Angle-Closure Prevention (ZAP) trial demonstrated, however, most eyes with suspected PAC do not develop APAC.[1] Even if more cases of suspected PAC were detected, it is currently unfeasible to treat all eyes with narrow angles. Better provider education and the prophylactic treatment of high-risk patients could help mitigate the severe ocular morbidity associated with PAC glaucoma.

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