

Progression of Primary Angle Closure Suspects: A Systematic Review and Meta-Analysis

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Introduction: Primary angle closure suspects (PACS) are individuals with ocular anatomical configurations predisposing them to angle closure attacks, and progression to primary angle closure (PAC), potentially leading to glaucoma and blindness. Understanding the progression rate from PACS to PAC and/or acute angle closure (AAC) is crucial for early intervention and preventing vision-threatening outcomes. This review aims to elucidate the rate of angle closure attacks among PACS and evaluate the impact of prophylactic interventions.

Method: A systematic search was performed on OVID MEDLINE and EMBASE for studies published until November 2023 that reported on the progression rate from PACS to PAC in at least five patients. Using random-effects modelling, risk ratios (RR) and 95% confidence intervals (CI) were used to estimate the frequency of PAC and AAC progression between patients who received laser peripheral iridotomy (LPI) versus those who did not.

Results: Three RCTs and two observational studies were included, encompassing a total of 1,997 PACS patients from Southeast Asia. The weighted average age of the participant pool was 59.1 years old, with 80.7% females and an average follow-up period of 6.2 years (range: 2 to 14 years). Overall, 264 patients (13.2%) progressed to PACS (77.9% females, n=4/5 studies) and 9 (0.5%) experienced AAC. Among the studies included, two out of five provided comparative data on the progression from PACS to PAC and AAC in the context of LPI versus no LPI intervention, encompassing 1,366 out of the 1,997 patients analyzed (average follow-up of 9.5 years). Patients not receiving LPI displayed a 2.49-fold increase in the risk of progression to PAC (RR: 2.49; 95% CI: [1.49, 4.18]; p-value < 0.001), suggesting that lack of LPI treatment is associated with a higher risk of disease progression. However, for the progression to AAC, statistical significance was not reached with an RR of 3.33 (95% CI [0.67, 16.45]; p-value = 0.14).

Discussion/Conclusion: This review highlights a significant rate of progression from PACS to PAC, underscoring the important role of early diagnosis and the potential benefit of prophylactic LPI in mitigating the risk of progression to PAC. Although the increased risk of progression to AAC without LPI was not statistically significant, the trend suggests a potential protective effect of LPI against severe outcomes. These findings emphasize the importance of monitoring and managing PACS to prevent vision-threatening complications, advocating for a proactive approach in the management of individuals at risk of angle closure disease.