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Two Combined Surgeries Versus Phacoemulsification Alone for Patients with Primary Angle-Closure Glaucoma: A meta-analysis of Randomized Controlled Trials

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ADMINISTRATIVE INFORMATION

Support - From the tutor's research group.

Review Stage at time of this submission - Preliminary searches.

Conflicts of interest - None declared.

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Amendments - This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 21 August 2023 and was last updated on 21 August 2023.

INTRODUCTION

Review question / Objective Does phacoemulsification combined with goniosynechialysis and phaco-trabeculectomy have greater efficacy and safety than phacoemulsification alone in treatment of primary angle-closure glaucoma?

Condition being studied Glaucoma is a heterogeneous group of diseases characterized by the progressive excavation of the optic nerve head, due to apoptosis of retinal ganglion cells and thinning of the nerve fiber layer, generating a specific progression in the loss of visual fields.PACG is the most common type of glaucoma in China, its main pathological feature is the degenerative process in TM including the deposition of extracellular material in it and the lower endothelial lining of the Schlemm canal, reducing the drainage of the aqueous humor and the consequent elevation of intraocular pressure (IOP). It is diagnosed by excluding other causes of IOP elevation such as drugs or other ophthalmic pathologies.

METHODS

Participant or population Patients with Primary Angle-Closure Glaucoma.

Intervention Phacoemulsification combined with goniosynechialysis and phacotrabeculectomy.

Comparator Phacoemulsification alone.

Study designs to be included Randomized controlled clinical trials.

Eligibility criteria Inclusion criteria(1) A randomized controlled clinical trials.(2) Patient populations with PACG.(3) All eyes were treated with either phacoemulsification or phacotrabeculectomy or phacoemulsification

combined with goniosynechialysis.(4) At least one primary or secondary outcome reported.(5) Follow-up time was more than three months.(6) Studies published in English or Chinese. Exclusion criteria(1) Non-randomized studies.(2) Cohort studies, case report, reviews and editorial.(3) Studies without outcomes of interest.(4) Studies used the same raw data.Exclusion criteria(1) Non-randomized studies.(2) Cohort studies, case report, reviews and editorial.(3) Studies without outcomes of interest.(4) Studies used the same raw data.

Information sources Cnki、 Wanfang Medical, VIP、CBM、PubMed、 Embase、Web of Science、Scopus、MEDLINE-Ovid 、ProQuest, Cochrane Library.

Main outcome(s) IOP and BCVR.

Additional outcome(s) ACD、the number of medications used for IOP reduction and the incidence of complications.

Quality assessment / Risk of bias analysis Cochrane collaboration risk of bias assessment tool.

Strategy of data synthesis Review Manager 5.4, Stata16 and Stata14 were used to analyze the relevant data. The effect size was combined using either a fixed effects model or a random effects model, depending on the heterogeneity of the original study (judged by forest, Labbe, and star charts). Heterogeneity was considered if $I^2 > 50\%$ and $P < 0.1$. The combined effect size of random effects model was selected when there was heterogeneity, while the combined effect size of fixed effects model was selected when there was no heterogeneity. If there was heterogeneity among multiple original study data, meta regression was used to find the cause of heterogeneity. If heterogeneity could not be removed, a random effects model was used for analysis.

Subgroup analysis None.

Sensitivity analysis Sensitivity analysis was performed in stata software to determine the sensitivity of the article by deleting each study of the joint effect size and checking whether its corresponding value was within the top 95% confidence interval.

Country(ies) involved China.

Keywords phacoemulsification; goniosynechialysis; phacotrabeculectomy; primary angle-closure glaucoma (PACG))(PACG); Trabeculectomy.

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