INPLASY PROTOCOL

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Laser trabeculoplasty for open-angle glaucoma: a systematic review and network meta-analysis

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Review question / Objective: The aim of this study is to examine the comparative efficacy of laser trabeculoplasties and other common therapies in the treatment of open-angle glaucoma (OAG).

Condition being studied: Open angle glaucoma (OAG).

Eligibility criteria: (1) Parallel group RCTs that enrolled patients with primary open-angle glaucoma (POAG), normal tension glaucoma (NTG), ocular hypertension (OHT), pseudoexfoliative glaucoma (PXG), et al. (2) Includes at least one of the following interventions: selective laser trabeculoplasty (SLT), argon laser trabeculoplasty (ALT) and anti-glaucoma medications. (3) Patients followed up at least six months after randomization. (4) The outcome included at least IOP..

INTRODUCTION

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METHODS

Participant or population: We will include studies enrolling patients with open angle glaucoma (OAG), normal tension glaucoma (NTG) ocular hypertension (OHT) and other secondary open angle glaucoma, such as pseudoexfoliation syndrome, et al.

Intervention: Selective trabeculoplasty.

Comparator: Argon laser trabeculoplasty and other non-surgical IOP-lowering methods.

Study designs to be included: RCTs.

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Information sources: PubMed, EMBASE, SCOPUS, the Cochrane library, China National Knowledge Infrastructure (CNKI), and Chinese Biomedical Literature Service System (CBM).

Main outcome(s): The primary outcome measure is the mean difference in the reduction of IOP from a baseline between treatment groups. The second outcomes include the change in the number of medications and the occurrence of complications.

Quality assessment / Risk of bias analysis: The risk of bias tool outlined in the Cochrane Handbook for Systematic Reviews of Interventions (version 5.1.0) will be used to assess the risk of bias of included studies.

Strategy of data synthesis: Pair-wise comparison: The head-to-head meta-analysis will only be adequate when there are more than two studies for a particular outcome; otherwise, the results will be demonstrated by a narrative summary. For a continuous outcome, the pooled effect will be quantified using a weighted mean difference (WMD). Its 95% confidence interval (CI) will be calculated by a generic inverse variance method in a fixed-effect model or the Dersimonian-Laird (D-L) method by a random-effect model, depending on the heterogeneity. For dichotomous outcomes, a pooled effect will be estimated using the Mantel-Haenszel method by a fixed-effect model when there is no significant heterogeneity, the D-L method by a random-effect model when there is significant heterogeneity, and expressed by relative risk (RR) and its 95% CI. Network meta-analysis: We plan to incorporate indirect and direct comparisons in a random-effect network meta-analysis. The assessment of consistency will be performed with a node-splitting model. We plan to draw a network plot of each outcome to determine whether it is appropriate to perform a network meta-analysis. We will obtain a treatment hierarchy using the surface under the cumulative ranking curve (SUCRA) and mean ranks. The larger the SUCRA value, the higher the rank of the treatment.

Subgroup analysis: If statistical heterogeneity is evident, we will explore the possible causes through subgroup analyses if adequate data are available.

Sensibility analysis: We plan to perform sensitivity analyses to analyze the impact of the history of laser trabeculoplasty and heterogeneity on the primary outcome.

Country(ies) involved: China.

Keywords: Open angle glaucoma; laser trabeculoplasty; network meta-analysis.