INPLASY PROTOCOL

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None declared.

Comparative efficacy and safety of Anti-Vascular Endothelial Growth Factors for Central Retinal Vein Occlusion A protocol for systematic review and network meta-analysis

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Review question / Objective: **This study can provide an effective rationale for the clinical application of anti-VEGF for CRVO, contribute to the treatment of CRVO and patient condition rehabilitation in clinical work.**
Condition being studied: **Central retinal vein occlusion, also known as retinal apoplexy, is one of the common clinical retinal vascular diseases. Its typical clinical manifestation is sudden painless monocular vision loss. In 1878, von Michel believed that the cause of the disease was venous embolism. At present, CRVO has become one of the main causes of blindness, which negatively affects the quality of life, increases the psychological burden and financial burden.Retinal vein occlusion(RVO) is a common retinal vascular fundus disease in clinic and a second blinding fundus disease after diabetic retinopathy. The common vessel of RVO is CRVO. A study shows that there are about 2.5 million CRVO patients worldwide. Persistent macular edema (ME) is the most important cause of visual impairment. According to the data, the incidence of ME in CRVO is 46.7%, and the low visual acuity is 57.4%.**

INPLASY registration number: This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 20 November 2021 and was last updated on 20 November 2021 (registration number INPLASY2021110073).

INTRODUCTION

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METHODS

Participant or population: We will collect all eligible RCTs of anti-VEGF for CRVO, together with relevant clinical trials. We collected only articles published in Chinese or English.All the patients with CRVO were enrolled. The diagnosis of CRVO will follow the guidelines for Central retinal vein occlusion.

Intervention: In the present study, patients in experimental group were given anti-VEGF treatments. the control group was treated with other therapies other than anti VEGF.

Comparator: The control group was treated with other therapies other than anti VEGF.

Study designs to be included: We retrieved a large number of electronic databases using different search strategies, such as PubMed, The Cochrane Library, Wanfang database, Web of Science, Chinese Scientifific Journals Database (VIP), EMBASE, China National Knowledge Infrastructure (CNKI), and China BioMedical Literature (CBM). During retrieval, a combination of medical subject titles (MeSH) and free text terms was used, include “Retinal Vein Occlusions, Retinal Vein Thromboses, Central Retinal Vein Occlusion, Branch Vein Occlusion”. The PubMed search strategy are shown in Table 1.

Eligibility criteria: Two researchers independently conducted literature screening and data extraction based on the inclusion and exclusion criteria of the study. All the data were extracted directly from the literature and verified repeatedly to ensure the accuracy of the data. The records included efficacy data and safety data. For controversial data, consult with experienced clinicians and statistical experts to reach a consensus.

Information sources: PubMed, The Cochrane Library, Wanfang database, Web of Science, Chinese Scientifific Journals Database (VIP), EMBASE, China National Knowledge Infrastructure (CNKI), and China BioMedical Literature (CBM).

Main outcome(s): Efficacy data:(1)The best-corrected visual acuity changes at 1, 6 and 12 months, represented by ETDRS characters.(2)The central retinal thickness changes at 1, 6 and 12 months, represented by μm.(3)Best-corrected visual acuity improved or deteriorated by 15 or more ETDRS characters(equivalent to 3 lines of Snellen chart) at 6 months.(4)At 6 months, the cases of best corrected visual acuity was ≥20/40 or ≤20/200 senllen.(5)The number of cases with macular edema in 6 months.(6)The number of cases with neovascular complications in 6 months. (7)The change of Nei VFQ-25 in 6 months.Safety data: the number of cases with intraocular or systemic adverse events, and counted by disease type.

Quality assessment / Risk of bias analysis: The risk of literature bias was assessed using the Cochrane collaborative network quality evaluation tool, which is generated from the random number series, distributed and hidden, and whether the blind method is adopted or not.The results were divided into high-risk bias, low-risk bias, and unknown risk bias. After the evaluation, two researchers conducted the study Crosscheck.

Strategy of data synthesis: Revman 5.2.3 software was used for statistical analysis and processing of the data, and the entered data was checked repeatedly before the analysis to ensure accuracy. The effect model used in the analysis depends on the heterogeneity among the studies. When P≤0.05, the difference between the two groups was statistically significant. The analysis results are expressed in the form of a forest map.Measurement data or continuous value: The results were expressed as mean value±mean difference and 95% confidence interval between the two groups.Count data or dichotomous data: it is expressed numerically, and the combined risk ratio is used as the effect scale. The analysis results, risk ratio and 95% confidence interval are expressed.

Subgroup analysis: We will consider the grouping analysis with sufficient data. Because some clinical trials do not provide complete standard deviation, the reliability of analysis results may be reduced by using the standard deviation of other clinical studies instead.

Sensitivity analysis: There are excellent clinical differences between ischemic and non-ischemic CRVO in the course of disease and prognosis. Some clinical trials exclude or contain very few patients with ischemic CRVO, which may affect the overall analysis results. Therefore, the following two screening conditions were used for sensitivity analysis:(1)Clinical trials without standard deviation were excluded. (2)Clinical trials excluding patients with ischemic CRVO, less than 5% of patients with ischemic CRVO and an unknown proportion of patients with ischemic CRVO were excluded.

Country(ies) involved: China.

Keywords: Central retinal vein occlusion, Macular edema, vascular endothelial growth factor, network meta-analysis, protocol.

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