INPLASY

Association between Erythropoietin Polymorphisms and Diabetic Retinopathy Risk: A Meta-Analysis

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Dong, BX; Fan, XW; Li, B.

Corresponding author:
Dong Bixuan

dongbixuan6@qq.com

Author Affiliation:
Qinghai University.

ADMINISTRATIVE INFORMATION

Support - None.

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 29 May 2024 and was last updated on 29 May 2024.

INTRODUCTION

Review question / Objective Diabetic retinopathy (DR) is one of the most common complications of diabetes mellitus, occurring primarily in the fundus retina of diabetic patients.Genes may play an important role in the onset and development of DR. Therefore, an increasing number of candidate gene studies for DR have been conducted in recent years.we aimed to investigate whether rs1617640, rs507392, and rs551238 polymorphisms in the EPO gene are associated with DR. To address this question, we performed a meta-analysis of previous studies.

Condition being studied Diabetes retinopathy is one of the most common retinal diseases in diabetes patients. This disease is very common in patients with diabetes. If it is not treated in time, it may cause serious visual impairment, even blindness.

METHODS

Search strategy Search on MEDLINE from January 1, 1990 to May 15, 2024, in both Chinese and English languages. Keywords are erythropoietin, gene polymorphism, diabetic retinopathy.

Participant or population Patients with type 2 diabetes worldwide.

Intervention Patients with type 2 diabetes eventually develop into diabetic retinopathy.

Comparator Patients with type 2 diabetes did not develop into diabetic retinopathy.

Study designs to be included case-control studies.

Eligibility criteria All studies selected for this analysis met the following criteria: (1) case-

control studies; (2) studies focusing on the association between epo polymorphism and DR risk; (3) Studies published in English or Chinese; (4) Pooled and subgroup analyses are available.
Exclusion criteria:(1) duplicate published literature (for duplicate studies, studies with larger sample sizes were selected for inclusion); (2) original study data that were not available and could not be obtained by contacting the authors; (3)case reports; (4)reviews; (6)animal models; (7) non-Chinese and English literature.

Information sources CNKI;WanFangData; PubMed; Embase; VIP.

Main outcome(s) Diabetes retinopathy is one of the most common retinal diseases in diabetes patients. This disease is very common in patients with diabetes. If it is not treated in time, it may cause serious visual impairment, even blindness.
The definition of retinopathy is mainly based on pathological changes in the retina, which include the following main types: Nonproliferative diabetes retinopathy (NPDR) and Proliferative diabetes retinopathy (PDR). The measurement results of retinopathy are usually evaluated through fundus examination and fundus imaging, mainly using the following methods:1Fundus examination 2Fluorescein Angiography (FA) 3Optical Coherence Tomography (OCT). Patients with diabetes should receive fundus examination at least once a year, and whether they develop into dr.

Quality assessment / Risk of bias analysis Begger test and egger test.

Strategy of data synthesis Statistical analyses were performed using the R 4.3.2 , and OR and 95% CI were calculated for allele contrast model, overdominant model, heterozygous additive model, homozygous additive model, recessive model, dominant model. Intergroup heterogeneity was assessed by calculating the P value. When P 50%), the random-effects model was used for the combined calculation, and when P > 0.1 or heterogeneity ($I^2 \leq 50\%$), the fixed-effects model was used for the combined calculation.Subgroup and sensitivity analyses were subsequently performed.

Subgroup analysis Asian population and non-Asian populations.

Sensitivity analysis A one-by-one elimination method is adopted.

Country(ies) involved China.

Keywords erythropoietin; gene polymorphism; diabetic retinopathy.

Contributions of each author
Author 1 - dong bixuan.
Email: dongbixuan6@qq.com
Author 2 - Fan Xiaowei.
Author 3 - Li Bin.