INPLASY

Meta-analysis of MnSOD rs4880, CCR5 rs1799987 polymorphisms associated with diabetic nephropathy risk

INPLASY202390001

doi: 10.37766/inplasy2023.9.0001

Received: 01 September 2023

Published: 01 September 2023

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ADMINISTRATIVE INFORMATION

Support - Shandong Jining Medical College.

Review Stage at time of this submission - Preliminary searches.

Conflicts of interest - None declared.

INPLASY registration number: INPLASY202390001

Amendments - This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 01 September 2023 and was last updated on 01 September 2023.

INTRODUCTION

Review question / Objective The objective was to systematically evaluate the association of MnSOD rs4880, CCR5 rs1799987 gene polymorphisms with the risk of diabetic nephropathy, using a case-control studyThe objective was to systematically evaluate the association of MnSOD rs4880, CCR5 rs1799987 gene polymorphisms with the risk of diabetic nephropathy, using a case-control study.

Condition being studied At present, the results of MnSOD rs4880 and CCR5 rs1799987 gene polymorphisms and genetic susceptibility to diabetic nephropathy are divergent, and meta-analysis was used to systematically evaluate the correlation between the two to provide a basis for evidence-based medicine.

METHODS

Participant or population Case-control studies were used, i.e., patients with diabetic nephropathy (experimental group) and non-diabetic nephropathy (control group).

Intervention MnSOD rs4880, CCR5 rs1799987 gene polymorphisms.

Comparator Patients with non-diabetic nephropathy.

Study designs to be included Case-control studies.

Eligibility criteria Inclusion and exclusion criteria: (1) case-control studies; (2) studies with complete data and a Newcastle-Ottawa Scale (NOS) score of 6 or higher; (3) English. The case group of the

study subjects was patients with confirmed diabetic nephropathy, and the control group were all patients without diabetic nephropathy. Analysis factors: MnSOD rs4880, CCR5 rs1799987 sitepolymorphism.

Information sources The databases searched included PubMed and Embase, and the search date was up to August 18, 2023.

Main outcome(s) Gene polymorphisms are associated with the development of diabetic nephropathy, particularly in a population where a genotype may be a risk factor for diabeticnephropathy.

Quality assessment / Risk of bias analysis For all included case-control studies, the NOS Literature Evaluation Scale, which included 8 items with a total of 10 scoring points, was selected for quality assessment, and studies with ≥ 6 points were considered high-qualitystudies.

Strategy of data synthesis The data were processed using stata16.0 software, first of all, the HWE balance test was performed on the control group of all the selected studies, and the P>0.05 could be considered that the control group was in HWE equilibrium, and the heterogeneity test analysis adopted the Chi-square (χ2) test method, and the heterogeneity index (I2) was used as the quantitative index I2>50% or P heterogeneity test<0.05 indicated substantial heterogeneity between studies, and a random-effects model was selected for analysis, otherwise a fixed-effect model was used. The odds ratio (OR) and 95% confidence interval (CI) were used as the effect size to evaluate the relationship between gene single nucleotide polymorphisms and the occurrence of diabetic nephropathy, and the sensitivity analysis was carried out, and the subgroup analysis was carried out according to different groups, and the publication bias was detected by Egger method and Begg method, and the figures weremade.

Subgroup analysis Subgroup analyses were performed for different countries, regions, and types of diabetes.

Sensitivity analysis By excluding studies that did not comply with HWE, the heterogeneity of each model and OR (95% CI) results were observed, and allele models were compared. After excluding individual studies sequentially, sensitivity analyses of each model showed that individual studies had no significant effect on the overall study, and heterogeneity was not derived from a single study, but may have been derived from two or more studies. The stability and reliability of the study were good.

Country(ies) involved China/Shang dong Jining Medical College.

Keywords Diabetic nephropathy; MnSOD rs4880, CCR5 rs1799987, gene polymorphisms, meta-analysis.

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