INPLASY PROTOCOL

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None declared.

Association of Matrix Metalloproteinases-9 Polymorphisms with Glaucoma: a Meta-Analysis

Xu, GH[1]; Xu, GH[2]; Wang, XY[3]; Wang, W[4]; Wang, JJ[5]; Chen, LL[6]; Chen, ZL[7].

Review question / Objective: **To evaluate the relationship between matrix metalloproteinase-9 (MMP-9) polymorphisms and glaucoma susceptibility.**
Eligibility criteria: **The inclusion criteria were as follows: (1) the study should be case-control or cohort design evaluating the association between MMP-9 polymorphisms and glaucoma; (2) the distribution of the genotypes in controls was complied with Hardy-Weinberg equilibrium (HWE); (3) study participants were unrelated individuals from clearly defined populations; (4) the study contained sufficient information of genotype frequencies for calculating an odds ratio (OR) and its 95% confidential interval (95%CI). Animal studies, case reports, studies based on family or sibling pairs, reviews, abstracts, and reports with incomplete data were excluded. If more than one studies from a same population were available, the publication with the most complete data was included.**

INPLASY registration number: This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 19 February 2022 and was last updated on 19 February 2022 (registration number INPLASY202220079).

INTRODUCTION

Review question / Objective: **To evaluate the relationship between matrix metalloproteinase-9 (MMP-9) polymorphisms and glaucoma susceptibility.**

Condition being studied: **Glaucoma; Matrix Metalloproteinases-9; Gene Polymorphisms; Meta-analysis.**

METHODS

Participant or population: **(1) The study should be case-control or cohort design**

evaluating the association between MMP-9 polymorphisms and glaucoma; (2) the distribution of the genotypes in controls was complied with Hardy-Weinberg equilibrium (HWE); (3) study participants were unrelated individuals from clearly defined populations; (4) the study contained sufficient information of genotype frequencies for calculating an odds ratio (OR) and its 95% confidential interval (95%CI).

Intervention: Altered expressions of MMP-9 polymorphisms.

Comparator: No altered expressions of MMP-9 polymorphisms.

Study designs to be included: Case-control or cohort design.

Eligibility criteria: The inclusion criteria were as follows: (1) the study should be case-control or cohort design evaluating the association between MMP-9 polymorphisms and glaucoma; (2) the distribution of the genotypes in controls was complied with Hardy-Weinberg equilibrium (HWE); (3) study participants were unrelated individuals from clearly defined populations; (4) the study contained sufficient information of genotype frequencies for calculating an odds ratio (OR) and its 95% confidential interval (95%CI). Animal studies, case reports, studies based on family or sibling pairs, reviews, abstracts, and reports with incomplete data were excluded. If more than one studies from a same population were available, the publication with the most complete data was included.

Information sources: The Pubmed, Embase, Web of Science, Chinese Biomedical databases were used for electronic search from their inception to December 1, 2021.

Main outcome(s): Evaluation of the relationship between MMP-9 polymorphisms and glaucoma susceptibility.

Additional outcome(s): The same two reviewers evaluated the methodological quality using the Newcastle-Ottawa Scale (NOS) criteria[14]. The NOS criteria graded three aspects: (1) subject selection: 0-4 stars, (2) comparability of subjects: 0-2 stars, and (3) clinical outcome: 0–3 stars. NOS scores ranged between 0 to 9 stars. Studies with ≥7 stars were considered of high quality. Disagreement was settled as described above. Begger's funnel plots and Egger's regression test were used to investigate the potential publication bias. To account for multiple testing, the Bonferroni correction was used in the association analyses.

Strategy of data synthesis: Meta-analysis was performed for SNPs evaluated in at least two discrete studies. Five genetic models, i.e homozygous, heterozygous, dominant, recessive, and allelic model were applied in the investigaion of the disease association. Pooled ORs and their 95%CI were combined using the random-effects model. The Z test was used for statistical significance of pooled ORs. HWE in controls was be evaluated with $\chi 2$ test. Heterogeneity across studies were evaluated by Cochran's Q-statistic test and the I2 index. The P value of Q test 50% indicated significant heterogeneity.

Subgroup analysis: Subgroup analyses were performed by subtypes of glaucoma. Sensitivity analyses were conducted by one-study remove approach to assess the influence of single study on the combined effect.

Sensitivity analysis: Sensitivity analyses were conducted by one-study remove approach to assess the influence of single study on the combined effect.

Country(ies) involved: China.

Keywords: Glaucoma; Matrix Metalloproteinases-9; Gene Polymorphisms; Meta-analysis.

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