

INPLASY PROTOCOL

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Risk factors for cytomegalovirus infection after kidney transplantation: a Meta-analysis

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Review question / Objective: We conducted a meta-analysis of the factors influencing CMV infection in kidney transplant recipients to clarify the factors associated with CMV occurrence in this population.

Condition being studied: Kidney transplantation is the most effective treatment for end-stage renal disease, and cytomegalovirus (CMV) infection is the most common viral infection following kidney transplantation. Studies have shown that the epidemiological incidence of CMV infection after kidney transplantation is as high as 80%. Identification of the factors influencing CMV infection after kidney transplantation is important for preventing, managing, and treating the condition. To date, studies of factors influencing CMV infection in kidney transplantation recipients have not yielded clear results, and the conclusions are inconsistent.

INPLASY registration number: This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 31 May 2022 and was last updated on 31 May 2022 (registration number INPLASY202250168).

INTRODUCTION

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high as 80%. Identification of the factors influencing CMV infection after kidney transplantation is important for preventing, managing, and treating the condition. To date, studies of factors influencing CMV infection in kidney transplantation recipients have not yielded clear results, and the conclusions are inconsistent.

METHODS

Participant or population: Participants required kidney transplantation for end-stage renal disease and were older than 15 years.

Intervention: No.

Comparator: No.

Study designs to be included: Case-control studies and cohort studies.

Eligibility criteria: Research articles were included if they fulfilled the following criteria: 1. Case-control studies and cohort studies. 2. Participants required kidney transplantation for end-stage renal disease and were older than 15 years. 3. Exposure factors were influential factors or predictors of CMV infection after renal transplantation. 4. The outcome measure was whether CMV infection occurred during the follow-up period, and, 5. Odds ratios (OR values) and 95% CI or other statistical values could be transformed and were given in the paper. Studies were excluded if they were: 1. written in languages other than Chinese or English. 2. reviews, book chapters, conference abstracts, patents, guidelines, case reports or animal studies, and 3. not available as full text articles, lacking information or data and of low quality.

Information sources: Using the following electronic databases: China National Knowledge Infrastructure; Wan Fang Data; Wiper; Chinese Biomedical Literature database; PubMed; Embase; Web of Science, and the Cochrane Register of Controlled Trials.

Main outcome(s): Risk factors.

Quality assessment / Risk of bias analysis: the quality of the methods used in the cohort and case-control studies using the Newcastle–Ottawa Scale (NOS).

Strategy of data synthesis: A meta-analysis was performed to explore the extent of heterogeneity that might affect studies using the I^2 statistic. If $I^2 < 50\%$, homogeneity between data could be determined, indicating good consistency of all studies. A fixed-effect model was selected for the meta-analysis. If $I^2 \geq 50\%$, heterogeneity was judged to exist among the studies, indicating poor consistency among the studies. Sensitivity analysis was then used to analyze the source of heterogeneity and calculate the comprehensive effect after excluding the studies leading to heterogeneity. P values < 0.05 were considered statistically significant.

Subgroup analysis: Subgroup study was conducted according to patients' financial burden, marital status and medication use.

Sensitivity analysis: After deleting any one of the studies, the combined results of the remaining literatures showed little difference from those without deletion, indicating that sensitivity analysis had been done.

Country(ies) involved: China.

Keywords: kidney transplantation; Cytomegalovirus.

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