

INPLASY PROTOCOL

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The authors declare that they have no competing interests.

INTRODUCTION

Review question / Objective: Whether could recent or current cumulative use of abacavir in antiretroviral therapy increase the risk of myocardial infarction in HIV-infected people? If the use of abacavir is associated with myocardial infarction, what

Association between Abacavir Use With Myocardial Infarction: A systematic review and meta-analysis

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Review question / Objective: Whether could recent or current cumulative use of abacavir in antiretroviral therapy increase the risk of myocardial infarction in HIV-infected people? If the use of abacavir is associated with myocardial infarction, what mechanism does it affect? Abacavir use and risk of myocardial infarction: a systematic review and meta-analysis. **Condition being studied:** In 2008, the D: A: D study first proposed that the use of abacavir in nearly six months would increase the incidence of myocardial infarction in HIV-infected people. At the same time, this study also opened a series of studies in the medical community on the relationship between the use of abacavir and the risk of myocardial infarction. So far, there are few randomized controlled trials with myocardial infarction as a clinical outcome in HIV infected population. Most of the relevant studies have carried out observational cohort studies, and different studies have come to the opposite conclusion.

INPLASY registration number: This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 16 October 2020 and was last updated on 16 October 2020 (registration number INPLASY2020100054).

mechanism does it affect? Abacavir use and risk of myocardial infarction: a systematic review and meta-analysis.

Rationale: The relevant literature published before was selected according to certain criteria and included in the study. The data needed in the papers were extracted for

subsequent meta-analysis. Based on the above steps, the corresponding results are obtained.

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METHODS

Search strategy: Relevant studies were identified through Web of Science and PubMed by using the following search terms: 1) Abacavir 2) Myocardial Infarction: "myocardial infarction" OR "heart disease" OR "cardiovascular disease".

Participant or population: People with HIV infection.

Intervention: Abacavir use.

Comparator: Use other NRTIS.

Study designs to be included: Observational study, randomized controlled trial, cohort study are included. We exclude editorials, conference summaries, letters, books, news, and other types of literature that do not meet our requirements.

Eligibility criteria: We will include studies that met the following criteria: published observational study, randomized controlled trials, and cohort study. We will exclude the following papers:(1)The language was not English;(2) Reviews, editorials, meetings, abstracts, letters, and comments; (3)Not evaluating abacavir; (4)Not involving myocardial infarction; (5)No relevant data.

Information sources: Electronic databases: Web of Science; PubMed.

Main outcome(s): Myocardial infarction.

Additional outcome(s): None.

Data management: Use endnoteX9 to create a special library to save all the related papers. Meanwhile, use excels to record all the data extracted from the papers.

Quality assessment / Risk of bias analysis: Study quality was scored using the Newcastle-Ottawa-Scale (NOS). The statistical analysis was performed using Stata15.0.The results were reported in forest plots of the estimated effects of the included studies with a 95% CI. Heterogeneity was evaluated using the I² test. For the interpretation, it was determined that the values of 25, 50, and 75% in the I² test correspond to low, medium, and high levels of heterogeneity, respectively. An evaluation was conducted to identify reporting or publication bias using the funnel plot.

Strategy of data synthesis: In the upcoming meta-analysis, the relevant data involved will be comprehensively described. According to the characteristics of different data, statistical indicators such as mean differences (WMD), standardized mean differences (SMD), odds ratios(OR), relative risks(RR), hazard ratios(HR) or risk difference(RD) will be used to describe. Besides, key data are reported with a 95% confidence interval. In the subsequent statistical analysis, if the excluded papers are involved, the corresponding reasons will be listed in detail.

Subgroup analysis: According to the categories of different correction factors involved in each study before statistical analysis of the relationship between abacavir use and myocardial infarction, the relevant papers were divided into subgroups. In follow-up writing, subgroups may be set according to other important factors such as age, race, and gender.

Sensibility analysis: We will do the sensitivity analysis by eliminating one study each time as well as excluding the low-quality studies. We will re-estimate the combined effect and compare it with the results of meta-analysis before exclusion to explore the impact of the study on the combined effect and the robustness of the results. Besides, the corresponding subgroup analysis will be carried out, and the possible sources of bias will be explored, and conclusions will be drawn cautiously.

Language: Only English papers will be included in the study.

Country(ies) involved: We do not impose any restrictions on the countries in which the research is conducted.

Other relevant information: None.

Keywords: Abacavir; Human Immunodeficiency Virus; Myocardial Infarction.

Dissemination plans: Plan to publish the protocol in an English journal.

Contributions of each author:

Author 1 - Ruoyun Yin - Retrieve and screen literature, data extraction, quality assessment, data analysis, draft writing.

Author 2 - Fan Zhang - Methodology, draft modification.

Author 3 - Zhaoya Fan - Data extraction and quality assessment.

Author 4 - Lei Tang - Retrieve and screen literature.

Author 5 - Yuan Yang - Corresponding author, Conceptualization, draft modification.