

# INPLASY PROTOCOL

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**Review Stage at time of this submission:** Preliminary searches.

**Conflicts of interest:**  
None declared.

## Effects of isocitrate dehydrogenase mutations on treatment outcomes in patients with acute myeloid leukemia: a systematic review and meta-analysis

Qin, H<sup>1</sup>; Yang, YC<sup>2</sup>.

**Review question / Objective:** Whether isocitrate dehydrogenase (IDH) gene mutations affected treatment outcomes of patients with acute myeloid leukemia (AML) was controversial. The purpose is to find the basis of personalized treatment, improve the efficacy and survival time, reduce the recurrence rate. **Participants:** Acute myeloid leukemia patients **Intervention/Comparison:** To treat acute myeloid leukemia patients with isocitrate dehydrogenase mutation / To treat acute myeloid leukemia patients without isocitrate dehydrogenase mutations. **Outcome:** Treatment effect, survival time and recurrence rate. **Study design:** Randomized controlled trial or cohort study.

**Condition being studied:** The development of effective therapies for most subtypes of acute myeloid leukemia remains slow. Among many reasons, an important one is the remarkable heterogeneity of this malignancy. Among them, the prognostic assessment of IDH mutations is still controversial and needs further evaluation. With the application of IDH inhibitors, personalized treatment is further promoted.

**INPLASY registration number:** This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 03 September 2022 and was last updated on 03 September 2022 (registration number INPLASY202290008).

### INTRODUCTION

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reduce the recurrence rate. **Participants:** Acute myeloid leukemia patients **Intervention/Comparison:** To treat acute myeloid leukemia patients with isocitrate dehydrogenase mutation / To treat acute myeloid leukemia patients without isocitrate dehydrogenase mutations. **Outcome:** Treatment effect, survival time and recurrence rate. **Study**

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## METHODS

**Search strategy:** The terms included "Leukemia, Myeloid, Acute" OR "Acute Myeloid Leukemia" OR "Acute Myeloid Leukemias" OR "Leukemias, Acute Myeloid" OR "Myeloid Leukemias, Acute" OR "ANLL" OR "Leukemia, Acute Myelogenous" OR "Leukemia, Acute Myeloid" OR "Leukemia, Myeloblastic, Acute" OR "Leukemia, Myelocytic, Acute" OR "Leukemia, Myelogenous, Acute" OR "Leukemia, Nonlymphoblastic, Acute" OR "Leukemia, Nonlymphocytic, Acute" OR "Myeloblastic Leukemia, Acute" OR "Acute Myeloblastic Leukemia" OR "Acute Myeloblastic Leukemias" OR "Leukemia, Acute Myeloblastic" OR "Leukemias, Acute Myeloblastic" OR "Myeloblastic Leukemias, Acute" OR "Myelocytic Leukemia, Acute" OR "Acute Myelocytic Leukemia" OR "Acute Myelocytic Leukemias" OR "Leukemia, Acute Myelocytic" OR "Leukemias, Acute Myelocytic" OR "Myelocytic Leukemias, Acute" OR "Myelogenous Leukemia, Acute" OR "Myeloid Leukemia, Acute" OR "Nonlymphoblastic Leukemia, Acute" OR "Acute Nonlymphoblastic Leukemia" OR "Acute Nonlymphoblastic Leukemias" OR "Leukemia, Acute Nonlymphoblastic" OR "Leukemias, Acute Nonlymphoblastic" OR "Nonlymphoblastic Leukemias, Acute" OR "Nonlymphocytic Leukemia, Acute" OR "Acute Nonlymphocytic Leukemia" OR "Acute Nonlymphocytic Leukemias" OR "Leukemia, Acute Nonlymphocytic" OR "Leukemias, Acute Nonlymphocytic" OR "Nonlymphocytic Leukemias, Acute" OR

"Acute Myelogenous Leukemia" OR "Acute Myelogenous Leukemias" OR "Leukemias, Acute Myelogenous" OR "Myelogenous Leukemias, Acute" OR "Myeloid Leukemia, Acute, M1" OR "Leukemia, Myeloid, Acute, M1" OR "Acute Myeloid Leukemia without Maturation" OR "Leukemia, Myeloid, Acute, M2" OR "Myeloid Leukemia, Acute, M2" OR "Acute Myeloid Leukemia with Maturation" AND "IDH" OR "isocitrate dehydrogenase".

**Participant or population:** Acute myeloid leukemia patients.

**Intervention:** To treat acute myeloid leukemia patients with isocitrate dehydrogenase mutation.

**Comparator:** To treat acute myeloid leukemia patients without isocitrate dehydrogenase mutation.

**Study designs to be included:** Randomized controlled trial or cohort study.

**Eligibility criteria:** Eligible studies have the following criteria: (1) Randomized controlled trials or cohort studies, (2) Limited to human studies, (3) include information on survival and treatment outcomes, (4) Also describe the prognostic details and compare the characteristics of patients with or without IDH mutations. If the following studies were excluded: (1) Animal and cell experiments, (2) the reported data are not available or insufficient, (3) Reviews, case reports, evaluations, editorials and letters, (4) Repeat the experiment.

**Information sources:** The electronic databases of Cochrane, Embase, Ovid Medline, Proquest, PubMed, Scopus, Web of science and as well as Chinese databases including China National Knowledge Internet (CNKI) and SinoMed.

**Main outcome(s):** Treatment effect, survival time and recurrence rate.

**Additional outcome(s):** Response rates and adverse events.

**Data management:** EndNote.

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**Quality assessment / Risk of bias analysis:**

The methodologic quality of primary manuscripts was evaluated separately by two reviewers, according to the Newcastle-Ottawa-Scale, which is used for quality assessment of cohort studies and case-control studies. Studies scoring six or more were considered to be with high quality. Any disparities between investigators were addressed by discussion.

**Strategy of data synthesis:** The Stata statistical software was used for the metaanalysis. Effect of the amount less than 1.00 and P value less than 0.05 meant statistical significance. The heterogeneity among primary studies was evaluated by using the Q test. The random effect model, which was admitted to be more conservative, was chosen if significant heterogeneity was observed. Otherwise, the fixed-effect model was used.

**Subgroup analysis:** Subgroup studies were conducted according to basic characteristics of patients, such as age, marital status, income and other factors.

**Sensitivity analysis:** After deleting any one of the papers, the combined results of the remaining papers are not different from those without deletion, which means that the sensitivity analysis has been passed

**Country(ies) involved:** China.

**Keywords:** "Leukemia, Myeloid, Acute", "IDH", "Isocitrate Dehydrogenase"

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