

# INPLASY PROTOCOL

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None declared.

## INTRODUCTION

**Review question / Objective:** Incidence and risk factors for acute kidney injury in critically ill patients with tumors vs non-critical patients.

**Condition being studied:** Hundreds of millions of confirmed cases of tumours

## Incidence and risk factors for acute kidney injury in patients with tumors: a systematic review and meta-analysis

Wang, C<sup>1</sup>; Fan, XX<sup>2</sup>; Li, R<sup>3</sup>.

**Review question / Objective:** Incidence and risk factors for acute kidney injury in critically ill patients with tumors vs non-critical patients.

**Condition being studied:** Hundreds of millions of confirmed cases of tumours occur worldwide, and some patients progress rapidly to multi-organ dysfunction requiring treatment in intensive care units. At present, there are obvious differences in the incidence and risk factors of tumor patients, and there are no relevant statistics. Therefore, the purpose of this study is to determine the incidence and risk factors of acute kidney injury in patients with malignant tumors, and to compare critically ill patients with non-critical patients.

**INPLASY registration number:** This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 17 February 2023 and was last updated on 17 February 2023 (registration number INPLASY202320079).

occur worldwide, and some patients progress rapidly to multi-organ dysfunction requiring treatment in intensive care units. At present, there are obvious differences in the incidence and risk factors of tumor patients, and there are no relevant statistics. Therefore, the purpose of this study is to determine the incidence and risk factors of acute kidney injury in

patients with malignant tumors, and to compare critically ill patients with non-critical patients.

## METHODS

**Search strategy:** ("Neoplasms"[MeSH Terms] OR ("tumor"[Title/Abstract] OR "neoplasm"[Title/Abstract] OR "tumors"[Title/Abstract] OR "neoplasia"[Title/Abstract] OR "neoplasias"[Title/Abstract] OR "cancer"[Title/Abstract] OR "malignancy"[Title/Abstract])) AND ("Acute Kidney Injury"[MeSH Terms] OR ("AKI"[Title/Abstract] OR "acute renal failure"[Title/Abstract] OR "Acute Kidney Injury"[Title/Abstract])) AND ("risk"[Title/Abstract] OR "risk"[MeSH Terms] OR "factors"[Title/Abstract] OR "cohort"[Title/Abstract])).

**Participant or population:** Tumor patients, tumor type is not limited, age  $\geq 18$  years Oncology patients

**Intervention:** Incidence of AKI or risk factors for acute kidney injury in oncological patients.

**Comparator:** According to whether AKI occurs, it is divided into case group (AKI group) and control group (non-AKI group).

**Study designs to be included:** Case-control studies, cohort studies, and research topics are associated with the incidence or risk factors for AKI in patients with tumors.

**Eligibility criteria:** Inclusion Criteria: (1) The main diagnostic criteria for AKI are the serum creatinine creatinine (Scr) and urine output (UO) criteria proposed by the Global Prognosis (KDIGO), the RIFLE criteria, and the criteria proposed by Bellomo et al. (2) Research subjects: tumor patients, tumor type is not limited, age  $\geq 18$  years old, divided into case group (AKI group) and control group (non-AKI group) according to whether AKI occurs. (3) Research content: Each study reported the incidence of AKI or risk factors for acute kidney injury. (4) Study type: case-control study, cohort study, and research topic are related to the

incidence or risk factors of AKI in tumor patients. (5) Outcome indicators: The original literature provides the incidence and risk factors of AKI in tumor patients. Exclusion Criteria: (1) Raw data cannot be provided. (2) Repeated published studies. (3) Case reports, animal experiments. (4) The data is incomplete or does not meet the extraction standards. (5) The number of research objects in the article is less than 50.

**Information sources:** Pubmed, Embase, Cochrane, CNKI, CBM databases were searched for literature related to AKI for malignant tumors.

**Main outcome(s):** Incidence of AKI, Tumor type and incidence of AKI.

**Additional outcome(s):** Exposure factors were extracted: age, sex, sofa score, acute physiology and chronic health (APACHEII) score, etc.

**Quality assessment / Risk of bias analysis:** This study was observational, all included studies were cohort studies, using the Newcastle-Ottawa Scale (NOS) for quality assessment, which mainly included three aspects: study participant selection, group-to-group comparability, and outcome evaluation, the more items that matched, the higher the quality of the study.

**Strategy of data synthesis:** After extensive prior reading of the systematic review of this study, all data that could be quantified were quantified using Revman 5.4.1 software. The incidence and its 95% confidence interval CI (CI) are generated by software to generate forest plots. I<sup>2</sup> size was used to assess heterogeneity between documents. When  $I^2 \leq 50\%$  indicated no statistical heterogeneity between studies, a fixed-effect model (FE) was used for meta-analysis; When  $I^2 > 50\%$  indicated statistical heterogeneity between studies, a random-effects model (RE) was used to find reasons for heterogeneity by sensitivity analysis when significant heterogeneity in the primary outcome was found.  $P < 0.05$

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The difference was considered statistically significant.

**Subgroup analysis:** Subgroup analysis of AKI incidence by tumor species.

**Sensitivity analysis:** Literature with large heterogeneity was discarded for sensitivity analysis and the results were compared.

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

**Keywords:** Oncology, acute kidney injury, intensive care, risk factors, systematic review, meta-analysis.

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