

Geriatric Nutrition Risk Index as an Early Acute Kidney Injury Biomarker for Hospitalization Patients: A Systematic Review and Meta-Analysis

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ADMINISTRATIVE INFORMATION**Support** - None.**Review Stage at time of this submission** - Data analysis.**Conflicts of interest** - None declared.**INPLASY registration number:** INPLASY202670071

Amendments - This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 19 July 2026 and was last updated on 19 July 2026.

INTRODUCTION

Review question / Objective This systematic review and meta-analysis aimed to evaluate the association between Geriatric Nutritional Risk Index (GNRI) and AKI risk, as well as the diagnostic efficacy of GNRI for AKI prediction.

Condition being studied The research team comes from the Department of Critical Care Medicine of a tertiary hospital in China, and all the team members have perfect clinical experience in critical care and resuscitation. Moreover, our team members have published more than 50 meta analyses, which can guarantee the successful completion of the current research.

METHODS

Participant or population Adult inpatients aged 18 years and older..

Intervention Assessment of the GNRI, with no restrictions on laboratory detection methods.

Comparator Patients with high GNRI levels (or the highest GNRI category) served as the reference group; alternatively, patients without AKI served as controls for diagnostic accuracy.

Study designs to be included Prospective and retrospective cohort designs, case-control studies, and randomized controlled trials (RCTs) focusing on critical illness.

Eligibility criteria Study inclusion and exclusion criteria were formulated based on the Population, Intervention/Exposure, Comparator, Outcome, Study design (PICOS) framework as described above.

Information sources PubMed, Embase, Cochrane Library, and the ClinicalTrials.gov, the World Health Organization International Clinical Trials Registry Platform, and OpenGrey.

Main outcome(s) The primary outcome was the association between GNRI and AKI risk.

Quality assessment / Risk of bias analysis Study quality was independently appraised by two reviewers. Cohort studies were assessed using the Newcastle-Ottawa Scale (NOS).

Strategy of data synthesis Meta-analysis.

Subgroup analysis Subgroup analyses were conducted by population, data source, definition of AKI, AKI risk, and timing of AKI assessed.

Sensitivity analysis Leave-one-out sensitivity analysis was conducted to test the stability of pooled results by iteratively removing single studies and re-estimating the overall effect size.

Country(ies) involved China.

Keywords Geriatric Nutrition Risk Index; Critical illness; Acute kidney injury; Meta-analysis.

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