

Results for DIFFERENCE OF ... > Difference of Admission Neutrophil Gelatinase-Associated Lipocalin Concen...



MENU

[Free Full Text from Publisher](#)[Full Text Links ▾](#)[Export ▾](#)[Add To Marked List ▾](#)

< 1 of 1 >

Difference of Admission Neutrophil Gelatinase-Associated Lipocalin Concentration Between Patients Developing and Not Developing Acute Kidney Injury or Need for Acute Dialysis: An Ancillary Individual-Study Data Meta-Analysis (INDICATE-AKI)

By

[Albert, A](#) (Albert, Annemarie) ^[1]; [Blume, L](#) (Blume, Louisa) ^[2]; [Di Somma, S](#) (Di Somma, Salvatore) ^[3]; [Hur, M](#) (Hur, Mina) ^[4]; [Bellomo, R](#) (Bellomo, Rinaldo) ^[5], ^[6]; [Devarajan, P](#)

(Devarajan, Prasad) [7]; Breidhardt, T (Breidhardt, Tobias) [8], [9]; Camou, F (Camou, Fabrice) [10]; Chocron, S (Chocron, Sidney) [11]; Cruz, D (Cruz, Dinna) [12]; ...More

[View Web of Science ResearcherID and ORCID](#) (provided by Clarivate)

Source

KIDNEY MEDICINE

[← View Journal Impact](#)

Volume: 8 Issue: 5

DOI: 10.1016/j.xkme.2026.101280

Article Number

101280

Published

MAY 2026

Indexed

2026-04-10

Document Type

Article

Abstract

Rationale & Objective: Patients admitted to the emergency department, the intensive care unit (ICU), and after cardiac surgery are at increased risk of developing adverse kidney events. Assessment of neutrophil gelatinase-associated lipocalin (NGAL) may facilitate renal risk prediction. However, the difference in NGAL-concentrations at admission in patients developing and not developing adverse events is unclear. **Study Design:** An ancillary meta-analysis to a previous systematic review and meta-analysis using reanalyzed individual study-data from prospective clinical studies to compare NGAL concentrations measured using clinical laboratory platforms at patient admission. The study followed the Preferred Reporting Items for a Systematic Review and Meta-analysis of Individual Participant Data guideline. **Setting & Study Populations:** Studies of adults investigating acute kidney injury (AKI) of all stages, severe AKI (stage injury or failure), and acute initiation of renal replacement therapy (RRT) in the setting of cardiac surgery, emergency department, or intensive care unit using either urinary or

plasma NGAL concentrations measured on clinical laboratory platforms. Selection Criteria for Studies: Data inclusion was limited to the individual study-level data from the predecessor study. Data Extraction: This study used individual study-level data acquired using the protocol of a previous study, which was accomplished by individual authors' reassessment of their study data. Analytical Approach: Classification of AKI was harmonized among studies. Prespecified data comparison was performed for urine and plasma specimens for the outcome measures AKI, severe AKI, and acute RRT-initiation. Random effects meta-analyses were performed using the inverse variance method and the DerSimonian and Laird heterogeneity estimator. Results: In total, 30 data sets from 26 studies were included. The estimated mean difference of urine NGAL concentrations was 125 (95% CI, 57.33-193.54) ng/mL for AKI, 317 (95% CI, 134.95-499.82) ng/mL for severe AKI, and 331 (95% CI, 71.36-592.06) ng/mL for RRT. For plasma NGAL concentrations, the estimated mean differences were 86.04 (95% CI, 51.74-120.34) ng/mL for AKI, 150.52 (95% CI, 80.27-220.76) ng/mL for severe AKI, and 129.83 (95% CI, 79.03-180.63) ng/mL for RRT. There were subgroup differences for the clinical setting, but not for the use of the urine output criterion. Multiple studies showed elevated NGAL concentrations in patients without serum creatinine concentration-based AKI, likely identifying patients with suspected AKI stage 1S (subclinical AKI). Limitations: Imperfect harmonization of data across studies because of their original protocols. Conclusions: NGAL concentration differences may facilitate identification of patients at risk of AKI or with suspected AKI stage 1S at admission. Heterogeneity and variability across studies, specimen types, and settings emphasize the importance of interpreting NGAL values within the specific clinical context and patient population. Study Registration: The International Database of Prospectively Registered Systematic Reviews reg. no.: CRD42016042735. Version of Record 1.2.

Keywords

Keywords Plus: CRITICALLY-ILL PATIENTS; CARDIAC-SURGERY; ANALYTICAL PERFORMANCE; EFFECT SIZES; PLASMA; NGAL; BIOMARKER; THERAPY; PLATFORMS; PREDICTOR

Author Information

Corresponding Address: Albert, Christian (corresponding author)

▼ Otto von Guericke Univ, Univ Clin Cardiol & Angiol, Leipziger Str 44, D-39120 Magdeburg, Germany

E-mail Addresses :

Christian.Albert@med.ovgu.de

Addresses :

- ▼ ¹ Cent Clin Bad Berka, Dept Nephrol, Bad Berka, Germany
- ▼ ² Charite Univ Med Berlin, Dept Neonatol, Berlin, Germany
- ▼ ³ Univ Roma La Sapienza, Fac Med & Psychol, Postgrad Sch Emergency Med, Rome, Italy
- ▼ ⁴ Konkuk Univ, Sch Med, Dept Lab Med, Seoul, South Korea
- ▼ ⁵ Austin Hosp, Dept Intens Care, Melbourne, Australia

[...more addresses](#)

E-mail Addresses :

Christian.Albert@med.ovgu.de

Data availability statement

The data sets generated and/or analyzed during the current study are available from the corresponding author upon reasonable request. dagger r University Hospital Basel, Abbott and Roche, as well as speaker or advisory fees from AstraZeneca, Bayer (Schweiz) AG, Boehringer Ingelheim (Schweiz) GmbH, Daiichi-Sankyo, Roche and Vifor. These payments were made directly to the University Hospital Basel, and no personal payments were received. Haase M has received lecture honoraria and travel reimbursement from Siemens Healthineers, Abbott Diagnostics, Roche, Alere, Astute, and Baxter on unrelated work. Devarajan P is a co-inventor on patents submitted for the use of NGAL as a biomarker of kidney injury, and the Senior Medical Director at BioPorto Diagnostics (Gentofte, Denmark) . Hjortrup PB states that the contributed study was supported by BioPorto Diagnostics A/S (Gentofte, Denmark) , and BioPorto made suggestions to their study protocol, but the authors had final say. BioPorto had no role in data collection or analyses, the writing of the manuscript, or the decision to publish. The Department of Intensive Care, Rigshospitalet, receives support for research projects from the Novo Nordisk Foundation, Pfizer, Fresenius Kabi, and Sygeforsikringen, Denmark. Mueller C reported research grants from the University Hospital Basel, the University of Basel, the Swiss National Science Foundation, the Swiss Heart Foundation, the Innosuisse, Abbott, Astra Zeneca, Beckman Coulter, Boehringer Ingelheim, BRAHMS, Ortho Clinical, Quidel, Novartis, Roche, Siemens, Singulex, SpinChip, and Sphingotec, as well as speaker/consulting honoraria from Abbott, Amgen, Astra Zeneca, Bayer, Boehringer Ingelheim, BMS, Daiichi Sankyo, Idorsia, Novartis, Novo Nordisk, Osler, Roche, SpinChip, and Sanofi, all paid to the institution. Nickolas TL received grant support from NIH/NIDDK and Amgen; Columbia University Irving Medical Center has licensed patents for the use of NGAL as a marker of AKI. Pickering JW has received payment as a consultant statistician from Abbott Diagnostics, Abbott Point-of-care, Roche, Siemens, Radiometer, OrthoQuidel, Upstream Medical, and Luminoma on unrelated work.

Categories/ Classification

Research Areas: Urology & Nephrology

Web of Science Categories

[Urology & Nephrology](#)

Funding

▼ View funding text

Funding agency	Show All Details
University of Basel	Hide details
Appeared in source as: University Hospital Basel	
Abbott Laboratories	Show details
Roche Holding	Show details
AstraZeneca	

+ See more data fields

Journal information

KIDNEY MEDICINE

← View Journal Impact

ISSN

2590-0595

Current Publisher

ELSEVIER, RADARWEG 29, 1043 NX AMSTERDAM, NETHERLANDS

1.11

Journal Citation
Indicator™ (2024)

Research Areas Urology & Nephrology

Web of Science Categories Urology & Nephrology

Citation Network

In Web of Science Core Collection

0 Citations

 [Create citation alert](#)

61

Cited References

[→ View Related Records](#)

How does this document's citation performance compare to peers?

Use in Web of Science

1

Last 180 Days

1

Since 2013

[Learn more →](#)

This record is from:

Web of Science Core Collection

- Emerging Sources Citation Index (ESCI)
-

Suggest a correction

If you would like to improve the quality of the data in this record, please [Suggest a correction](#)

← [Open comparison metrics panel](#)

Data is from InCites Benchmarking & Analytics

61 Cited References

[View as set of results](#)

Showing 30 of 61

(from Web of Science Core Collection)



© 2025 Clarivate. All rights



n Us

