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1. **To Study Renal Dysfunction In Patients Of Alcoholic Liver Disease.**

Authors: Agarwal G.;Kansal A. and Singh, J. P.

Publication Date: 2025

Journal: International Journal of Life Sciences Biotechnology and Pharma Research 14(7), pp. 1028–1032

Abstract: Introduction: Alcoholic Liver Disease (ALD) is a leading cause of morbidity and mortality worldwide. Renal dysfunction, frequently observed in ALD, exacerbates clinical outcomes. The present study was conducted to study renal dysfunction in patients of alcoholic liver disease. Method(s): This observational study, conducted over two years at J.A. Group of Hospitals, Gwalior, included 142 ALD patients aged 30-70 years. Patients underwent clinical evaluations, liver and renal function tests, imaging, and urine analysis. Disease severity was assessed using Child-Pugh. Data analysis was performed using SPSS 2.0 with significance set at pMethod(s): This observational study, conducted over two years at J.A. Group of Hospitals, Gwalior, included 142 ALD patients aged 30-70 years. Patients underwent clinical evaluations, liver and renal function tests, imaging, and urine analysis. Disease severity was assessed using Child-Pugh. Data analysis was performed using SPSS 2.0 with significance set at pResult(s): Renal dysfunction was present in 45.8% of cases, with AKI (17.6%) being the most prevalent. HRS and CKD were observed in 14.1% each. Severe renal impairment was significantly associated with higher Child-Pugh. Mortality was highest in AKI cases (40%). Conclusion(s): Renal dysfunction is a common and severe complication of ALD, closely linked to liver disease severity. Early identification and multidisciplinary management can improve prognosis.Copyright ©2025 Int. J. Life Sci. Biotechnol. Pharma. Res.

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2. **Postpartum kidney disease associated with placental abruption: a population-based retrospective cohort study.**

Authors: Ananth, Cande V.;Rosenfeld, Emily B.;Shi, Minxiu;Backal, Amy;Vasudevan, Swathi;Lin, Ruby;Lee, Rachel and Suarez, Elizabeth A.

Publication Date: Sep ,2025

Journal: Lancet Regional Health.Americas 49, pp. 101192

Abstract: Background: Placental abruption can lead to renal decompensation, including disseminated intravascular coagulation, and the release of cytokines and vasoactive substances, causing kidney damage. Despite the strong biological plausibility, whether this renal damage persists in the postpartum period is unknown. The aims of the study were to examine the association between abruption and kidney disease hospitalisation, and whether these risks are modified by hypertensive disorders of pregnancy (HDP). Methods: We designed a population-based retrospective cohort study of hospital deliveries and readmissions in the US, 2010-2020. All persons who had a hospital delivery with and without an abruption diagnosis were followed up for readmission for kidney disease in the same calendar year. We fit Cox proportional hazards models to estimate the associations based on two outcomes: fatal or non-fatal kidney disease and in-hospital mortality. We evaluated whether HDP modified these risks. Findings: Of 17,826,038 delivery hospitalisations, 194,740 (1.1%) were complicated by abruption. The median follow-up after delivery was 6.4 months (interquartile range, 3.7, 9.2) among abruption and non-abruption deliveries. The rates of hospitalisations with an acute kidney injury (AKI) diagnosis among abruption and non-abruption groups were 236 and 106 per 100,000 hospitalisations, respectively (adjusted hazard ratio [HR] 1.7, 95% confidence interval [CI], 1.5-1.9). The corresponding rates for hospitalisations with chronic kidney disease (CKD) diagnosis among abruption and non-abruption groups were 82 and 25 per 100,000 hospitalisations, respectively (HR 2.1, 95% CI, 1.6-2.7). The HR for AKI mortality associated with abruption was 4.1 (95% CI, 2.8-6.1). Kidney disease risks related to abruption were high among those without an HDP diagnosis; these risks were substantially higher among persons with HDP. Interpretation: This population-based study shows that placental abruption, even in the absence of HDP, is associated with increased short-term postpartum risks of AKI and CKD hospitalisations. These risks are higher in the presence of HDP. This study underscores the importance of close postpartum monitoring of patients diagnosed with placental abruption in their pregnancies for the risk of kidney disease. It is also essential to elucidate whether these risks persist beyond the postpartum period and extend to the maternal life course. Funding: None. Copyright © 2025 The Author(s).

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3. **Prognostic Value of Blood Urea Nitrogen to Albumin Ratio in Elderly Critically Ill Patients with Acute Kidney Injury: A Retrospective Study.**

Authors: Bayrakci S. and Eygi, E.

Publication Date: 2025

Journal: Medicina (Kaunas, Lithuania) 61(7) (pagination), pp. Date of Publication: 08 Jul 2025

Abstract: Background and Objectives: Acute kidney injury (AKI) is common in intensive-care unit (ICU) patients and is associated with increased mortality. Elderly patients tend to have more comorbid chronic diseases and are more prone to AKI than younger populations, resulting in higher rates of hospitalization and a higher incidence of AKI. Our aim in this study was to investigate the prognostic utility of BUN/albumin ratio (BAR) in predicting mortality in elderly critically ill patients with AKI. Material(s) and Method(s): This study was conducted retrospectively on 154 elderly patients with AKI who were admitted to the ICU between October 2023 and September 2024.Data on the following demographic, clinical, and laboratory parameters were retrospectively collected from medical cards and electronic records. Result(s): In the non-survivor group, among comorbidities, lung disease was higher (p Result(s): In the non-survivor group, among comorbidities, lung disease was higher (p Result(s): In the non-survivor group, among comorbidities, lung disease was higher (p Result(s): In the non-survivor group, among comorbidities, lung disease was higher (p Result(s): In the non-survivor group, among comorbidities, lung disease was higher (p Conclusion(s): BAR is a simple and accessible biomarker that may serve as a predictor of in-hospital mortality in elderly patients with AKI. Its use may aid early risk stratification and decisionmaking in the ICU.

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4. **The association between Albumin-Corrected Anion Gap (ACAG) and the risk of acute kidney injury in patients with acute pancreatitis: A retrospective analysis based on the MIMIC-IV database.**

Authors: Bian J.;Wang X.;Chen Y.;Lu G.;Zhang L.;Tu X.;Wang S.;Huang W. and Chen, C.

Publication Date: 2025

Journal: Plos One 20(8 August) (pagination), pp. Article Number: e0330458. Date of Publication: 01 Aug 2025

Abstract: Purpose Acute kidney injury (AKI), a common and severe complication of acute pancreatitis (AP), is significantly linked to patient prognosis. Albumin-corrected anion gap (ACAG) is a modified acid-base balance assessment metric with potential clinical significance in various critical illnesses. However, the role of ACAG in forecasting the risk of AKI in AP patients remains unclear. This study sheds light on the relationship between ACAG levels and AKI risk in the AP population. Methods This retrospective study utilized data from the MIMIC-IV database, including 1,552 adult patients diagnosed with AP during their stay in the intensive care unit (ICU). ACAG was calculated using a standard formula, and patients were grouped according to their ACAG levels. Cox proportional hazards and restricted cubic spline (RCS) models were employed to assess the correlation of ACAG levels with AKI risk in AP patients. The incidence of AKI was the primary outcome, and in-hospital mortality was the secondary outcome. Differences in primary and secondary outcomes between ACAG groups were evaluated through Kaplan-Meier (KM) survival analysis. Subgroup analyses were performed for examining the influence of confounding factors. Results Higher ACAG levels were significantly related to an elevated risk of AKI. The RCS model demonstrated a nonlinear correlation between higher ACAG levels and increased AKI risk in the AP cohort, and a linear association of ACAG with in-hospital death. KM survival analysis showed that patients exhibiting higher ACAG levels had poorer renal function outcomes and higher ICU mortality. Subgroup analyses further proved this correlation across varied patient characteristics. Conclusions Elevated ACAG is an independent predictor of AKI risk in the AP cohort. ACAG may be useful for early AKI risk stratification and clinical decision-making in critically ill AP sufferers.

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5. **Long-term outcomes after acute kidney injury in myocardial infarction complicated by cardiogenic shock: A retrospective, observational study.**

Authors: Bjorn M.;Kunkel J.B.;Helgestad O.;Josiassen J.;Jeppesen K.K.;Holmvang L.;Jensen L.O.;Schmidt H.;Fosbol E.;Hassager C.;Moller J.E. and Ravn, H. B.

Publication Date: 2025

Journal: European Heart Journal: Acute Cardiovascular Care 14(7), pp. 385–391

Abstract: Aims The recent DanGer shock trial found reduced mortality, but increased risk of acute kidney injury (AKI) in patients treated with a microaxial flow pump after an acute myocardial infarct with cardiogenic shock. AKI has previously been associated with increased short-term mortality, whereas data on long-term outcomes are sparse. We aimed to describe the frequency of AKI and associated risk factors as well as long-term mortality and morbidity. Methods and results A retrospective observational study comprising patients admitted with acute myocardial infarction cardiogenic shock in Denmark between 2010 and 2017 with data on kidney function from the RETROSHOCK cohort. National health registry data enabled 10-year follow-up to assess mortality and morbidity. Kaplan-Meier estimates and competing risks regression were used to evaluate the association of AKI with the incidence of short- and long-term mortality, chronic kidney disease (CKD) and dialysis. Among 1473 patients, 44% developed AKI, 25% required renal replacement therapy (RRT). AKI development was associated with increasing age, diabetes, low ejection fraction and high lactate levels on admission (P

6. **Association Between Postoperative Acute Kidney Injury and Long-Term Mortality in Patients Undergoing Major Abdominal Surgery: A Cohort-Based Study.**

Authors: Cesped, Benjamin;Gutierrez, Rodrigo;Egana, Jose I.;de la Maza, Paula;Toro, Luis and Penna, Antonello

Publication Date: Aug 01 ,2025

Journal: A&A Practice 19(8), pp. e02038

Abstract: BACKGROUND: Acute kidney injury (AKI) is a frequent complication after major surgery and has significant implications for long-term outcomes. This study aimed to evaluate the incidence and impact of postoperative AKI (PO-AKI) in adults who underwent major abdominal surgeries in 2019 at Hospital Clinico de la Universidad de Chile. The primary focus was on the association between PO-AKI and 2-year mortality, along with other postoperative complications and hospital-related outcomes. METHODS: A descriptive observational study was conducted with approval from the Local Ethical Committee. Patients aged 18 years and older who underwent major abdominal surgeries were included, excluding those with incomplete records or preoperative renal failure. Data were collected from electronic medical records (TiCares) and included demographics, comorbidities, and surgical details. Postoperative complications, including PO-AKI [defined by kidney disease: improving global outcomes (KDIGO) criteria or clinical diagnosis], in-hospital myocardial infarction, pulmonary thrombosis, pneumonia, sepsis, in-hospital mortality, and 2 years mortality, were recorded. The primary outcome was 2-year mortality, while secondary outcomes included in-hospital mortality and hospital stay length. Multivariable analysis was used to explore the relationship between PO-AKI and these outcomes. RESULTS: In 214 patients analyzed, PO-AKI occurred in 13.6% of patients and was associated with advanced age (P = .003), high American Society of Anesthesiologists physical status (ASA-PS) scores (P = .02, between ASA-PS 1-2 vs 3-higher), and longer surgical durations (mean [standard deviation {SD}] 282.6 [144.3] vs 227.4 [108.5] min; P = .02). Individual preoperative creatinine and baseline renal function did not significantly differ between those with and without PO-AKI (P = .82 and P = .22, respectively). PO-AKI was associated with a relative risk of 1.4 [95% confidence interval [CI], 1.2-1.8] for 2-year mortality and stayed in the hospital twice as long as those without PO-AKI (median (min - max) 14 (2-67) vs 7 (0-53) P : In 214 patients analyzed, PO-AKI occurred in 13.6% of patients and was associated with advanced age (P = .003), high American Society of Anesthesiologists physical status (ASA-PS) scores (P = .02, between ASA-PS 1-2 vs 3-higher), and longer surgical durations (mean [standard deviation {SD}] 282.6 [144.3] vs 227.4 [108.5] min; P = .02). Individual preoperative creatinine and baseline renal function did not significantly differ between those with and without PO-AKI (P = .82 and P = .22, respectively). PO-AKI was associated with a relative risk of 1.4 [95% confidence interval [CI], 1.2-1.8] for 2-year mortality and stayed in the hospital twice as long as those without PO-AKI (median (min - max) 14 (2-67) vs 7 (0-53) P CONCLUSIONS: PO-AKI was found to be an independent predictor of 2-year mortality. These findings highlight postoperative renal function impairment as a key marker of poor long-term prognosis. Acute renal deterioration may reflect systemic damage from surgery and/or increased vulnerability in this population, underscoring the need for targeted preventive strategies and early interventions. Copyright © 2025 International Anesthesia Research Society.

7. **Sex-Based Disparities in Acute Kidney Injury.**

Authors: ClaureDel Granado R.;Neugarten S. and Golestaneh, L.

Publication Date: 2025

Journal: Advances in Kidney Disease and Health 32(Heath Disparities.), pp. 221–228

Abstract: Sex-based disparities in acute kidney injury are related to differential access to diagnostic tests, testing thresholds, and nonharmonized data collection and acute kidney injury reporting across

the globe. Differential exposure to acute kidney injury risk factors and sex-based social risk and discrimination, affect accurate acute kidney injury reporting. In animal models of acute kidney injury, males are at consistently higher risk likely driven by hormonal, genetic, and epigenetic factors. Female protection generally wanes in older animals; however, in humans, the risk of acute kidney injury is more difficult to describe because of inconsistent definitions, inconsistent statistical and reporting techniques, and lack of sex-stratified gold standard tests. Hospital-acquired, including acute kidney injury requiring dialysis, and community-acquired acute kidney injury studies show a higher propensity among men, except for certain specific circumstances. The recent use of standardized acute kidney injury definitions and careful comorbidity adjustment has debunked the notion that women are at higher acute kidney injury risk as reported in past studies referencing certain clinical scenarios. The heterogeneity of epidemiologic reports from around the world does not allow for reliable inferences about sex-based acute kidney injury risk. In this review we present a summary of the greater literature on biologic drivers of acute kidney injury sex differences and the various complexities involved in describing epidemiologic sex-based acute kidney injury patterns.

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8. **Can Biomarkers Predict Kidney Function Recovery and Mortality in Patients with Critical COVID-19 and Acute Kidney Injury?.**

Authors: Del ToroCisneros N.;PaezFranco J.C.;MartinezRojas M.A.;GonzalezSoria I.;OrtegaTrejo J.A.;SanchezVidal H.;Bobadilla N.A.;UlloaAguirre A. and VegaVega, O.

Publication Date: 2025

Journal: Diagnostics 15(15) (pagination), pp. Article Number: 1960. Date of Publication: 01 Aug 2025

Abstract: Background/Objectives: COVID-19 is a systemic viral infection that may lead to serious complications including acute kidney injury that requires kidney replacement therapy. The primary aim of this study was to evaluate urinary SerpinA3 (uSerpinA3) excretion as a biomarker of kidney recovery at 90 days, and the mortality in patients with critical COVID-19 and AKI requiring kidney replacement therapy (KRT). Method(s): The study included patients with critical COVID-19 on invasive mechanical ventilation (IMV) requiring KRT. Blood and urine samples were obtained when KRT was initiated (day zero), and thereafter on days 1, 3, 7, and 14 post-replacement. uSerpinA3, kidney injury molecule-1 (uKIM-1), and neutrophil gelatinase-associated lipocalin (uNGAL) were measured in urine, and interleukin-6 (IL-6), interleukin-10 (IL-10), and tumor necrosis factor alpha (TNF-alpha) in peripheral blood. In addition, metabolomics in sample days zero and 3, and in the survivors on sample day 90 was performed by employing gas chromatography coupled with mass spectrometry. Result(s): A total of 60 patients were recruited, of whom 29 (48%) survived hospitalization and recovered kidney function by day 90. In the survivors, 79% presented complete recovery (CRR) and the remaining (21%) recovered partially (PRR). In terms of uSerpinA3, levels on days 7 and 14 predicted CRR, with AUC values of 0.68 ($p = 0.041$) and 0.71 ($p = 0.030$), respectively, as well as mortality, with AUC values of 0.75 ($p = 0.007$) and 0.76 ($p = 0.015$), respectively. Among the other biomarkers, the excretion of uKIM-1 on day zero of KRT had a superior performance as a CRR predictor [(AUC, 0.71 ($p = 0.017$)], and as a mortality predictor [AUC, 0.68 ($p = 0.028$)]. In the metabolomics analysis, we identified four distinct profiles; the metabolite that maintained statistical significance in predicting mortality was p-cresol glucuronide. Conclusion(s): This study strongly suggests that uSerpinA3 and uKIM-1 can predict CRR and mortality in patients with critical COVID-19 and AKI requiring KRT. Metabolic analysis appears promising for identifying affected pathways and their clinical impact in this population.

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9. **Associations Between Lymphopenia and the Development/Recovery of Acute Kidney Injury Among Patients Hospitalized With Respiratory Virus Infections.**

Authors: Fan G.;Liu X.;Xu F.;Zhang X.;Si C.;Yin T.;Lyu Y.;Ma J.;Liu B.;Yang W.;Jia C. and Wang, D.

Publication Date: 2025

Journal: Kidney Medicine 7(9) (pagination), pp. Article Number: 101063. Date of Publication: 01 Se

2025

Abstract: Rationale & Objective: Lymphopenia may have a potential mechanism on the development of acute kidney injury (AKI) after respiratory virus infection but has never been revealed. We aimed to investigate the relationship between lymphopenia and AKI in patients hospitalized with respiratory virus infections. Study & Design: A single-center and retrospective cohort study. Setting & Participants: Data were retrospectively collected from electronic medical records of patients hospitalized with severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), influenza, or other respiratory virus infections from 2016- 2023. Exposure: Prolonged lymphopenia (Setting & Participants: Data were retrospectively collected from electronic medical records of patients hospitalized with severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), influenza, or other respiratory virus infections from 2016-2023. Exposure: Prolonged lymphopenia (9/L) was defined as continuous lymphopenia lasting for >=1 day before AKI diagnosis. Serial measurements of serum creatinine levels and lymphocyte counts before AKI were collected. Outcome(s): AKI developed after infection was identified according to the KDIGO guideline. Analytical Approach: Multivariable logistic regression models and Cox proportional regression models were conducted to evaluate associations between lymphopenia or blood count ratios and AKI. Result(s): A total of 3,104 patients were analyzed, including 1,945 infected with SARS-CoV-2, 597 with influenza, and 472 with other respiratory virus infections. The AKI incidences were 18.0%, 23.3%, and 16.3%, respectively. Serum creatinine level was significantly negatively correlated with lymphocyte count in SARS-CoV-2 and influenza infections. Multivariable regression showed lymphopenia, especially prolonged lymphopenia, was significantly associated with AKI in all virus groups, especially in influenza. The risk magnitudes of monocyte-to-lymphocyte ratio, neutrophil-to-lymphocyte ratio, and platelet-to-lymphocyte ratio on admission for AKI varied by different viral infections. Lymphopenia or not was not associated with AKI stages or AKI recovery. Limitation(s): The results were limited by the retrospective, single-center setting and the probability of underestimation of the prevalence of both lymphopenia and AKI. Conclusion(s): Lymphopenia, especially prolonged lymphopenia, and neutrophil-to-lymphocyte ratio on admission were risk factors for AKI after respiratory virus infection, with the highest risk observed in patients with influenza. Plain-Language Summary: Lymphopenia may play a role in acute kidney injury (AKI) after respiratory virus infections, but this link has not been well studied. Our research explored the relationship between lymphopenia and AKI in hospitalized patients with COVID-19, influenza, and other respiratory viruses. By reviewing medical records from 2016-2023, we found that prolonged lymphopenia was significantly associated with AKI, particularly in influenza cases. Blood count ratios also varied in their risk for AKI depending on the virus. These findings highlight the importance of monitoring immune cell levels in viral infections. Although our study offers new insights, its single-center and retrospective design may limit broader application. Future research is needed to confirm these results and explore potential interventions.

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10. **Kidney Outcomes With Glucagon-Like Peptide-1 Receptor Agonists Versus Other Glucose-Lowering Agents in People With Type 2 Diabetes: A Systematic Review and Meta-Analysis of Real-World Data.**

Authors: Fishkin A.;Rozenberg A.;Schechter M.;SehtmanShachar D.R.;AharonHananel G.;Leibowitz G.;Yanuv I. and Mosenzon, O.

Publication Date: 2025

Journal: Diabetes/Metabolism Research and Reviews 41(5) (pagination), pp. Article Number: e70066. Date of Publication: 01 Jul 2025

Abstract: Aims: Randomized placebo-controlled clinical trials showed that glucagon-like peptide-1 receptor agonists (GLP-1 RA) reduce kidney risk in patients with type 2 diabetes (T2D), prominently in those with chronic kidney disease. It is unclear whether these findings may apply to broader populations of patients with T2D treated in real-world settings and compared to active controls. We summarised real-world data of adverse kidney outcomes among patients with T2D initiating GLP-1 RA versus other glucose-lowering agents. Material(s) and Method(s): We searched PubMed and Embase for observational cohort studies (April 2005-January 2025; PROSPERO CRD42023405356). Initiators

of GLP-1 RA were compared to sodium-glucose cotransporter-2 inhibitors (SGLT2i), dipeptidyl-peptidase 4 inhibitors (DPP4i), sulfonylureas, or basal insulin. Outcomes included risks of albuminuria progression, >= 40 or >= 50% eGFR reduction from baseline, acute kidney injury (AKI), kidney-related hospitalizations, and end-stage kidney disease (ESKD), per data availability. We synthesised the data using inverse variance-weighted averages of logarithmic hazard ratios (HR)s in random-effect models. Result(s): Thirty-one studies were eligible, encompassing 1,601,389 patients (mean age 49-78 years, 5%-64% women), with 21, 6, 5, and 1 of them using SGLT2i, DPP4i, basal insulin, and sulfonylureas as a comparator, respectively. Compared with SGLT2i, GLP-1 RA initiators had higher risks for AKI (HR [95% CI] 1.12 [1.05-1.20]), kidney-related hospitalizations (1.66 [1.01-2.73]), and >= 40% reduction in eGFR (1.40 [1.27-1.53]), without evidence for differences in risks of >= 50% eGFR reduction or ESKD. Compared to DPP4i, GLP-1 RA initiators had lower risks for experiencing >= 50% eGFR reduction (0.84 [0.76-0.92]), kidney-related hospitalizations (0.73 [0.65-0.83]), and ESKD (0.70 [0.63-0.78]). Similar benefits were observed when comparing GLP-1 RA to sulfonylureas. Compared to basal insulin, GLP-1 RA initiation was associated with a lower risk of albuminuria progression (0.89 [0.80-0.99]), with inconsistent data regarding possible benefits in reducing ESKD risk. Conclusion(s): In patients with T2D, initiation of GLP-1 RA in real-world settings may be associated with improved kidney outcomes compared to DPP4i, sulfonylureas, and basal insulin, and worse kidney outcomes compared to SGLT2i.

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11. **Renal Long COVID: A Scoping Review.**

Authors: Frediani, Marcella M.;Ribeiro, Heitor S.;Busatto, Geraldo F.;Carvalho, Carlos R. R. and Burdmann, Emmanuel A.

Publication Date: Aug ,2025

Journal: Kidney Medicine 7(8), pp. 101039

Abstract: Rationale & Objective: Whether long coronavirus disease (long COVID) affects the kidneys remains to be understood. In this scoping review, we described the evidence of renal long COVID. Study Design: A scoping review was conducted according to the Joanna Briggs Institute and Preferred Reporting Items for Systematic Reviews and Meta-Analyses extension for Scoping Reviews guidelines by searching MEDLINE, Embase, and other databases from inception until February 2025. Setting & Study Populations: We included evidence on kidney-related outcomes in adult survivors of coronavirus disease 2019 (COVID-19) with data on long COVID. Selection Criteria for Studies: Cohorts from all settings. Data Extraction: We extracted data related to longitudinal kidney outcomes. Analytical Approach: Data were synthesized and presented in tables and figures. Results: We screened 6,203 studies and included 37 in this review (38 reports), comprising 1,308,265 individuals with follow-up data. The majority were retrospective (61%) and from Europe (37%). All reports included hospitalized patients and 34% also included the community setting. Acute kidney injury (AKI) during acute COVID-19 phase was assessed in 58% of the reports. Chronic kidney disease (CKD) development was assessed in 29% of the reports, with wide variation in its frequency, ranging from 0.4%-45%. Progression of CKD (7 studies, 18%) ranged from 8%-49%. Studies reporting higher frequencies of AKI found larger rates of renal long COVID. Overall, there was high heterogeneity in how kidney-related outcomes were reported during follow-up. Most studies presented data on crude kidney function biomarkers (eg, serum creatinine or estimated glomerular filtration rate), while a few (13%) reported major adverse kidney events. Data on proteinuria or urinary biomarkers were scarce. Limitations: Lack of studies with pre-COVID-19 data. Conclusions: This scoping review highlighted that renal long COVID, characterized by CKD development and/or progression, may occur. Available evidence suggests that AKI may be associated with renal long COVID. Therefore, long-term kidney function monitoring is advisable after COVID-19 recovery to enable early diagnosis and timely intervention for CKD. Copyright © 2025 The Authors.; plain-language-summary Kidney complications may persist after coronavirus disease 2019 (COVID-19) recovery, but their long-term impact remains unclear. Our review analyzed data from over 1 million patients and found that those who experienced acute kidney injury during COVID-19 had a higher risk of developing or worsening chronic kidney disease. However, the studies showed significant variation in how often renal long COVID occurred, highlighting the need for

more research. Given these findings, regular kidney function monitoring after COVID-19 recovery is essential for early detection and intervention to prevent long-term complications. This study underscores the importance of recognizing renal long COVID as a potential consequence in the post-COVID era. Language: English

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12. **Acute Kidney Injury in Patients With Veno-venous Extracorporeal Membrane Oxygenation: An Observational Retrospective Analysis of Risk-factors and Outcome.**

Authors: Fuchs F.;Wiest C.;Philipp A.;Foltan M.;Schneckenpointner R.;Dietl A.;Lunz D.;Fisser C.;Muller T. and Lubnow, M.

Publication Date: 2025

Journal: Kidney360

Abstract: BACKGROUND: AKI is a frequent concomitant organ failure during veno-venous extracorporeal membrane oxygenation (VV-ECMO). This study investigated the prevalence and the impact of AKI on survival to hospital discharge and up to 365 days after discharge, and risk-factors for developing AKI during VV-ECMO. METHOD(S): This is an observational retrospective study of 500 consecutive patients receiving VV-ECMO between November 2014 and December 2021. Patients were divided into three groups: 1)AKI onset before ECMO 2)AKI onset during ECMO 3)AKI onset before and new onset during ECMO. Kidney Disease: Improving Global Outcomes (KDIGO) definition was used to define AKI. Follow-up was 365 days after hospital discharge. Propensity-score-matching was performed for patients without AKI and patients with AKI onset during ECMO to analyse risk-factors for AKI onset during VV-ECMO. RESULT(S): 320 patients (64.0%) had AKI, 182 (36.4%) with onset before ECMO and 158 (31.6%) with onset during ECMO. At ECMO-initiation, patients with AKI onset before VV-ECMO presented significantly higher inflammatory markers and higher norepinephrine dosage, while patients developing AKI during VV-ECMO did not differ from those without AKI. Survival to hospital discharge was 67.0% (AKI: 60.9%, No-AKI: 77.8%, pRESULT(S): 320 patients (64.0%) had AKI, 182 (36.4%) with onset before ECMO and 158 (31.6%) with onset during ECMO. At ECMO-initiation, patients with AKI onset before VV-ECMO presented significantly higher inflammatory markers and higher norepinephrine dosage, while patients developing AKI during VV-ECMO did not differ from those without AKI. Survival to hospital discharge was 67.0% (AKI: 60.9%, No-AKI: 77.8%, pCONCLUSION(S): Severe AKI is associated with reduced hospital survival, regardless of whether it occurs before or during ECMO. AKI onset during VV-ECMO is less due to ECMO-related factors than to recurrent septic episodes.

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13. **Health inequalities and outcomes following acute kidney injury: a systematic review & meta-analyses of observational studies.**

Authors: Grant, Christopher H.;Dahiya, Anita;Palechuk, Taylor;Lambourg, Emilie;Tan, Beatrix;Mehta, Ravindra L.;Pannu, Neesh and Bell, Samira

Publication Date: Aug 27 ,2025

Journal: BMC Nephrology 26(1), pp. 494

Abstract: BACKGROUND: Inequalities in health describe the uneven distribution of health outcomes that result from genetic or environmental factors. The extent to which inequalities impact on outcomes from AKI is uncertain. The aim of this systematic review and meta-analysis was to determine the impact of health inequalities on AKI outcomes. METHODS: This review has been registered on PROSPERO (CRD42023422307). We included observational studies of adults who experienced at least one episode of AKI that reported outcomes stratified by sex/gender, race/ethnicity, deprivation, income, education, employment, housing, smoking, mental health conditions, geography or insurance status. The primary outcome was all-cause mortality and secondary outcomes were: progression to acute kidney disease; incident CKD; progressive CKD; AKI recovery; cardiovascular events; hospitalisations;

ICU admission and hospital length of stay. The search was conducted in MEDLINE, Embase and Web of Science from inception to 10th January 2024. Study selection, extraction and risk of bias (Newcastle-Ottawa) were performed independently and studies meta-analysed where possible. RESULTS: 7,312 titles/abstracts were screened, and 36 studies included (n=2,038,441). Few included data from lower-middle income countries (n=3). Evidence predominantly related to sex/gender (n=25), race/ethnicity (n=14) and deprivation (n=11). On pooling relevant studies, no sex/gender-specific differences in all-cause mortality or AKI recovery were seen. Of twelve studies reporting mortality by race/ethnicity, six found no variation by racial/ethnic group. Six of nine studies reporting mortality by socioeconomic status found deprivation was an independent predictor of death. Few studies assessed the impact of mental health (n=3), insurance (n=1), housing (n=2), geography (n=1) and smoking status (n=3) and no reports quantified the impact of income, education, employment or substance use. CONCLUSION: This systematic review highlights a lack of evidence related to inequalities and AKI. Further studies are required to address these gaps and achieve progress towards equitable kidney health. CLINICAL TRIAL NUMBER: Not applicable. Copyright © 2025. The Author(s).

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14. **Acute kidney injury after myocardial infarction: prognostic implications via dual robust methods.**

Authors: Guo, Pan;Tao, Fang;Du, Lili;Yang, Hongmei;Wang, Wenguang;Ma, Chunpeng;Bi, Xile;Ren, Lin;Yin, Hongtao and Ma, Lixiang

Publication Date: 2025

Journal: Frontiers in Medicine 12, pp. 1555478

Abstract: Background: Acute kidney injury (AKI) following acute myocardial infarction (AMI) notably affects patient outcomes. The impact of KDIGO AKI staging on post-discharge short- and long-term outcomes, particularly early-stage AKI, is not well understood. This study evaluates the prognostic implications of various KDIGO stages in AMI patients. Methods: Utilizing the Medical Information Mart for Intensive Care IV (version 3.0) database, this retrospective cohort study included adult patients primarily diagnosed with AMI. Statistical analyses, including doubly robust estimation, propensity score matching, logistic regression, and Cox regression, were performed. The study compared Non-AKI (KDIGO stage 0) with Mild-AKI (maximum KDIGO stage 1 during hospitalization), and Normal-or-mild AKI (KDIGO stages 0-1) with Moderate-to-severe AKI (KDIGO stages 2-3). Results: Among 5,715 patients analyzed, 4,306 (75.36%) developed AKI. Doubly robust analysis revealed no significant differences in outcomes between Non-AKI and Mild-AKI groups (28-day mortality: OR 0.97, 95% CI 0.68-1.38; 180-day mortality: HR 0.94, 95% CI 0.76-1.18; 1-year mortality: HR 0.98, 95% CI 0.81-1.20). However, Moderate-to-severe AKI was significantly associated with worse outcomes compared to Normal-or-mild AKI (28-day mortality: OR 1.67, 95% CI 1.36-2.05; 180-day mortality: HR 1.06, 95% CI 1.02-1.10; 1-year mortality: HR 1.22, 95% CI 1.07-1.38; all p Conclusions: Patients with Mild-AKI can be considered as having "subclinical AKI," with prognoses similar to Non-AKI patients. In contrast, Moderate-to-severe AKI significantly worsens prognosis compared to Normal-or-mild AKI. Copyright © 2025 Guo, Tao, Du, Yang, Wang, Ma, Bi, Ren, Yin and Ma.

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15. **Unraveling Acute Kidney Injury: An Intricate Case of Sepsis and Immune-Mediated Renal Damage.**

Authors: Hassan, Maha;Perez, Melissa;Girdler, Michael;Dhillon, Amarbir and Karkal, Prashant

Publication Date: Jul ,2025

Journal: Cureus 17(7), pp. e87373

Abstract: Acute kidney injury (AKI) is a critical condition characterized by a sudden decline in kidney function, often posing diagnostic and therapeutic challenges due to its multifactorial nature. This case is significant, as it exemplifies the complexity of AKI in the context of coexisting sepsis, potential antibiotic nephrotoxicity, and immune-mediated processes. While AKI related to sepsis and renal toxic antibiotics

is well-documented, the rapid onset and the involvement of antineutrophil cytoplasmic antibody (ANCA)-negative pauci-immune glomerulonephritis add a unique dimension to this case, contributing novel insights to the medical literature. ANCA-negative pauci-immune glomerulonephritis is characterized by a rapidly progressive glomerulonephritis that lacks the detection of antineutrophil cytoplasmic antibodies. We report the case of a 68-year-old Hispanic male with a history of asthma and pulmonary emphysema, presenting with acute respiratory symptoms, including shortness of breath, chills, and a productive cough, accompanied by gastrointestinal symptoms. The patient was admitted to the hospital with pneumonia complicated by sepsis. Initial treatment included antibiotics known for potential renal toxicity. Within 48 hours, the patient experienced a rapid deterioration in renal function, marked by a significant increase in serum creatinine levels. A renal biopsy revealed acute tubular injury with no immune complex deposition and an elevated myeloperoxidase level, suggestive of an immune-mediated process. The patient responded positively to immunosuppressive therapy, consisting of rituximab and corticosteroids, resulting in improved renal function. This case underscores the importance of considering a broad differential diagnosis in AKI, particularly in patients with complex clinical presentations. The involvement of ANCA-negative pauci-immune glomerulonephritis highlights the need for awareness of immune-mediated renal injuries in similar clinical scenarios. This case has implications for both nephrology and broader medical practice, as it emphasizes the necessity of integrating clinical, laboratory, and histopathological data to guide effective treatment strategies. The findings advance our understanding of the potential interplay between sepsis, drug-induced nephrotoxicity, and immune-mediated processes in AKI, offering valuable insights for future diagnostic and therapeutic approaches.

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16. **Acute kidney injury and hyponatremia in hospitalized patients with rotavirus infection.**

Authors: Hoffmann U.;Ruckner A.;Nickel O.;Marx K. and Wendt, R.

Publication Date: 2025

Journal: medRxiv (pagination), pp. Date of Publication: 21 Jul 2025

Abstract: Introduction: Rotavirus is a common cause of infectious gastroenteritis in infants and children. The role of rotavirus infections in adults has potentially been underappreciated and there is a paucity of data on incidence and outcome of acute kidney injury in adult patients. Method(s): We conducted a retrospective cohort study of adult hospitalized patients with microbiologically confirmed rotavirus infection. The primary outcome was occurrence of acute kidney injury related to rotavirus infection. Secondary outcomes were in-hospital mortality, duration of hospitalization and occurrence of sodium disorders. Results 314 hospitalized adult patients with rotavirus infection were evaluated. 200 patients, (63.7%) had community-acquired and 114 patients (36.3%) had nosocomial rotavirus infection. Acute kidney injury (AKI) occurred in 127 (40.4%) patients. AKI occurred more often in patients with community-acquired than nosocomial infection (110 (55.0%) vs 17 (14.9%), pMethod(s): We conducted a retrospective cohort study of adult hospitalized patients with microbiologically confirmed rotavirus infection. The primary outcome was occurrence of acute kidney injury related to rotavirus infection. Secondary outcomes were in-hospital mortality, duration of hospitalization and occurrence of sodium disorders. Results 314 hospitalized adult patients with rotavirus infection were evaluated. 200 patients, (63.7%) had community-acquired and 114 patients (36.3%) had nosocomial rotavirus infection. Acute kidney injury (AKI) occurred in 127 (40.4%) patients. AKI occurred more often in patients with community-acquired than nosocomial infection (110 (55.0%) vs 17 (14.9%), pConclusion(s): Adult outpatients with rotavirus infection and certain risk factors (age > 70 years and comorbidities, e.g. CKD) have a high risk of developing AKI. Patients should seek medical attention with a low threshold and, if necessary, undergo hospitalization to counteract volume depletion and the development of acute renal injury. Hyponatremia frequently occurs while dehydration is rare. Recommendations in outpatients at risk for AKI should focus on increasing salt intake rather than water intake.

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17. **Association between stress hyperglycemia and acute kidney injury requiring dialysis in critically ill patients with sepsis: a hospital-based cohort study.**

Authors: Horner, Marina Borges Wageck;Souza Filho, Ed Cleso Pereira de;Schelbauer, Gustavo Treichel;Alves, Lucas de Oliveira and Lima, Helbert do Nascimento

Publication Date: 2025

Journal: Jornal Brasileiro De Nefrologia 47(4), pp. e20250028

Abstract: INTRODUCTION: Stress hyperglycemia in patients with sepsis has not been consistently associated with an increased risk of acute kidney injury (AKI). OBJECTIVE: To evaluate the effect of blood glucose levels on the occurrence of AKI requiring dialysis in critically ill patients with sepsis. METHODS: Retrospective cohort study of patients with sepsis admitted to the ICU of a private hospital between December 2017 and August 2021. Clinical, laboratory, and severity variables were collected. Mean blood glucose levels in the first week of ICU stay (primary exposure variable) were stratified into tertiles. The effect of blood glucose on the occurrence of dialysis-requiring AKI was assessed using multivariate logistic regression. RESULTS: Of the 1,317 patients evaluated, 86.6% had clinical conditions as the underlying cause of sepsis. AKI requiring hemodialysis occurred in 12.2% of the sample. Patients with mean blood glucose levels above the third tertile (>=160 mg/dl), compared to those with mean blood glucose levels below the first two tertiles (: Of the 1,317 patients evaluated, 86.6% had clinical conditions as the underlying cause of sepsis. AKI requiring hemodialysis occurred in 12.2% of the sample. Patients with mean blood glucose levels above the third tertile (>=160 mg/dl), compared to those with mean blood glucose levels below the first two tertiles (=160 mg/dl had a 62% higher odds of developing AKI requiring dialysis compared to those with mean blood glucose levels =180 mg/dl did not increase the likelihood of AKI (OR = 1.27; 95% CI 0.76-2.12; p = 0.359). CONCLUSION: In this patient group, sepsis and mean blood glucose levels >=160 mg/dl were not independently associated with the occurrence of dialysis-requiring AKI.

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18. **TyG-BMI index as a valuable risk of acute kidney injury in patients with heart failure: Insights from the MIMIC-IV and eICU cohorts.**

Authors: Hua Y.;Chen Z.;Cheng L.;Ding N.;Xie Y.;Wu H.;Jing H.;Xu Y.;Wu Y. and Lan, B.

Publication Date: 2025

Journal: Journal of Diabetes Investigation (pagination), pp. Date of Publication: 2025

Abstract: Background: The triglyceride glucose-body mass index (TyG-BMI) has emerged as a predictor of complications in patients with heart failure (HF). While elevated TyG-BMI levels have been linked to adverse outcomes in HF patients, their predictive value for acute kidney injury (AKI) risk remains unclear. This study aimed to examine the association between TyG-BMI and the incidence of AKI in patients with HF. METHOD(S): Data were obtained from the Medical Information Mart for Intensive Care-IV version 3.1 (MIMIC-IV v3.1) and the eICU Collaborative Research Database version 2.0 (eICU-CRD v2.0). The primary outcome was the occurrence of AKI, with secondary outcomes including the need for renal replacement therapy (RRT) and in-hospital mortality. Kaplan-Meier survival analysis, restricted cubic spline modeling, and Cox proportional hazards regression models were used to assess the associations between TyG-BMI and clinical outcomes. Result(s): The study included 1,250 patients from MIMIC-IV and 2,300 patients from eICU-CRD. Patients with higher TyG-BMI levels had a significantly higher cumulative incidence of AKI and increased rates of RRT use and in-hospital mortality. After adjusting for potential confounders, higher TyG-BMI remained independently associated with an increased risk of AKI among HF patients in multivariable models. Conclusion(s): This multicenter analysis demonstrates that higher TyG-BMI levels are associated with an increased risk of AKI, greater need for RRT, and higher in-hospital mortality in patients with HF. TyG-BMI may serve as a useful marker for early risk stratification and prognostic assessment in this population. Further prospective studies are needed to validate these findings.Copyright © 2025 The Author(s). Journal of Diabetes Investigation published by Asian Association for the Study of Diabetes (AASD) and John Wiley & Sons Australia, Ltd.

19. **Cell-Type Specific Single-Cell Signatures Reveal Nephrotoxic Drug Affects.**

Authors: Kuchi A.;Cortina J.M.A.;Liu H.;Fatapour Y.;Berkowitz J. and Tatonetti, N. P.

Publication Date: 2025

Journal: bioRxiv (pagination), pp. Date of Publication: 22 Jun 2025

Abstract: Drug-induced acute kidney injury (AKI) affects about 20% of hospitalized AKI patients, a significant contributor to morbidity and mortality. The lack of understanding of the kidney system and functioning of nephrotoxic drugs contributes to hospital-acquired AKI cases. AKI is difficult to predict because of its complex injury mechanism and the numerous pathways through which it manifests. Traditional toxicity biomarkers, like elevated creatinine levels, detect AKI only after significant kidney injury has occurred. Concurrently, advancements in single cell RNA sequencing (scRNAseq) have improved our ability to map cellular heterogeneity within tissues, potentially enabling the study of drug effects at a single cell level. We hypothesized that only particular subtypes of kidney cells may be responsible for observed nephrotoxicity and explain prediction challenges. To test this, we generated cellular response scores for 32 kidney cell types from the Human Cell Atlas and estimated drug effects. We identified significant expression differences in 6 cell types (e.g. Indistinct intercalated cell p = 0.009, Epithelial Progenitor cell, p = 0.04). We also developed an ensemble model that achieved an AUROC of 0.6 across different kidney cell populations - a significant improvement over using traditional bulk RNA sequencing alone. The single-cell transcriptomic signatures we identified potentially reveal unexplained molecular mechanisms of nephrotoxicity.

20. **Clinical practice guidelines for acute kidney injury: a systematic review of the methodological quality.**

Authors: Li R.;Wu L.;Wu X.;Fu Q.;Xu M.;Zhai X. and Chen, J.

Publication Date: 2025

Journal: Frontiers in Medicine 12(pagination), pp. Article Number: 1567359. Date of Publication: 2025

Abstract: Objective: Hospitalized patients, particularly those in the ICU, face a significant risk of acute kidney injury (AKI). Clinical practice guidelines (CPGs) that outline diagnostic and therapeutic strategies for AKI can be valuable tools for healthcare professionals, but their effectiveness hinges on their quality. The research aims to conduct a systematic review focusing on the methodological and reporting quality of CPGs addressing acute kidney injury. Design(s): A systematic review of CPGs for the management of acute kidney injury in adult patients. Data resources: PubMed and other related databases were systematically searched from January 2012 to January 2023 to collect clinical guidelines and expert consensus on acute kidney injury. After summarizing the basic information, the methodological and reporting quality of the included guidelines or expert consensus was evaluated using the AGREE II and RIGHT tools. Result(s): A total of 8 CPGs from 6 countries and regions were included in this study, and the period was 2012-2023. In terms of methodological quality, 1 guideline was a level strongly recommended, and 6 were level B, generally recommended guidelines. While the evaluated guidelines demonstrated moderate overall reporting completeness, critical deficiencies persist in contextual transparency and quality assurance protocols, necessitating prioritized remediation in future iterations. Conclusion(s): Our appraisal identifies the 2012 KDIGO guideline as the highest-quality AKI guidance framework currently available, which has driven global standardization of diagnostic criteria and management protocols. Our analysis reveals critical gaps in the practical applicability and transparency of current clinical practice guidelines, particularly regarding implementation strategies tailored to different populations, such as aging populations. Future iterations must prioritize demographic inclusivity, with explicit recommendations addressing the diagnostic challenges and management complexities of AKI among different populations.

Wu, Fu, Xu, Zhai and Chen.

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21. **Inflammatory and nutritional indexes as predictors of acute kidney injury in patients with Immunoglobulin A nephropathy: a retrospective study.**

Authors: Li, Huimin;Qian, Chuyue;Huang, Jingda and Sun, Mindan

Publication Date: 2025

Journal: PeerJ 13, pp. e19917

Abstract: Background: Immunoglobulin A nephropathy (IgAN) patients with acute kidney injury (AKI) have an elevated risk of adverse events and mortality. However, there is currently a lack of convenient and effective clinical tools to predict AKI risk in this population. The present study was conducted to create such tools containing inflammatory and nutritional indexes. Method: Data from 720 adults diagnosed with IgAN by renal biopsy at the First Hospital of Jilin University were collected. They were randomly divided into a training set (n = 503) and a test set (n = 217) in a 7:3 ratio. Univariate and multivariate logistic regression analyses with backward selection were used to identify risk factors, resulting in multiple prediction models. The least absolute shrinkage and selection operator (LASSO) regression was used to simplify the model. The models were presented using nomograms, and their performances were evaluated through receiver operating characteristic (ROC) curves, area under the curve (AUC), Hosmer-Lemeshow test, net reclassification improvement (NRI), integrated discrimination improvement (IDI), calibration curves, and clinical decision curve analysis (DCA). Results: Eleven risk factors related to IgAN with AKI were identified, including nephrotic syndrome (NS), T score from the Oxford histological classification, estimated glomerular filtration rate (eGFR), blood urea nitrogen (BUN), 24-hour urinary protein quantification (24h-UPRO), C-reactive protein (CRP), systemic inflammatory response index (SIRI), lymphocyte-to-monocyte ratio (LMR), platelet-to-lymphocyte ratio (PLR), lymphocyte-to-CRP ratio (LCR), and prognostic nutritional index (PNI). These factors contributed to the development of seven prediction models. ROC curves indicated good predictive performance for all models, with the full model performing best. The Hosmer-Lemeshow test showed that six models fit well in the test set. DCA results demonstrated significant clinical benefits for all models. Conclusion: CRP, SIRI, LMR, PLR, LCR, and PNI were identified as novel AKI predictors in patients with IgAN. A series of prediction models incorporating these factors were developed for better clinical applicability, with the full model performing the best.

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22. **Surgery-specific patterns of perioperative amino acid administration and associated acute kidney injury risk: a large-scale retrospective cohort study.**

Authors: Lina, Jin;Rui, Zhang;Xianjun, Yu;Xiuqing, Wu;Yingli, Zhang;Yukun, Huang;Yiwei, Zhang;Changshun, Huang and Binbin, Zhu

Publication Date: Aug 12 ,2025

Journal: Perioperative Medicine 14(1), pp. 86

Abstract: BACKGROUND: Recent trials demonstrated renoprotective effects of amino acid infusion in cardiac surgery patients, but real-world utilization patterns and outcomes across surgical specialties remain unknown. We investigated perioperative amino acid administration patterns and associated acute kidney injury (AKI) risk across different surgical populations. METHODS: Retrospective cohort study using the INSPIRE database (2011-2020) from Seoul National University Hospital. Adult patients undergoing surgery with >= 24-h stays were included. Amino acid preparations were identified by ATC codes, and AKI was defined by KDIGO criteria. Primary outcomes were AKI incidence and utilization patterns across surgical departments. RESULTS: Among 22,972 patients, 899 (3.9%) received peri-operative amino acid preparations with an overall AKI incidence of 3.7%. Utilization varied 60-fold across departments (0.2-11.5%). Surgery-specific patterns emerged: cardiac surgery showed no AKI events in amino acid users (0/50) versus 4.2% in non-users (p = 0.267), while non-cardiac surgery demonstrated increased AKI risk with amino acid use (7.4% vs 3.4%; RR = 2.16, 95% CI 1.65-2.85, p :

Among 22,972 patients, 899 (3.9%) received peri-operative amino acid preparations with an overall AKI incidence of 3.7%. Utilization varied 60-fold across departments (0.2-11.5%). Surgery-specific patterns emerged: cardiac surgery showed no AKI events in amino acid users (0/50) versus 4.2% in non-users (p = 0.267), while non-cardiac surgery demonstrated increased AKI risk with amino acid use (7.4% vs 3.4%; RR = 2.16, 95% CI 1.65-2.85, p CONCLUSIONS: Perioperative amino acid administration demonstrates surgery-specific patterns with differential AKI associations. These findings suggest that surgery-specific factors should be considered when developing amino-acid protocols, although causality cannot be established from this observational study. Copyright © 2025. The Author(s).

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23. **Incidence and risk factors of acute kidney injury after abdominal surgery: a systematic review and meta-analysis.**

Authors: Liu J.;Lin S.H.;Zhao Y.S.;Luo R.J.;Zhang Z.T.;Wang L.Y.;Xie K.;Fan J.;Zhang M.;Chai Y.S.;Tang H. and Xu, F.

Publication Date: 2025

Journal: Annals of Medicine 57(1) (pagination), pp. Article Number: 2547324. Date of Publication: 2025

Abstract: Objective: To determine the incidence of acute kidney injury (AKI) following abdominal surgery, assess its outcome associations, and identify factors associated with postoperative AKI development. Method(s): We performed a systematic search of PubMed, Embase, and Cochrane Database of Systematic Reviews, from January 2004, to December 2024. We included studies reporting AKI based on consensus criteria (RIFLE, AKIN, or KDIGO) in adult abdominal surgery patients. Result(s): A total of 162 studies (675361 patients) were included. The pooled AKI incidence was 16% (95% CI: 14-17%), with significant variation by surgical procedure. Meta-analysis showed AKI was significantly associated with increased short-term mortality (risk ratio [RR], 6.46; 95% CI: 4.63-9.00) and long-term mortality (RR, 6.36; 95% CI: 3.32-12.16). Mortality risk demonstrated stage-dependent increase, with RR of 2.74 (95%CI: 1.77-4.24), 8.01 (95%CI: 3.18-20.18), and 15.73 (95%CI: 5.52-44.81) for AKI stages 1, 2, and 3, respectively. AKI was associated with prolonged hospital stay (weighted mean difference 4.72 days; 95%CI: 3.43-6.02), also showeing stage-dependent increase of 5.03, 11.16, and 14.46 days for stages 1, 2, and 3, respectively. Twenty-five risk factors were associated with AKI. Meta-analysis of randomized controlled trials revealed that individualized blood pressure target management significantly reduced AKI incidence (RR, 0.67; 95% CI: 0.52-0.88). Conclusion(s): AKI remains a common and important complication after abdominal surgery, with severity showing a graded association with mortality and hospital stay. Individualized blood pressure management demonstrates promise in AKI prevention. Registration: PROSPERO CRD42022304083.Copyright © 2025 The Author(s). Published by Informa UK Limited, trading as Taylor & Francis Group.

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24. **Oral MIB-626 (beta Nicotinamide Mononucleotide) Safely Raises Blood Nicotinamide Adenine Dinucleotide Levels in Hospitalized Patients With COVID-19 and Acute Kidney Injury: A Randomized Controlled Trial.**

Authors: Pencina, Karol M.;Leaf, David E.;Valderrabano, Rodrigo J.;Waikar, Sushrut S.;Mehta, Tapan S.;Shang, Yili Valentine;Latham, Nancy K.;John, Tejossy;Volpi, Elena;Fusco, Dahlene;Memish-Beleva, Yusnie;Krishnamurthy, Shobana;Lavu, Siva;Karmi, Salma;Livingston, David J. and Bhasin, Shalender

Publication Date: Aug ,2025

Journal: FASEB BioAdvances 7(8), pp. e70011

Abstract: Nicotinamide adenine dinucleotide (NAD+) plays an important role in the innate immune response and is depleted during SARS-CoV-2 infection due to increased turnover. It is unknown whether treatment with NAD+ precursors can safely raise NAD+ levels in patients with COVID-19. To determine whether MIB-626 (beta-nicotinamide mononucleotide), an NAD+ precursor, can safely

increase blood NAD+ levels and attenuate acute kidney injury (AKI) and inflammation in hospitalized patients with COVID-19, 42 adults, >= 18 years, hospitalized with COVID-19 and AKI, were randomized in a 3:2 ratio to MIB-626 1.0-g or placebo tablets twice daily for 14 days. Circulating NAD+ and its metabolites, markers of AKI, inflammation, and disease severity, were assessed. MIB-626 treatment significantly but gradually raised blood NAD+ levels to a peak between 5 to 14 days (16.0 +/- 6.9, 25.5 +/- 12.6, and 42.6 +/- 25.6 mcg/mL at baseline, days 5 and 14) and raised plasma concentrations of NAD+ metabolites 1-methylnicotinamide, N-methyl, 2-pyridone, 4-carboxamide rapidly to a peak by day 3. Changes in serum creatinine, cystatin-C, and serum markers of AKI did not differ significantly between groups. Serum CRP, IL-6, and TNFalpha and indices of disease severity also did not differ between groups. MIB-626 treatment of patients with COVID-19 and AKI safely and substantially raised blood NAD+ and plasma concentrations of NAD+ metabolites. Markers of AKI, inflammation, and disease severity did not differ between groups, likely due to the slow rise in NAD+ levels. Future studies should assess whether a rapid increase in NAD+ by parenteral administration can attenuate disease severity and AKI. Trial Registration: ClinicalTrials.gov Identifier: NCT05038488. Copyright © 2025 The Author(s). FASEB BioAdvances published by Wiley Periodicals LLC on behalf of The Federation of American Societies for Experimental Biology.

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25. **Factors associated with acute kidney injury in patients on extracorporeal membrane oxygenation support: A retrospective cohort study.**

Authors: RobayoAmortegui H.;PerezGarzon M.;ForeroDelgadillo A.;ValezuelaFaccini N.;BaghdoustDe la Pena M.;PovedaHenao C.;BastidasGoyes A. and MercadoDiaz, M.

Publication Date: 2025

Journal: Perfusion (United Kingdom) (pagination)

Abstract: Introduction: Acute kidney injury (AKI) is prevalent in critically ill patients, especially in those needing extracorporeal membrane oxygenation (ECMO) due to cardiogenic shock or acute respiratory distress syndrome. The incidence of AKI in this patient population varies from 26% to 85%. This study explored the factors associated with AKI after the initiation of ECMO in the intensive care unit (ICU). Method(s): A retrospective cohort study was conducted, including patients aged 18 years and above undergoing veno-arterial or veno-venous ECMO between 1 January, 2020 and 1 May, 2023. Result(s): A total of 267 patients undergoing ECMO were included in this study. The development of AKI was associated with the use of vasopressors, specifically norepinephrine (odds ratio [OR]: 3.7, 95% confidence interval [95% CI]: 1.65-8.14) and vasopressin (OR: 2.5, 95% CI: 1.49-4.30).The protective factors included heparin use (OR: 0.51, 95% CI: 0.26-0.97) and the absence of vasopressors (OR: 0.39, 95% CI: 0.17-0.77). Conclusion(s): AKI poses a significant concern in critically ill patients undergoing ECMO. Multiple risk factors were identified, including vasopressor use and ECMOrelated complications. Identifying risks and protective factors is crucial for optimising ECMO management to reduce complications and mortality risk. Further studies are needed to understand the exact mechanisms of AKI during ECMO, which can inform the development of new targeted intervention checkpoints to improve outcomes in critically ill patients undergoing ECMO.Copyright © The Author(s) 2025

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26. **Diagnostic and Prognostic Utility of Inflammatory Biomarkers in Sepsis-Associated Acute Kidney Injury: A Case-Control Study.**

Authors: Sadana S.;Kumar D.;Ahuja K.;Malik D.;Mumtaz A.;Srivastava S. and Khan, S.

Publication Date: 2025

Journal: International Journal of Life Sciences Biotechnology and Pharma Research 14(7), pp. 1538–1546

Abstract: Introduction: Sepsis is a life-threatening condition characterized by a dysregulated host response to infection, frequently leading to organ dysfunction such as acute kidney injury (AKI). Early

identification of sepsis-associated AKI (S-AKI) is critical to improving patient outcomes. This study aimed to evaluate the predictive and prognostic utility of inflammatory biomarkers-interleukin-6 (IL-6), C-reactive protein (CRP), tumor necrosis factor-alpha (TNF-alpha), and E-selectin-in patients with sepsis, with and without AKI, and to determine their association with morbidity and mortality. Material(s) and Method(s): A case-control study was conducted over 24 months at Era's Lucknow Medical College & Hospital, including adult sepsis patients divided into two groups: those with AKI (cases) and those without AKI (controls). Biomarkers were assessed via serum levels, and statistical analyses included multivariate t-tests and Receiver Operating Characteristic (ROC) curves to evaluate diagnostic accuracy. Morbidity and mortality were analyzed in relation to biomarker levels. Result(s): IL-6 was significantly elevated in the AKI group (137.34 +/- 55.34 pg/mL) compared to controls (59.77 +/- 53.19 pg/mL, pResult(s): IL-6 was significantly elevated in the AKI group (137.34 +/- 55.34 pg/mL) compared to controls (59.77 +/- 53.19 pg/mL, pConclusion(s): IL-6 emerged as the most reliable inflammatory biomarker for early detection of AKI and prediction of mortality and morbidity in sepsis. CRP demonstrated supportive value, while TNF-alpha and E-selectin had limited prognostic relevance. These findings suggest incorporating IL-6 in sepsis management protocols could enhance early risk stratification and improve clinical outcomes.

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27. **Early body temperature trajectories and short term prognosis in sepsis associated acute kidney injury.**

Authors: Song, Zishu;Gao, Ting;Gao, Liangfeng;Zhu, Mingli and Feng, Nan

Publication Date: Aug 29 ,2025

Journal: Scientific Reports 15(1), pp. 31820

Abstract: To explore the associations between temperature trajectories and in-hospital mortality and renal replacement therapy in patients with sepsis-associated acute kidney injury (SA-AKI). By using data from the Medical Information Mart for Intensive Care (MIMIC)-IV, participants were divided into three groups (= 38 degreeC). We identified body temperature trajectories by a latent class mixed model and explored the associations of these trajectories with in-hospital mortality using Cox hazard proportional regression models, further exploring the associations with renal replacement therapy using logistic regression models. Total 1,831 in-hospital deaths during 9,760 person-years of follow-up were documented. In the hypothermia group, five different temperature trajectory classes were identified: L1, L2, L3, L4, and L5. Similarly, four trajectory classes (M1, M2, M3, and M4) emerged in the normal temperature group, whereas the hyperthermia group presented four distinct trajectory classes (H1, H2, H3, and H4). Compared with patients with the M3 trajectory, those with the L1 (hazard ratio [HR]: 2.41, 95% confidence interval [CI]: 1.58-3.66), L2 (HR: 1.48, 95% CI 1.11-1.97), L3 (HR: 1.27, 95% CI 1.01-1.59), L4 (HR: 1.29, 95% CI 1.08-1.54), and M1 (HR: 1.29, 95% CI 1.06-1.57) trajectories were at greater risk of in-hospital mortality. For patients with different baseline temperatures, the L1 (HR: 1.95, 95% CI 1.19-3.18), M1 (HR: 1.28, 95% CI 1.05-1.56), and H4 (HR: 2.37, 95% CI 1.05-5.36) trajectories were related to an elevated risk of in-hospital mortality. The study suggests that early body temperature trajectories are linked to increased in-hospital mortality risk in patients with SA-AKI.

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28. **Kidney outcomes after bariatric surgery: a population-based cohort study.**

Authors: Sorensen C.G.;Jensen S.K.;Thomsen R.W.;Jespersen B.;Gribsholt S.B. and Christiansen, C. F.

Publication Date: 2025

Journal: BMC Nephrology 26(1) (pagination), pp. Article Number: 458. Date of Publication: 01 Dec 2025

Abstract: Background: Bariatric surgery may mitigate obesity-related chronic kidney disease (CKD) but may concurrently increase the risk of acute kidney injury (AKI) and hyperoxaluria. We examined kidney

outcomes after bariatric surgery. Method(s): Using population-based registries, we included individuals with Roux-en-Y gastric bypass (RYGB) or sleeve gastrectomy (SG) in Denmark between 2006 and 2018. These were age- and sex-matched 1:5 to individuals with hospital-diagnosed overweight/obesity without bariatric surgery. Cumulative incidences (risks) of AKI, nephrolithiasis, CKD (stage G3-G5), and kidney failure with replacement therapy (KFRT) were computed, accounting for the competing risk of death. Cox regression was used to estimate hazard ratios (HR) adjusted for age, sex, and comorbidity. Result(s): We included 18,827 individuals with bariatric surgery (17,200 RYGB and 1,627 SG) and 94,135 individuals in the matched overweight/obesity cohort (median age 41 years, median follow-up 8.1 years). The one-year risk of AKI following bariatric surgery was 2.7%, while the ten-year risks of nephrolithiasis, CKD, and KFRT were 3.5%, 0.4%, and 0.2%, respectively. When comparing individuals with bariatric surgery with those with overweight/obesity, the adjusted HRs were increased at 1.63 (95% CI; 1.38, 1.92) for AKI and 1.73 (95% CI; 1.56, 1.91) for nephrolithiasis. In contrast, adjusted HRs were decreased at 0.41 (95% CI; 0.26, 0.66) for CKD and 0.63 (95% CI; 0.42, 0.95) for KFRT. Similar results were observed versus a population comparison cohort. Conclusion(s): Bariatric surgery was associated with an increased risk of AKI and nephrolithiasis, while long-term risks of CKD and KFRT were lower than in matched individuals with overweight/obesity.

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29. **Recovery and severity of acute kidney injury in critically ill clinical and surgical patients.**

Authors: Teles-Mesquita, Raquel;Vieira-Araujo-Cunha, Natalia;Cristina-da-Silva-Magro, Marcia and Grasielle-Nunes-da-Silva, Kamilla

Publication Date: 2025

Journal: Enfermeria Intensiva Sociedad Espanola De Enfermeria Intensiva Y Unidades Coronarias 36(3), pp. 500545

Abstract: INTRODUCTION: The identification of patients at risk has implications on the management of clinical and surgical patients. The severity of acute kidney injury (AKI) has a negative impact on the patient's prognosis and effects on kidney function recovery. OBJECTIVE: To determine the cases of renal recovery and level of severity of AKI in clinical and surgical patients admitted to the intensive care unit. (ICU). METHOD: Prospective, observational, longitudinal, and quantitative analytical study. It was carried out in an ICU of a teaching hospital. The sample was non-probabilistic, consisting of 59 surgical and clinical patients. A structured questionnaire consisting of 38 questions subdivided into sections was used for data collection such as hospitalization data; surgery data; history of current hospitalization; hemodynamic and laboratory parameters; AKI severity. Variable analysis was based on non-parametric tests. Two-sided p values: Prospective, observational, longitudinal, and quantitative analytical study. It was carried out in an ICU of a teaching hospital. The sample was non-probabilistic, consisting of 59 surgical and clinical patients. A structured questionnaire consisting of 38 questions subdivided into sections was used for data collection such as hospitalization data; surgery data; history of current hospitalization; hemodynamic and laboratory parameters; AKI severity. Variable analysis was based on non-parametric tests. Two-sided p valuesRESULTS: The most severe AKI according to the classification KDIGO (Kidney Disease: Improving Global Outcomes) was 3 and mainly affected clinical patients (34.5%). Surgical patients predominantly developed AKI - KDIGO 2 and 3 (23.3%). The length of hospital stay (p=0.04), and ICU stay (p=0.001) was significant in patients who developed AKI. Renal recovery occurred predominantly in surgical patients (20.3%). CONCLUSIONS: Clinical patients admitted to the ICU are more affected by more severe AKI (KDIGO 3). Renal recovery was observed in approximately two out of every five patients, being more significant in surgical patients.

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30. **Acute Kidney Injury at the Onset of Type 1 Diabetes Mellitus: A Balance between Kidney Stress and Nephron Mass.**

Authors: Tirelli P.;Guarino S.;Braile M.;Maisto F.;Iafusco D.;Zanfardino A.;Sessa A.D.;del Giudice E.M.;Cirillo G. and Marzuillo, P.

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Journal: Hormone Research in Paediatrics (pagination), pp. Date of Publication: 2025

Abstract: Introduction: Uromodulin reflects nephron mass, while urinary neutrophil gelatinase-associated lipocalin (NGAL) indicates kidney injury. We hypothesized that low urinary uromodulin at type 1 diabetes mellitus (T1DM) onset may be linked to acute kidney injury (AKI) and that a higher urinary uromodulin-to-NGAL ratio, reflecting the balance between nephron mass and kidney stress, may reduce the risk of AKI. Our aim was to test these hypotheses. Method(s): In this prospective study, 75 children (mean age: 8.6 +/- 4.3 years) hospitalized for new-onset T1DM were enrolled. AKI was defined as a highest-to-basal serum creatinine ratio >=1.5. Urinary NGAL and uromodulin levels were measured at admission and upon kidney injury resolution. Result(s): Of 75 patients, 33 (44%) had diabetic ketoacidosis (11 severe, 10 moderate, 12 mild) and 33 (44%) developed AKI. At T1DM onset, patients with AKI had similar urinary uromodulin levels but higher urinary NGAL levels, higher uromodulin-to-creatinine ratio, and lower urinary uromodulin-to-NGAL ratio than those without AKI. The uromodulin-to-NGAL ratio correlated inversely with the highest-to-basal creatinine ratio (r = -0.42; p Result(s): Of 75 patients, 33 (44%) had diabetic ketoacidosis (11 severe, 10 moderate, 12 mild) and 33 (44%) developed AKI. At T1DM onset, patients with AKI had similar urinary uromodulin levels but higher urinary NGAL levels, higher uromodulin-to-creatinine ratio, and lower urinary uromodulin-to-NGAL ratio than those without AKI. The uromodulin-to-NGAL ratio correlated inversely with the highest-to-basal creatinine ratio (r = -0.42; p Result(s): Of 75 patients, 33 (44%) had diabetic ketoacidosis (11 severe, 10 moderate, 12 mild) and 33 (44%) developed AKI. At T1DM onset, patients with AKI had similar urinary uromodulin levels but higher urinary NGAL levels, higher uromodulin-to-creatinine ratio, and lower urinary uromodulin-to-NGAL ratio than those without AKI. The uromodulin-to-NGAL ratio correlated inversely with the highest-to-basal creatinine ratio (r = -0.42; p Conclusion(s): Our findings suggest a potential interplay between nephron mass and kidney stress in AKI development at T1DM onset. While uromodulin levels alone were not associated with AKI, a higher urinary uromodulin-to-NGAL ratio - possibly reflecting better-preserved nephron mass under stress - may be linked to a reduced risk of AKI. Further confirmation is needed.

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31. **Association between preoperative platelet count and postoperative acute kidney injury of patients undergoing abdominal surgery: a retrospective cohort analysis of the INSPIRE database.**

Authors: Wang, Yuhuan;Yuan, Tian;Zhang, Xiaodong and Gong, Xingrui

Publication Date: Aug 02 ,2025

Journal: BMC Anesthesiology 25(1), pp. 390

Abstract: BACKGROUND: Acute Kidney Injury (AKI) can lead to detrimental outcomes, including prolonged hospital stays, progression to chronic kidney disease, and even mortality. We aimed to explore the association between preoperative platelet count and postoperative AKI in patients undergoing abdominal surgery. METHODS: We retrospectively extracted data from the INformative Surgical Patient dataset for Innovative Research Environment database (INSPIRE, 2011 to 2020) for patients who underwent abdominal surgery at Seoul National University Hospital. We used logistic regression analysis and restricted cubic spline analysis to investigate the relationship between preoperative platelet count and the risk of developing AKI after abdominal surgery. RESULTS: A total of 7,131 patients who underwent abdominal surgery in the INSPIRE database were included in our study. A significant negative association was observed between preoperative platelet counts and postoperative AKI risk across all models (P for trend : A total of 7,131 patients who underwent abdominal surgery in the INSPIRE database were included in our study. A significant negative association was observed between preoperative platelet counts and postoperative AKI risk across all models (P for trend 9/L. CONCLUSIONS: Our findings suggest that lower preoperative platelet counts are associated with an increased risk of postoperative AKI. Consequently, preoperative platelet count may serve as a useful indicator for predicting AKI risk after abdominal surgery.

32. **Nonsteroidal anti-inflammatory drug use and acute kidney injury in nephrectomies: A retrospective propensity score-matched cohort study.**

Authors: Ye C.Y.;Li L.Y.;Yang M.J.;Liu X.Y.;Luo N.;Wu J.H.;Xiao Y.J.;Sessler D.I. and Wang, E.

Publication Date: 2025

Journal: Anaesthesia Critical Care and Pain Medicine 44(6) (pagination), pp. Article Number: 101581. Date of Publication: 01 Nov 2025

Abstract: Introduction: Nonsteroidal anti-inflammatory drugs (NSAID) are analgesic and spare opioids, but it remains unclear whether perioperative NSAID use worsens renal function after nephrectomy. We therefore tested the hypothesis that perioperative use of NSAID is associated with acute kidney injury (AKI) after nephrectomy surgery. Method(s): This retrospective cohort study included patients >=18 years old who had partial or radical nephrectomies. Patients who were given intravenous NSAIDs for postoperative analgesia were defined as one group, whereas reference patients did not use any NSAIDs. The primary outcome was the occurrence of postoperative acute kidney injury (AKI), as defined by the Kidney Disease: Improving Global Outcomes criteria. Secondary outcomes included AKI stage, NSAID-related side effects, postoperative hemoglobin, cumulative opioid consumption, and duration of hospitalization. Result(s): Among 3,359 eligible nephrectomy patients, 78% (2,614) were given NSAIDs. We propensity-score-matched 739 pairs of patients who were or were not given NSAIDs. Patients in the NSAID group did not have more AKI (27.6%vs. 27.9%, HR 0.98 95% CI (0.80-1.19), P = 0.90), nor were their AKI stages worse [OR 0.99 (0.79-1.24), P = 0.91]. No significant differences were detected in NSAID-related side effects [OR 1.50 (0.42, 5.32), P = 0.53]. However, NSAID treatment was associated with shorter postoperative hospitalization: [5 [4,7] vs. 6 [5,7] days, P Result(s): Among 3,359 eligible nephrectomy patients, 78% (2,614) were given NSAIDs. We propensity-score-matched 739 pairs of patients who were or were not given NSAIDs. Patients in the NSAID group did not have more AKI (27.6%vs. 27.9%, HR 0.98 95% CI (0.80-1.19), P = 0.90), nor were their AKI stages worse [OR 0.99 (0.79-1.24), P = 0.91]. No significant differences were detected in NSAID-related side effects [OR 1.50 (0.42, 5.32), P = 0.53]. However, NSAID treatment was associated with shorter postoperative hospitalization: [5 [4,7] vs. 6 [5,7] days, P Conclusion(s): Perioperative use of NSAIDs in patients having nephrectomies was not associated with a greater risk of AKI, and possibly reduced the duration of hospitalization. Prospective interventional data are needed to guide NSAID use in this high-risk patient subset.Copyright © 2025 The Author(s)