

AKI

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July 2026

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1. Contrast-Associated AKI in Hospitalized Adults With Sickle Cell Disease.

Authors: Azoyan, Loris; Lombardi, Yannis; Bartolucci, Pablo; Lionnet, Francois; Chantalat Auger, Christelle; Le Jeune, Sylvain; Affo, Louis; Arlet, Jean-Benoit; Haymann, Jean-Philippe; Leblanc, Judith and Steichen, Olivier

Publication Date: Aug ,2026

Journal: KI Reports 11(8), pp. 106600

Abstract: Introduction: Patients with sickle cell disease (SCD) are at risk of chronic kidney disease (CKD) and acute kidney injury (AKI). The risk of AKI associated with contrast media (CM) exposures in this population is uncertain. The objective of this study was to investigate this temporal association in a multicentric case series. Methods: We performed a retrospective self-controlled case series (SCCS) in adults followed-up in SCD centers of the Greater Paris University Hospitals who experienced AKI during hospitalization between 2013 and 2022. SCCS estimates the relative incidence (RI) of events during exposure periods (around CM exposure) compared with control periods within the same individual. Analyses were restricted to hospitalizations periods and accounted for time-varying confounders such as age, presence of albuminuria, reduced estimated glomerular filtration rate, and stay in a medical ward or intensive care unit (ICU). Results: In the main analysis, that included 529 patients and 755 cases of AKI, AKI incidence increased significantly during the 7-day pre-exposure period (RI: 2.53, 95% confidence interval [CI]: 2.02-3.16), the 0 to 3 days postexposure (RI: 2.52, 95%

CI: 1.99-3.19) and the 4 to 7 days postexposure (RI: 1.57, 95% CI: 1.20-2.06). Similar patterns were observed for stage 2 or 3 AKI, with higher RI. Conclusion: In this cohort of hospitalized adults with SCD, mainly young patients with preserved kidney function and few comorbidities, the RI of AKI was twice as high both before and after CM exposure, suggesting the role of underlying clinical conditions and related medical interventions rather than a causal effect of CM. Copyright © 2026 The Author(s).

2. Risk of obstructive acute kidney injury: derivation and internal validation of a risk stratification tree.

Authors: Balen F.;Dubucs X.;Roux C.;Guy P.;Laclegerie F.;Game X.;Steinmeyer Z.;Tack I.;Charpentier S. and Thiruganasambandamoorthy, V.

Publication Date: 2026

Journal: Emergency Medicine Journal (pagination)

Abstract: Background: Acute kidney injury (AKI) is a frequent condition among patients presenting to the emergency department (ED). Obstructive AKI constitutes a urological emergency requiring rapid diagnosis and intervention. The objective of this study was to derive and internally validate a predictive model of obstructive AKI in ED. Method(s): We conducted a retrospective derivation and internal validation cohort study. Adult patients presenting to the EDs of Toulouse University Hospital with AKI of any Kidney Disease: Improving Global Outcomes (KDIGO) stage between 1 July and 31 December 2019 were eligible. Included patients were randomly assigned in a 2:1 ratio to a derivation cohort (DC) and an internal validation cohort (VC). The primary outcome was obstructive AKI, defined as hydronephrosis identified on imaging and requiring either urological intervention or Foley catheter insertion. A risk stratification decision tree was developed (Kidney Injury Tree For Identification of obSTructive Origin (KIT-FISTO) model). Result(s): The prevalence of obstructive AKI was 9% in the DC (64/727) and 7% in the VC (27/364). Patients presenting with lumbar, flank or hypogastric pain were classified as 'high risk' in each cohort, with a corresponding obstructive AKI risk of 55% (95% CI 45% to 64%) and 54% (95% CI 39% to 69%), respectively. Patients without pain but with a history of urinary tract surgery, abdominal cancer, a solitary functional kidney or prostatic hyperplasia were classified as 'moderate risk', with obstructive AKI risks of 4% (95% CI 1% to 10%) and 2% (95% CI 0% to 12%), respectively. All remaining patients (>70%) were classified as 'low risk', with an observed obstructive AKI risk of 0% (95% CI 0% to 1%). 'Low risk' classification had a sensitivity of 98% (95% CI 92% to 100%) and 96% (95% CI 81% to 100%), respectively. Conclusion(s): The KIT-FISTO was derived and internally validated to predict obstructive AKI in ED, but requires external and prospective validation before implementation. Copyright © Author(s) (or their employer(s)) 2026. No commercial re-use. See rights and permissions. Published by BMJ Group.

3. Preoperative Anaemia, Renal Function, and Operative Factors in Acute Kidney Injury and Mortality After Cardiac Surgery with a Prolonged ICU Stay: A Retrospective Cohort Study.

Authors: Balkan, Bedih;Turan, Engin Ihsan;Unal, Orcun and Yalcin, Lokman

Publication Date: Jun 10 ,2026

Journal: Journal of Clinical Medicine 15(12)

Abstract: BACKGROUND: Acute kidney injury (AKI) is one of the more serious complications following cardiac surgery, consistently linked to prolonged mechanical ventilation and higher in-hospital mortality. This study examined whether preoperative anaemia and impaired renal function are associated with AKI and death in a high-risk cardiac-surgery cohort requiring extended postoperative ICU monitoring and how these associations behave after adjustment for procedure type and intraoperative variables. METHODS: In this single-centre retrospective cohort study, we screened 950 patients admitted to a cardiothoracic ICU between January 2018 and January 2024. After standard exclusion criteria and an audit of operative records, 553 cardiac-surgery patients formed the principal analysis cohort. AKI was defined by KDIGO criteria using serial postoperative serum-creatinine measurements during the first 7

days. Multivariable logistic regression for AKI and in-hospital mortality was built sequentially: Model A (baseline only); Model B (+procedure type); and Model C (+intraoperative variables: aortic cross-clamp time, intraoperative RBC units, and intraoperative inotrope use). Calibration was assessed by the Hosmer-Lemeshow test. Total cardiopulmonary bypass duration was not separately captured in the institutional database and is disclosed as a limitation. RESULTS: AKI occurred in 174 of 553 patients (31.5%), and in-hospital mortality was 16.6% (92/553). Patients with AKI were older (median 77 vs. 68 years, $p = 0.043$), a counterintuitive finding likely reflecting residual confounding by case-mix and procedure selection rather than a protective operative effect. In the fully adjusted multivariable model, the haemoglobin-AKI association attenuated and was no longer independently significant (OR 0.89 per 1 g/dL, 95% CI 0.73-1.08, $p = 0.24$), while intraoperative RBC transfusion emerged as an independent predictor (OR 1.12 per unit, $p = 0.046$). For mortality, AKI remained an independent predictor after full adjustment for procedure type and intraoperative variables (OR 7.14, 95% CI 1.45-35.13, $p = 0.016$), with cross-clamp time (OR 1.30 per 10 min, $p = 0.010$) and intraoperative RBC units (OR 1.48 per unit, $p = 0.48$ for AKI, $p = 0.56$ for mortality). CONCLUSIONS: In cardiac-surgery patients with a prolonged ICU stay, AKI is independently associated with in-hospital mortality even after adjustment for operative variables. The univariable association between preoperative haemoglobin and AKI is attenuated after adjustment for procedure type and intraoperative transfusion exposure, suggesting confounding or mediation by operative and case-mix factors rather than an independent direct association. The contribution of this analysis is aetiological/analytical rather than predictive (modest discrimination, AUROC 0.67 for AKI), and findings should be interpreted within the selected high-risk ICU ≥ 72 h population.

4. Iron deficiency and risk of acute kidney injury after TAVI: a machine learning analysis.

Authors: Cersosimo, Angelica;Radulescu, Crina-Ioana;Adamo, Marianna;Camastra, Chiara;Parasca, Catalina-Andreea;Dumitrascu, Silviu;Deleanu, Dan;Troncea, Robert;Iliescu, Vlad A.;Metra, Marco and Chioncel, Ovidiu

Publication Date: Jun ,2026

Journal: Minerva Medica 117(3), pp. 103–114

Abstract: BACKGROUND: Transcatheter aortic valve implantation (TAVI) has become the preferred therapeutic option for patients with severe aortic stenosis (SAS) at high or intermediate surgical risk. Despite its minimally invasive nature, TAVI is frequently associated with post-procedural complications, among which acute kidney injury (AKI) represents a major clinical concern. Early identification of patients at increased risk for AKI remains a critical unmet need. METHODS: This retrospective, observational, single-center study enrolled consecutive patients with severe aortic stenosis who underwent TAVI between December 2022 and December 2023. The primary endpoint was to identify independent predictors of acute kidney injury (AKI) within 48 hours after TAVI. Secondary endpoint was to identify independent predictors of hospitalization for heart failure (HHF) during follow-up. Predictive modeling was conducted using the eXtreme Gradient Boosting (XGBoost) algorithm, with interpretability enhanced via SHapley Additive exPlanations (SHAP). RESULTS: A total of 116 patients were included (mean age 76 ± 6.5 years; 57% male). Comorbidities were common, including heart failure (41%), coronary artery disease (32%), atrial fibrillation (41%), diabetes mellitus (29%), and chronic kidney disease (34%). Median EuroSCORE II was 2.1 (IQR 1.5-3.9). Median ferritin was 99.5 ng/mL (IQR 40-129), mean hemoglobin 12.3 ± 1.7 g/dL and mean eGFR was 69.9 ± 24.9 mL/min/1.73 m². After TAVI procedure, AKI occurred in 9% of patients within 48 h. According to the SHAP analysis, ferritin and TSAT emerged as the two most influential features in AKI prediction. The machine learning model achieved high sensitivity (96%) and an F1-score of 0.98, suggesting strong clinical utility for early risk stratification. CONCLUSIONS: In patients undergoing TAVI, iron deficiency, as reflected by low ferritin and TSAT levels, emerged as independent predictors of early post-procedural AKI.

5. Acute kidney injury and liver damage are the most common forms of end organ damage in exertional heat illness in otherwise healthy young adults.

Authors: DeGroot D.W.;Goodwin K.C.;Giersch G.E.W. and Charkoudian, N.

Publication Date: 2026

Journal: Temperature (pagination), pp. Date of Publication: 2026

Abstract: Exertional heat illness (EHI) is an under-recognized cause of emergency department admissions in otherwise healthy young people in athletic and occupational settings. Specifically, the frequency and severity of end-organ damage in EHI, which include exertional heat stroke (EHS), heat injury (HI), and heat exhaustion (HE) require better characterization to optimize triage and patient care. In the present study, we characterized end-organ damage following emergency department admission for EHI in young, otherwise healthy military service members who collapsed during training exercises. Standard clinical measures of creatinine (Cr), alanine transaminase (ALT), aspartate aminotransferase (AST), creatine kinase (CK), and troponin were used. Active-duty service members who were seen in the Martin Army Community Hospital emergency department and diagnosed with an EHI were eligible. Relevant laboratory data was retrieved from the electronic medical record after informed consent was obtained. Acute kidney injury was the most common form of end organ damage observed (73-86%) followed closely by liver damage (59-73%). EHS cases had higher peak damage levels for Cr, CK, AST, and ALT compared to either HI or HE. Muscle damage only occurred concurrently with liver or kidney damage. There was no disseminated intravascular coagulopathy, cardiovascular complications, or organ failure observed in this study. The frequency and severity of end-organ damage was greatest in EHS, followed by HI and HE. No patients developed organ failure or required transport to a higher level of care. Data suggest that cooling modality did not impact end-organ damage. Copyright © 2026 Informa UK Limited, trading as Taylor & Francis Group.

6. Association between baseline-stratified trajectory subgroups of serum albumin and outcomes in critically ill patients with early sepsis-associated acute kidney injury: a retrospective study.

Authors: Gao, Qiang;Lai, Xinwu;Tian, Yu;Wang, Tingting;Zheng, Xiangde and Zhang, An

Publication Date: 2026

Journal: Frontiers in Medicine 13, pp. 1722950

Abstract: Purpose: We aimed to explore the association between the serum albumin trajectory following early sepsis-associated acute kidney injury (SA-AKI) and the outcomes of sepsis patients in the intensive care unit (ICU). Methods: We extracted data of patients with early SA-AKI from the Medical Information Mart for Intensive Care (MIMIC)-IV database. The dynamic levels of albumin within 7days after AKI onset were used as the exposure factor in this study. The primary outcome was 365-day mortality. Group-based trajectory modeling (GBTM) was used to identify the dynamic characteristics of albumin levels. Kaplan-Meier (KM) survival curves, linear regression and Cox analysis were used to explore the potential associations between different trajectory groups and outcomes. Results: A total of 1,914 patients with early SA-AKI were included in GBTM. We identified 5 baseline-stratified trajectory subgroups of albumin levels, including four zero-slope trajectories (at levels of 2.0g/dL, 2.5g/dL, 3.0g/dL and 3.5g/dL) and a slightly ascending trajectory (at a level of >4.1g/dL). Compared with the steady-state trajectory at a level of 3.0g/dL, patients with the steady-state trajectory at a level of 2.0g/dL had higher 30-, 90-, 180-, and 365-day mortality risk and longer hospital length of stay (LOS). And patients with the trajectory at a level of >4.1g/dL had higher 365-day mortality risk. Moreover, subgroup analysis indicated that the association between serum albumin trajectories and mortality risk interacted with age and sex. Further sensitivity analysis confirmed the robustness of these results through similar trends. Conclusion: The baseline-stratified trajectory subgroups of serum albumin following early SA-AKI were associated with both short- and long-term mortality and hospital LOS in critically ill patients with sepsis, which can be used as a valuable indicator for guiding risk stratification and predicting prognosis in such patients. Copyright © 2026 Gao, Lai, Tian, Wang, Zheng and Zhang.

7. Machine learning model for predicting the risk of AKI in early hemodynamically stable sepsis

patients: a study based on the MIMIC IV database.

Authors: He, Miao;Li, Xinran;Wu, Jiajing;Huang, Luyao;Wang, Nan;Chen, Limin;Jiang, Mingxin;Chen, Zhe;Wei, Lin and Zhang, Hong

Publication Date: 2026

Journal: Frontiers in Medicine 13, pp. 1846554

Abstract: Background: The increasing prevalence and mortality of sepsis and acute kidney injury (AKI) pose significant threats to the survival of critically ill patients worldwide. Consequently, it's essential to identify patients with sepsis-associated AKI early and to ascertain its risk factors. This study developed a machine learning (ML) model to identify patients at high risk of AKI among the hemodynamically stable sepsis. Methods: This study extracted clinical data from hemodynamically stable sepsis patients in the MIMIC IV Database for analysis, and collected clinical data from a hospital for external validation. The patients were randomly divided into a training set (70%) and a testing set (30%). Potential risk factors were screened out through univariate analysis and LASSO regression. Subsequently, models were constructed using Classification and Regression Tree, Gradient Boosting Machine, Logistic Regression, Random Forest, and Extreme Gradient Boosting (XGBoost). The performance of these models was assessed to determine the optimal predictive model. Results: A total of 8,276 hemodynamically stable sepsis patients were included in this study, among whom 3,061 patients (37%) experienced AKI. Nine risk factors were identified for model development using 70% of the data for training. By evaluating the model performance based on indicators including AUC, accuracy, sensitivity, kappa value, MCC, F1 score, Brier score, and DCA curve, the model constructed by XGBoost demonstrated the optimal performance. The external validation was consistent with the results. Conclusion: The XGBoost model exhibited optimal performance, and is suitable for predicting the risk of AKI in early hemodynamically stable sepsis patients. Copyright © 2026 He, Li, Wu, Huang, Wang, Chen, Jiang, Chen, Wei and Zhang.

8. Timing and severity of acute kidney injury in hospitalized adults receiving vancomycin plus NKCC inhibitor with or without piperacillin-tazobactam.

Authors: Ishaqui A.A.;Tripathi R.;Tripathi P.;Alqahtani S.S.;Makeen H.A. and Orayj, K.

Publication Date: 2026

Journal: Naunyn-Schmiedeberg's Archives of Pharmacology (pagination), pp. Date of Publication: 2026

Abstract: Acute kidney injury (AKI) is a common and clinically important complication in hospitalized adults receiving nephrotoxic therapies. This study aimed to compare the incidence, timing, and severity of creatinine-defined AKI in patients receiving vancomycin plus Na⁺-K⁺-2Cl⁻ cotransporter (NKCC) inhibitor only vs vancomycin plus NKCC inhibitor plus piperacillin-tazobactam. A retrospective observational cohort study was performed using MIMIC-IV version 3.1. Adult hospital admissions with qualifying exposure within the first 48 h of hospitalization were included. Group A comprised patients receiving vancomycin plus NKCC inhibitor only, and group B comprised patients receiving vancomycin plus NKCC inhibitor plus piperacillin-tazobactam. AKI was defined using KDIGO serum creatinine criteria. Multivariable logistic regression was used to evaluate any AKI, early AKI, and stage 2-3 AKI after adjustment for baseline renal risk and illness severity. The final analytic cohort included 5204 hospitalizations, with 4632 in group A and 572 in group B. Any AKI occurred in 28.0% of group A and 29.2% of group B, early AKI in 23.1% and 24.8%, and stage 2-3 AKI in 9.3% and 12.8%, respectively. Median time to AKI was similar at approximately 21.7 h in both groups. After adjustment, group B was not independently associated with any AKI (OR = 1.034), early AKI (OR = 1.115), or stage 2-3 AKI (OR = 1.107). Higher baseline creatinine, chronic kidney disease, mechanical ventilation, hypotension, liver disease, and sepsis were stronger predictors of renal outcomes. In hospitalized adults already receiving vancomycin and NKCC inhibitors, addition of piperacillin-tazobactam was not independently associated with higher odds of creatinine-defined AKI after adjustment. The observed crude excess in

severe AKI and worse hospital outcomes appeared to reflect a sicker clinical phenotype rather than a clear independent nephrotoxic effect. Copyright © The Author(s), under exclusive licence to Springer-Verlag GmbH Germany, part of Springer Nature 2026.

9. Acute Kidney Injury and Risk of Adverse Neurocognitive Outcomes: A Systematic Review and Meta-Analysis.

Authors: Kelly D.M.; Kelleher E.M. and Rothwell, P. M.

Publication Date: 2026

Journal: Neurology (pagination)

Abstract: Background and Objectives - Chronic kidney disease is a recognized risk factor for adverse neurocognitive outcomes, but the effect of acute kidney injury (AKI) on brain health remains less well defined. We conducted a systematic review and meta-analysis to evaluate associations between AKI and subsequent risk of stroke, delirium, and dementia. Methods - Eligible studies were identified by searching Ovid MEDLINE and Embase from inception (Ovid: January 1946; Embase: January 1970) until April 2025. Studies were included if they reported quantitative estimates with measures of precision for the association between AKI and delirium, stroke, or dementia in adult populations. Two reviewers independently screened and extracted data, and study quality was assessed using standardized criteria. Study characteristics, participant demographics, and adjusted effect estimates (hazard ratios [HRs] or odds ratios [ORs]) with 95% CIs were extracted. Pooled HRs and ORs with 95% CIs were calculated using random-effects models. Heterogeneity was evaluated with the chi² test and I² statistic, and sources of heterogeneity were explored through prespecified subgroup analyses and meta-regression. Results - We identified 49 studies comprising 11, 253, 825 participants with 1, 279, 145 events. Individuals with AKI were at increased risk of stroke (pooled adjusted HR 1.35, 95% CI 1.20-1.52), delirium (pooled adjusted OR 1.76; 1.42-2.17), and dementia (pooled adjusted HR 1.64, 1.41-1.89). A gradient of risk across increasing AKI stages was demonstrated for stroke (stage 1: HR 1.11; 1.00-1.23; combined stages 2 and 3: HR 1.57; 1.35-1.81). AKI was also associated with higher in-hospital and 90-day mortality poststroke (pooled HR 2.13, 1.56-2.90, and 4.81, 2.55-9.08, respectively) and with 90-day disability (pooled adjusted OR 1.47, 1.22-1.76). Associations between AKI and all outcomes were directionally consistent across sensitivity analyses and pooled propensity score-matched studies. Discussion - In this systematic review and meta-analysis, AKI was consistently associated with increased short-term and long-term neurocognitive risk, including stroke, delirium, and dementia. These findings suggest that AKI may identify individuals vulnerable to both acute and chronic brain injury. Further studies are needed to clarify mechanisms linking AKI to brain injury and to identify strategies to mitigate neurocognitive risk in this high-risk population. Copyright © 2026 The Author(s). Published by Wolters Kluwer Health, Inc. on behalf of the American Academy of Neurology.

10. Dorsal spinal instrumentation in multiple myeloma: postoperative acute kidney injury is associated with mortality, morbidity, and deterioration of bone and muscle status.

Authors: Kylies J.; Leonhardt L.G.; Brauneck E.; Kylies D.; Bay A.; Schroeder M.; Schomacher M.; Dreimann M.; Obid P.; Weisel K. and Viezens, L.

Publication Date: 2026

Journal: European Spine Journal (pagination), pp. Date of Publication: 2026

Abstract: Background: Patients with multiple myeloma undergoing dorsal spinal instrumentation for malignant spinal lesions remain at high risk for postoperative complications and limited survival. Acute kidney injury (AKI) is common in myeloma and after major surgery, but its prognostic relevance in surgically treated myeloma patients and its association with subsequent CT-based body composition and bone density trajectories, remains insufficiently defined. Method(s): We performed a retrospective cohort study of consecutive multiple myeloma patients undergoing dorsal spinal instrumentation between 2011 and 2024 at a tertiary referral center. Postoperative AKI was defined and staged

according to KDIGO criteria based on serum creatinine changes within 7 postoperative days. Clinical outcomes included overall survival (OS), surgical site infection (SSI), and length of hospital stay (LOHS). CT-based morphometry was assessed on non-contrast whole-body CT at L3 level on a preoperative baseline scan (tCT1) and a postoperative follow-up scan. The follow-up CT scan (tCT2) was obtained approximately 9 months postoperatively as part of routine oncologic follow-up or clinical indication rather than a fixed imaging schedule, reflecting real-world clinical practice. The mean interval between tCT1 and tCT2 was 9.1 +/- 1.2 months. Analysis included skeletal muscle index (SMI), skeletal muscle density (SMD), visceral adipose tissue (VAT), and vertebral trabecular bone status assessed by Hounsfield Units (HU). Multivariable Cox regression, logistic regression, and log-linear regression were used to evaluate the independent association of AKI with OS, SSI, and LOHS, adjusting for clinically relevant covariates. Result(s): 59 patients were included (median age 69.0 years; 40.7% female); postoperative AKI occurred in 16 patients (27.1%). AKI was associated with significantly worse OS (median 224 vs. 396 days without AKI; log-rank $p = 0.01$), with progressively shorter OS across KDIGO stages. In multivariable Cox regression, AKI remained independently associated with worse OS (adjusted hazard ratio 2.35, 95% CI 1.22-4.54; $p = 0.011$). AKI was also associated with higher SSI rates (63% vs. 12%; p Result(s): 59 patients were included (median age 69.0 years; 40.7% female); postoperative AKI occurred in 16 patients (27.1%). AKI was associated with significantly worse OS (median 224 vs. 396 days without AKI; log-rank $p = 0.01$), with progressively shorter OS across KDIGO stages. In multivariable Cox regression, AKI remained independently associated with worse OS (adjusted hazard ratio 2.35, 95% CI 1.22-4.54; $p = 0.011$). AKI was also associated with higher SSI rates (63% vs. 12%; p Result(s): 59 patients were included (median age 69.0 years; 40.7% female); postoperative AKI occurred in 16 patients (27.1%). AKI was associated with significantly worse OS (median 224 vs. 396 days without AKI; log-rank $p = 0.01$), with progressively shorter OS across KDIGO stages. In multivariable Cox regression, AKI remained independently associated with worse OS (adjusted hazard ratio 2.35, 95% CI 1.22-4.54; $p = 0.011$). AKI was also associated with higher SSI rates (63% vs. 12%; p Result(s): 59 patients were included (median age 69.0 years; 40.7% female); postoperative AKI occurred in 16 patients (27.1%). AKI was associated with significantly worse OS (median 224 vs. 396 days without AKI; log-rank $p = 0.01$), with progressively shorter OS across KDIGO stages. In multivariable Cox regression, AKI remained independently associated with worse OS (adjusted hazard ratio 2.35, 95% CI 1.22-4.54; $p = 0.011$). AKI was also associated with higher SSI rates (63% vs. 12%; p Result(s): 59 patients were included (median age 69.0 years; 40.7% female); postoperative AKI occurred in 16 patients (27.1%). AKI was associated with significantly worse OS (median 224 vs. 396 days without AKI; log-rank $p = 0.01$), with progressively shorter OS across KDIGO stages. In multivariable Cox regression, AKI remained independently associated with worse OS (adjusted hazard ratio 2.35, 95% CI 1.22-4.54; $p = 0.011$). AKI was also associated with higher SSI rates (63% vs. 12%; p Conclusion(s): In multiple myeloma patients undergoing dorsal spinal instrumentation, postoperative AKI is independently associated with reduced survival, increased postoperative morbidity, and accelerated loss of muscle quantity, muscle quality, visceral fat, and vertebral bone density. These findings highlight AKI as a clinically meaningful systemic event with downstream catabolic consequences and support intensified perioperative nephroprotective and multidisciplinary supportive strategies in this high-risk population. Copyright © The Author(s) 2026.

11. Acute Kidney Injury for the Interventional Radiologist: A Review

Authors: Leaphart, Nathan R. and Angle, John F.

Publication Date: Jun ,2026

Journal: Techniques in Vascular & Interventional Radiology 29(2), pp. 101112

Abstract: AKI is commonly seen among hospitalized patients, many of which the VIR is consulted to assess for a potential intervention. Rates are increased for critically ill patients and those with pre-

existing CKD, advanced age, or significant comorbidities. Developing an AKI is associated with increased morbidity, mortality, and risk of progression to chronic kidney disease. Physiologically, renal function depends on the coordinated activity of nephrons, which regulate fluid balance, electrolyte homeostasis, and metabolic waste filtration. Disruption of renal perfusion, injury to the microscopic and macroscopic renal structures, or obstruction of urinary outflow can impair these processes and lead to AKI. Clinical evaluation includes a focused history and physical examination, laboratory testing, urine analysis, and imaging studies to determine the underlying cause and guide management. The VIR will frequently encounter patients at risk for or experiencing AKI. For informed discussion with patients and other providers, optimal procedural planning, and enhanced post-procedural care, understanding the distinction between contrast-associated AKI and contrast-induced AKI and possible preventative strategies is vital. Given the enormous negative clinical impact of AKI, the VIR plays an important role in its prevention, diagnosis, and management. Copyright © 2026. Published by Elsevier Inc.

12. Prognostic performance of plasma and urinary biomarkers of kidney injury and function after out-of-hospital cardiac arrest.

Authors: Lim S.L.;Woo K.L.;Au A.Y.M.;Ong M.E.H.;Richards A.M.;Endre Z.H. and Pickering, J. W.

Publication Date: 2026

Journal: Resuscitation (pagination)

Abstract: Aim: Acute kidney injury (AKI) after out-of-hospital cardiac arrest (OHCA) portends worse outcomes, yet serum creatinine (sCr) underestimates injury. We evaluated whether kidney injury biomarkers improve early prediction of patient-centered outcomes and AKI after OHCA compared with sCr. Method(s): In this prospective observational study, we measured plasma neutrophil gelatinase-associated lipocalin (NGAL), kidney injury molecule-1 (KIM-1) and cystatin C, and urinary NGAL and KIM-1 at 0, 24 and 72 h post-return of spontaneous circulation in comatose adult OHCA patients. The primary outcome was poor neurological recovery or mortality (Cerebral Performance Category (CPC) 3-5) at hospital discharge; secondary outcome was AKI. We compared biomarker distributions and discriminatory performance from areas under receiver operating characteristic curves (AUC). Result(s): Among 82 patients (median age 59.5 years, 89.0% males), 45 (54.9%) had CPC 3-5 (39 died, CPC 5; 6 poor neurological recovery, CPC 3-4). AKI occurred in 54 (65.9%) patients, of whom 19 (23.2%) required renal replacement therapy. Patients in whom sCr rose by >20% (n = 33) and/or required dialysis had elevated biomarkers and a 71% CPC 3-5 incidence, versus 20% in those with decreasing by >20% (n = 23) or stable sCr (n = 7) (p Result(s): Among 82 patients (median age 59.5 years, 89.0% males), 45 (54.9%) had CPC 3-5 (39 died, CPC 5; 6 poor neurological recovery, CPC 3-4). AKI occurred in 54 (65.9%) patients, of whom 19 (23.2%) required renal replacement therapy. Patients in whom sCr rose by >20% (n = 33) and/or required dialysis had elevated biomarkers and a 71% CPC 3-5 incidence, versus 20% in those with decreasing by >20% (n = 23) or stable sCr (n = 7) (p Conclusion(s): Kidney-specific biomarkers were superior to sCr for early AKI detection and prediction of patient-centered outcomes after OHCA. Early biomarker measurement may improve AKI and outcome risk stratification beyond conventional sCr-based assessment. Copyright © 2026 Elsevier B.V.

13. Echocardiographic correlates of acute kidney injury in cardiac intensive care unit patients.

Authors: Lipps, Kirsten M.;Hillerson, Dustin;Dahiya, Garima;Kashani, Kianoush;Ternus, Bradley;Bennett, Courtney and Jentzer, Jacob C.

Publication Date: Oct 01 ,2026

Journal: International Journal of Cardiology 460, pp. 134613

Abstract: BACKGROUND: Acute kidney injury (AKI) is prevalent in the cardiac intensive care unit (CICU) population. We evaluated the association between transthoracic echocardiogram (TTE)-derived hemodynamics and AKI among CICU patients. METHODS: We included adults admitted to an academic CICU from 2007 to 2018 who had a consultative TTE within 24 h. De novo AKI was defined

by modified Kidney Disease: Improving Global Outcomes criteria using serum creatinine. Pressure-adjusted heart rate (PAHR), in beats per minute (BPM), was defined as (right atrial pressure / mean arterial pressure) x heart rate. The primary outcome was the association between TTE hemodynamics and AKI incidence, and the secondary outcome was the association between AKI and mortality. RESULTS: Among 7027 patients, AKI occurred in 2157 (30.7%), of whom 585 (8.3%) had moderate/severe AKI. More severe AKI was associated with worse left ventricular, right ventricular (RV), and biventricular function (all $P < 0.001$). PAHR provided the highest discrimination and identified a higher-risk hemodynamic phenotype for moderate/severe AKI (13.1% for PAHR ≥ 7.5 BPM vs. 3.8% for PAHR < 7.5 BPM). CONCLUSIONS: Among CICU patients, moderate/severe AKI was associated with biventricular systolic dysfunction and congestion as assessed by TTE. PAHR demonstrated the greatest discrimination among TTE variables and identified a higher-risk hemodynamic phenotype for moderate/severe AKI. TTE measurements may facilitate early identification of patients at risk of AKI. Copyright © 2026 Elsevier B.V. All rights reserved.

Authors: Liu W.;Chen Q.;Huang T.;Liu J.;Li H. and Guo, Q.

Journal: Therapeutic Advances in Cardiovascular Disease (pagination)

15. Implementation of a New MRI Contrast Policy at a Large Hospital System: Access to Contrast-Enhanced MRI and Development of NSF in Patients with Renal Insufficiency.

Publication Date: 2026

Journal: Academic Radiology (pagination), pp. Date of Publication: 2026

Abstract: Rationale and Objectives To evaluate access to contrast-enhanced MRI among patients with acute or chronic renal failure after implementation of a more permissive contrast policy and determine whether any patients developed nephrogenic systemic fibrosis (NSF). Materials and Methods This retrospective study included all patients who had an order for contrast-enhanced MRI in our healthcare system between July 1st, 2023 and June 30th, 2025. Each exam was categorized as completed or cancelled, and multivariable analysis was performed to identify factors associated with exam cancellation. Potential diagnoses of NSF were identified by searching the problem list and encounter diagnoses using ICD-10 codes. Results Of 207,091 orders placed for contrast-enhanced MRI, 2911 (1.4%) were placed in patients with AKI/dialysis. Of these, 1440 (49.5%) were completed and 1459 (50.1%) were canceled. Over the two-year study period, with a median of 1.09 years (IQR: 0.56, 1.57) of clinical follow-up, there were no cases of NSF. Most orders in patients with AKI/dialysis occurred in the inpatient setting (91.3%, N=2658) and at an academic facility (95.4%, N=2798). Although AKI/dialysis was significantly associated with a higher cancellation rate (OR of 8.0; 95% CI: 7.4, 8.6), the effect was much less pronounced in multivariable analysis (adjusted OR of 1.3; 95% CI: 1.2, 1.4), attributable to the high frequency of inpatient orders among patients with AKI/dialysis and high rate of canceled exams among inpatients. Conclusion Implementation of a more permissive contrast policy allowing for administration of GBCA in patients with acute or chronic renal failure did not result in any diagnoses of NSF. Copyright © 2026 The Authors.

16. Impact of hemoglobin increase in patients with acute kidney injury and severe anemia on major adverse kidney events.

Authors: Navarro-Blackaller, Guillermo; Zaragoza, Jose J.; Cruz-Aragon, Fernando; Ponce, Daniela; Fong-Maravilla, Itzel; Chavez-Alonso, Gael; Garcia-Pena, Maria F.; Gallardo-Gonzalez, Alejandro Martinez; Mendoza-Gaitan, Eduardo; Gomez-Fregoso, Juan A.; Alcantar-Vallin, Luz; Renoirte-Lopez, Karina; Medina-Gonzalez, Ramon; Arizaga-Napoles, Manuel; Garcia-Garcia, Guillermo and Chavez-Iniguez, Jonathan S.

Publication Date: Dec ,2026

Journal: Renal Failure 48(1), pp. 2681245

Abstract: Acute kidney injury (AKI) is frequently accompanied by severe anemia, raising concerns that impaired oxygen delivery may accelerate kidney dysfunction. However, the clinical benefit of early hemoglobin (Hb) correction remains uncertain. This study evaluated the association between early Hb correction and major adverse kidney events (MAKE). We conducted a single-center retrospective cohort including hospitalized adults with AKI and baseline severe anemia (Hb 10 g/dL) within the first 10 days of hospitalization. The primary outcome was MAKE at 10 days (MAKE10), defined as death, initiation of kidney replacement therapy (KRT), or $\geq 25\%$ decline in estimated glomerular filtration rate (eGFR). Secondary outcomes included individual MAKE components and MAKE at 90 days (MAKE90). Multivariable logistic regression models were adjusted for age, sex, and baseline eGFR. Among 232 patients, 47 (20.3%) achieved Hb correction. Baseline characteristics were comparable between groups. Although unadjusted analyses suggested a lower incidence of MAKE10 in the correction group, adjusted analyses showed no significant association (adjusted OR 1.04; 95% CI 0.41-2.62). Hb correction was not associated with each individual components of MAKE or MAKE90. No differences were observed according to the correction strategy (transfusion alone vs transfusion plus erythropoiesis-stimulating agents). In this retrospective cohort of patients with AKI and severe anemia, early Hb correction to >10 g/dL was not associated with improved short- or medium-term outcomes. These findings support a conservative and individualized approach to anemia management during AKI, although residual confounding and selection bias cannot be excluded.; plain-language-summary What was known: Severe anemia is common in AKI and is associated with worse clinical outcomes, leading to the belief that early hemoglobin correction could improve tissue oxygen delivery and kidney

recovery. However, robust evidence supporting aggressive hemoglobin normalization during AKI has been limited and inconsistent. This study adds: In hospitalized patients with AKI and severe anemia, early hemoglobin correction to >10 g/dL was not associated with reduced MAKE, mortality, KRT initiation, or persistent kidney dysfunction. This lack of benefit was consistent regardless of whether correction was achieved with transfusion alone or combined with ESAs. Potential impact: The findings support a conservative, individualized approach to anemia management during AKI and challenge the routine pursuit of aggressive hemoglobin normalization. Clinicians should avoid assuming that early correction of hemoglobin alone will improve kidney-related outcomes in this high-risk population.

Language: English

17. Risk of acute kidney injury in hospitalized patients with inflammatory bowel disease: a systematic review and meta-analysis.

Authors: Nguyen, Bachviet;Quon, Stephanie;Hazan, Elias;Borkum, Megan and Moosavi, Sarvee

Publication Date: Jun ,2026

Journal: Journal of the Canadian Association of Gastroenterology 9(3), pp. 137–146

Abstract: Objectives: Inflammatory bowel disease (IBD) is associated with a range of extraintestinal manifestations, including renal complications. While chronic kidney disease in IBD is well described, the risk of acute kidney injury (AKI) remains less well quantified. We aimed to evaluate the risk of AKI among hospitalized patients with IBD compared to non-IBD populations, and to assess this risk across clinical subgroups. Methods: We conducted a systematic review and meta-analysis in accordance with PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) guidelines and registered the protocol with PROSPERO. A comprehensive search of PubMed, MEDLINE, Embase, Scopus, and Cochrane CENTRAL was conducted from inception to June 2025. Eligible studies included cohort, case-control, and randomized control trials reporting on AKI outcomes in IBD versus non-IBD comparators. Meta-analyses were performed using random-effects models. Subgroup analyses were conducted by surgical status, infection, acute coronary syndrome, and general hospitalization. Results: Seventeen retrospective cohort studies involving 20 127 976 patients (140 482 with IBD) were included. IBD was associated with significantly increased odds of AKI (pooled odds ratio [OR]: 1.87; 95% confidence interval [CI], 1.53-2.29). The association was especially prominent in surgical patients (OR: 2.17; 95% CI, 1.73-2.73), including orthopedic (OR: 2.22; 95% CI, 1.50-3.30) and spinal (OR: 2.15; 95% CI, 1.66-2.78) subgroups. Associations in acute coronary syndrome and infection subgroups were less consistent. ROBINS-E (Risk Of Bias In Non-randomized Studies-of Exposures) assessments revealed a moderate risk of bias. Conclusions: A diagnosis of IBD is potentially associated with the development of AKI, particularly in surgical settings. Routine renal monitoring could be considered, especially during hospitalizations and perioperative care. Copyright © The Author(s) 2026. Published by Oxford University Press on behalf of the Canadian Association of Gastroenterology.

18. Acute and chronic kidney injury following COVID-19 infection and vaccination: a narrative review.

Authors: Saadat, Seyed Hassan;Javanbakht, Mohammad;Amini, Hossein;Rouhollahei, Mahboubeh;Cegolon, Luca and Einollahi, Behzad

Publication Date: Jul 03 ,2026

Journal: European Journal of Translational Myology 36(2)

Abstract: This narrative review examines acute and chronic kidney injury following COVID-19 infection and vaccination, discussing the mechanism of SARS-CoV-2 entry into host cells through the ACE2 receptor - highly expressed in renal tissues - facilitating the viral invasion. Viral RNA has been detected in the urine of patients infected with SARS-CoV-2, suggesting direct renal involvement. The incidence of Acute Kidney Injury (AKI) among hospitalized COVID-19 patients was particularly higher in the early

stages of the pandemic and largely varied by 29%-46%, depending on population studied and COVID-19 wave. Pathological findings include Acute Tubular Injury (ATI), collapsing glomerulopathy, and focal segmental glomerulosclerosis. Major risk factors for AKI comprise older age, male sex, diabetes, hypertension, cardiovascular disease, and preexisting Chronic Kidney Disease (CKD). AKI significantly increases mortality of COVID-19 patients, particularly in advanced stages of renal failure. CKD is also associated with severe COVID-19 outcomes, including increased hospitalization, intensive care admission, and mortality. Patients with CKD show a dose-dependent relationship between disease stage and adverse patient outcomes. This review further addresses renal complications following COVID-19 vaccination, which, although rare, encompass various immune-mediated glomerular diseases. Minimal Change Disease (MCD) is most frequently reported after COVID-19 vaccination, followed by IgA nephropathy, membranous nephropathy, anti-glomerular basement membrane (anti-GBM) nephritis, and ANCA-associated vasculitis. These conditions commonly present with hematuria, proteinuria, or nephrotic syndrome, and many respond to corticosteroid or immunosuppressive therapy. Other less frequent renal complications include thrombotic microangiopathy, acute tubulointerstitial nephritis, and IgG4-related nephritis. In conclusion, both COVID-19 infection and vaccination can be associated with a spectrum of renal manifestations ranging from AKI to CKD and immune-mediated glomerulopathies. Awareness, early detection, and multidisciplinary management are essential to reduce renal morbidity and improve patient outcomes.

19. Implementation of the kidney protection strategy in critically ill patients with acute kidney injury - a multi-center prospective cohort study.

Authors: Sadjadi, Mahan;Marcello, Matteo;Kohler, Andrea;Perschinka, Fabian;Schauflinger, Sebastian;Joannidis, Michael;Vadasz, Istvan;Husain-Syed, Faeq;Klop-Riehl, Margreet;Pickkers, Peter;Villa, Gianluca;Nagel, Tobias;Bormann, Eike;Booke, Hendrik;Schone, Ludwig Maximilian;von Groote, Thilo;Mertes, Moritz J.;Kellum, John A.;Straus, Christian and Zarbock, Alexander

Publication Date: 2026

Journal: Critical Care (London, England)

Abstract: BACKGROUND: The international Kidney Disease: Improving Global Outcomes (KDIGO) guidelines recommend the implementation of a kidney protection strategy (KPS) in patients at high risk of and with Acute Kidney Injury (AKI). However, real-world implementation of this strategy in critically ill patients with AKI is unclear. We quantified timely and sustained adherence to KPS in critically ill adults with moderate-to-severe (KDIGO stage 2 or 3) AKI and explored associations with clinical outcomes. METHODS: This was a multicenter, prospective cohort study enrolling adult patients with moderate or severe AKI requiring vasopressors and/or mechanical ventilation across five centers in Europe. The primary endpoint was adherence to the KPS, which included hemodynamic monitoring, sustained optimization of mean arterial pressure (MAP) > 65 mmHg, monitoring of serum creatinine and urine output, and avoidance of hyperglycemia, radiocontrast agents and nephrotoxins when possible, within 12 h after AKI diagnosis for 48 h or until ICU discharge. Exploratory analyses examined associations between adherence and renal outcomes. RESULTS: A total of 258 patients were enrolled (median age 69 years [IQR 62-75]; 65% male; median SOFA 10 [IQR 8-13]). The complete KPS was implemented in 80 patients (31%; 95% CI, 25.5-37.2%). Adherence to individual components of the KPS varied widely with optimization of MAP showing the lowest implementation rate (33%). In exploratory analyses accounting for death as a competing risk, KPS adherence was associated with a lower incidence of AKD beyond day 7 (subdistribution hazard ratio [SHR] 0.64; 95% CI, 0.41-0.99; p = 0.046), a higher incidence of renal recovery at hospital discharge (SHR 6.02; 95% CI, 4.00-9.05; p : A total of 258 patients were enrolled (median age 69 years [IQR 62-75]; 65% male; median SOFA 10 [IQR 8-13]). The complete KPS was implemented in 80 patients (31%; 95% CI, 25.5-37.2%). Adherence to individual components of the KPS varied widely with optimization of MAP showing the lowest implementation rate (33%). In exploratory analyses accounting for death as a competing risk, KPS adherence was associated with a lower incidence of AKD beyond day 7 (subdistribution hazard ratio [SHR] 0.64; 95% CI, 0.41-0.99; p = 0.046), a higher incidence of renal recovery at hospital discharge (SHR 6.02; 95% CI, 4.00-9.05; p : A total of 258 patients were enrolled (median age 69 years [IQR 62-75]; 65% male; median SOFA 10 [IQR 8-13]). The complete KPS was implemented in 80 patients

(31%; 95% CI, 25.5-37.2%). Adherence to individual components of the KPS varied widely with optimization of MAP showing the lowest implementation rate (33%). In exploratory analyses accounting for death as a competing risk, KPS adherence was associated with a lower incidence of AKD beyond day 7 (subdistribution hazard ratio [SHR] 0.64; 95% CI, 0.41-0.99; $p = 0.046$), a higher incidence of renal recovery at hospital discharge (SHR 6.02; 95% CI, 4.00-9.05; $p < 0.001$). **CONCLUSIONS:** In critically ill patients with moderate-to-severe AKI, the complete KDIGO-recommended kidney protection strategy was implemented in approximately one-third of patients, and full KPS adherence was associated with a higher rate of renal recovery at hospital discharge. Copyright © 2026. The Author(s).

20. Incidence and Associations of Acute Kidney Injury After Lung Resection Surgery: A Systematic Review and Meta-analysis.

Authors: Shan X.S.;Yan J.;Wang Y.Q.;Zhang Y.;Li X.Y.;Koutentis C.;Popescu W.M.;Ji F.H. and Liu, H.

Publication Date: 2026

Journal: Journal of Cardiothoracic and Vascular Anesthesia (pagination), pp. Date of Publication: 2026

Abstract: The incidence and clinical implications of acute kidney injury (AKI) following thoracic lung resection surgery remain insufficiently characterized. The authors conducted a systematic review to determine the incidence of AKI, identify risk factors for AKI, evaluate preventive interventions for AKI, and assess the associations of AKI with key postoperative outcomes. A systematic search of PubMed, Embase, and the Cochrane Library was conducted through June 25, 2025. The authors included observational and interventional studies that reported the incidence of AKI following lung resection, defined according to Risk, Injury, Failure, Loss, End-stage (RIFLE), Acute Kidney Injury Network (AKIN), or Kidney Disease: Improving Global Outcomes (KDIGO) consensus-based criteria. The study protocol was prospectively registered in the International Prospective Register of Systematic Reviews (CRD420251142075). Twenty studies involving 19,918 patients were included. The pooled incidence of AKI was 5.31% (95% confidence interval [CI], 3.61%-6.70%), with mild AKI and moderate to severe AKI occurring in 5.51% and 0.96% of patients, respectively. AKI was significantly associated with prolonged hospital stay (mean difference, 0.92 days; 95% CI, 0.52-1.30 days) and increased short-term mortality (risk ratio, 5.60; 95% CI, 1.66-18.83). Goal-directed fluid therapy did not significantly reduce the risk of AKI (risk ratio, 0.64; 95% CI, 0.32-1.27). AKI is a common complication following thoracic lung resection surgery and is strongly associated with a broad spectrum of severe adverse postoperative outcomes. In patients undergoing lung resection, AKI should be considered as a highly significant prognostic indicator that requires early risk stratification and proactive preventive strategies. Copyright © 2026 Elsevier Inc.

21. Nonlinear association between systemic inflammation response index and mortality in adult cardiac surgery-associated acute kidney injury: A retrospective Cohort study based on the MIMIC-IV database.

Authors: Tan, Tong;Awaker, Alimujiang and Lai, Yongqiang

Publication Date: Jun 26 ,2026

Journal: Medicine 105(26), pp. e49168

Abstract: Systemic inflammation plays a pivotal role in the pathogenesis and prognosis of cardiac surgery-associated acute kidney injury (CSA-AKI). The Systemic Inflammation Response Index (SIRI) has emerged as a novel biomarker reflecting immune inflammatory balance. This study aimed to explore the association between SIRI and in-hospital mortality among patients with CSA-AKI. Data of CSA-AKI patients were extracted from the MIMIC-IV 3.1 database. SIRI was calculated and divided into 3 tertiles. Restricted cubic spline (RCS) models were used to assess nonlinear associations between SIRI and mortality. Multivariate logistic regression models were constructed to evaluate the independent relationship between SIRI and outcomes after adjusting for potential confounders. A total of 5394 patients with CSA-AKI were included. Patients in the medium SIRI tertile (1.27-3.06)

demonstrated the lowest mortality (1.3%) compared to the low (2.0%) and high (3.1%) tertiles. RCS analysis revealed a significant U-shaped association between SIRS levels and in-hospital mortality risk (P for nonlinearity Copyright © 2026 the Author(s). Published by Wolters Kluwer Health, Inc.

22. Prevalence of acute kidney injury in geriatric patients: Equal contribution of arthroplasty and osteosynthesis of the proximal femur.

Authors: Tara, Besart;Kyliès, Dominik;Priemel, Matthias;Frosch, Karl-Heinz and Ballhause, Tobias M.

Publication Date: 2026

Journal: SAGE Open Medicine 14, pp. 20503121261464331

Abstract: Background: Proximal femoral fractures (PFFs) are among the most common fragility fractures among the elderly, and their incidence is increasing due to demographic changes. Elderly patients are at risk for developing acute kidney injury (AKI), which is linked to adverse clinical outcomes, morbidity, and mortality. The aim of this study was to investigate the prevalence of AKI following surgery for PFFs among geriatric patients. Patients with femoral neck fractures (FNFs) received a prosthesis, while patients with intertrochanteric fractures (ITFs) were treated with osteosynthesis. Methods: This retrospective single-center study was performed in a level-I trauma center and included 1554 patients with almost even distributions of FNF and ITF. Laboratory parameters, comorbidities, incidence of AKI, and need for dialysis were retrieved from electronic medical charts and statistically analyzed. Results: During hospital stay, AKI occurred in 22.6% of patients with PFF. The most common AKI stage was stage I. AKI stage III (requiring acute dialysis) was uncommon with a rate of 1.48%. The occurrence of AKI was highly associated with longer stay in the intensive care unit (ICU) and led to a higher rate of inpatient death. On average, the serum creatinine (SCr) level at hospital admission was higher for patients with FNF than those with ITF. Patients with FNF had significantly more comorbidities. A low estimated glomerular filtration rate (eGFR) at admission was a risk factor for the development of AKI. Conclusion: AKI is one of the most frequent and severe adverse events among geriatric patients with PFFs. Patients with low eGFR at admission had a higher risk for developing AKI than those with normal eGFR. No significant differences were observed in the prevalence of AKI between patients with FNF and ITF, although patients with FNF had more comorbidities and had longer hospital stays by one day on average. Copyright © The Author(s) 2026.

23. Temporal Recurrent Neural Networks for Predicting Acute Kidney Injury Recovery by Time of Discharge.

Authors: Tran, Nathan M.;Yousif, Zaid;Athavale, Ambarish;Nemati, Shamim and Macedo, Etienne

Publication Date: 2026

Journal: AMIA Summits on Translational Science Proceedings 2026, pp. 468–477

Abstract: Acute Kidney Injury (AKI) is a common complication in hospitalized patients and is associated with increased in-hospital mortality, readmission, and chronic kidney disease. Early identification of patients at risk of AKI non-recovery can improve discharge planning and follow-up. Using a retrospective cohort of 7,667 patient encounters diagnosed with AKI from the University of California San Diego Health, we compared traditional machine learning (ML) and temporal deep learning (DL) models to predict three AKI recovery outcomes: Recovery, Partial Recovery, and Non-Recovery. The ML models evaluated were Logistic Regression, Random Forest, and XGBoost; while, the DL models were Gated Recurrent Unit (GRU) and Long-Short Term Memory. On the test set, DL models consistently outperformed traditional ML approaches. The GRU model achieved the highest Macro-Area Under the Curve (AUC) (0.822) with strong discrimination for the Non-Recovery class (AUC 0.932). This work demonstrates that temporal modeling of clinical trajectories can enhance AKI recovery prediction. Copyright ©2026 AMIA - All rights reserved.

24. The role of continuous renal replacement therapy in sepsis-associated acute kidney injury: a systematic review and meta-analysis.

Authors: Zeng S.;Guan C.;Yao Z.;Li Y.;Zheng J. and Wang, H.

Publication Date: 2026

Journal: Emergency and Critical Care Medicine (pagination), pp. Date of Publication: 2026

Abstract: Background: - Continuous renal replacement therapy (CRRT) is commonly used to manage sepsis-associated acute kidney injury (SA-AKI) as a form of extracorporeal blood purification. However, the current consensus report from the 28th Acute Disease Quality Initiative workgroup does not provide explicit recommendations for the use of CRRT in SA-AKI, because of insufficient high-quality evidence regarding its efficacy. This study aimed to evaluate whether CRRT provides clinical benefits compared with non-CRRT therapy in patients with SA-AKI. Method(s): - All randomized controlled trials published up to October 11, 2025, in 9 Chinese and English databases were reviewed and included in the study. A meta-analysis was performed on the experimental group (CRRT group) and control group (non-CRRT group) using risk ratios (RRs), weighted mean differences (WMDs), and 95% confidence intervals (CIs). The certainty of evidence for each outcome was evaluated using the Grading of Recommendations Assessment, Development and Evaluation approach. Result(s): - A total of 37 studies involving 3117 subjects were included. Compared with the non-CRRT group, CRRT was associated with reduced 28-day mortality (RR: 0.42, 95% CI: 0.30-0.58, P Result(s): - A total of 37 studies involving 3117 subjects were included. Compared with the non-CRRT group, CRRT was associated with reduced 28-day mortality (RR: 0.42, 95% CI: 0.30-0.58, P Result(s): - A total of 37 studies involving 3117 subjects were included. Compared with the non-CRRT group, CRRT was associated with reduced 28-day mortality (RR: 0.42, 95% CI: 0.30-0.58, P Result(s): - A total of 37 studies involving 3117 subjects were included. Compared with the non-CRRT group, CRRT was associated with reduced 28-day mortality (RR: 0.42, 95% CI: 0.30-0.58, P Result(s): - A total of 37 studies involving 3117 subjects were included. Compared with the non-CRRT group, CRRT was associated with reduced 28-day mortality (RR: 0.42, 95% CI: 0.30-0.58, P Result(s): - A total of 37 studies involving 3117 subjects were included. Compared with the non-CRRT group, CRRT was associated with reduced 28-day mortality (RR: 0.42, 95% CI: 0.30-0.58, P Conclusion(s): - CRRT may be associated with reduced 28-day and hospital mortality rates, a lower incidence of cardiovascular events, and shorter intensive care unit and in-hospital stays in patients with SA-AKI than standard therapy alone. However, the overall certainty of evidence assessed using the Grading of Recommendations Assessment, Development and Evaluation approach was low to very low, primarily because of limited sample sizes, methodological bias, and clinical heterogeneity among the included studies. Therefore, the findings should be interpreted with caution. Future high-quality, multicenter international randomized controlled trials with standardized CRRT protocols and longer follow-up durations are warranted to validate these results and optimize the clinical application of CRRT in SA-AKI. Copyright © 2026 The Author(s). Published by Wolters Kluwer Health, Inc.

25. Incidence and Risk Factors of Postoperative Acute Kidney Injury in Colorectal Cancer Patients With Metabolic Syndrome: A Retrospective Cohort Study.

Authors: Zha, Quanyong;Xiong, Kun;Wei, Man and Chen, Yunjing

Publication Date: Jun 10 ,2026

Journal: Annali Italiani Di Chirurgia 97(6), pp. 1050–1059

Abstract: AIM: Postoperative acute kidney injury (AKI) is a serious complication commonly occurring after colorectal cancer surgery, primarily associated with prolonged hospitalization and poor prognosis. Metabolic syndrome (MetS) is accompanied by chronic inflammation, insulin resistance, and subclinical renal dysfunction-factors that could augment susceptibility to AKI in patients under surgical stress. This study aims to investigate the incidence and risk factors of postoperative AKI in colorectal cancer patients with MetS and provide a reference for perioperative risk management. METHODS: In this

retrospective cohort study, 209 patients with MetS who underwent radical resection for colorectal cancer at Ezhou Central Hospital from January 2023 to December 2025 were consecutively enrolled. According to whether AKI occurred after surgery, the patients were divided into AKI group (n = 63) and non-AKI group (n = 146). Demographic data, metabolic indicators, inflammatory markers, and surgery-related variables were collected. Univariate and multivariate logistic regression analyses were conducted to identify independent risk factors of AKI, and a predictive model was constructed. The model's performance was evaluated by analyzing the area under the curve (AUC) and the calibration curve. RESULTS: Univariate analysis showed that fasting plasma glucose, 2-hour postprandial blood glucose, systolic blood pressure, diastolic blood pressure, components of metabolic syndrome, preoperative neutrophil-to-lymphocyte ratio (NLR), intraoperative blood loss, hypoalbuminemia, and intraoperative hypotension were significantly associated with AKI (p < 0.05). CONCLUSIONS: Colorectal cancer patients with MetS are at an increased risk of postoperative AKI. Elevated diastolic blood pressure, a higher preoperative NLR, increased intraoperative blood loss, and episodes of intraoperative hypotension are independent risk factors of AKI. Therefore, optimizing perioperative blood pressure control, assessing the inflammatory status, adopting more delicate surgical techniques, and ensuring vigilant hemodynamic monitoring are essential strategies to reduce the risk of AKI in these patients. © Copyright: © 2026 The Author(s).

26. The Effect of Dexmedetomidine on Postoperative Acute Kidney Injury in High-Risk Partial Nephrectomy Patients: A Retrospective Cohort Study.

Authors: Zhang, Hao-Dong;Gao, Yang;Zhang, Zhong-Yuan;Zhang, Yu-Xiu and Kong, Hao

Publication Date: 2026

Journal: Drug Design, Development & Therapy 20, pp. 607823

Abstract: Background: Randomized controlled trial has shown that dexmedetomidine does not significantly reduce postoperative acute kidney injury (AKI) in general partial nephrectomy (PN) populations. However, evidence remains limited in patients with high susceptibility to renal ischemia, such as those with a solitary kidney or pre-existing chronic kidney disease (CKD). Methods: We conducted a single-center retrospective cohort study including adult high-risk PN patients between 2015 and 2023. Eligible high-risk patients were those with a solitary kidney or pre-existing CKD. The study cohort was divided into dexmedetomidine-exposed and non-exposed groups. To balance baseline characteristics, inverse probability of treatment weighting (IPTW) was applied. The primary outcome was AKI incidence within 24 hours postoperatively, defined by KDIGO creatinine criteria. Results: The study included 274 patients, with 82 assigned to the dexmedetomidine-exposed cohort and 192 to the non-exposed cohort. After IPTW adjustment, all baseline covariates were well balanced. Dexmedetomidine exposure was associated with significantly lower AKI incidence (23.9% versus 38.6%, $P = 0.025$), with a trend toward milder AKI staging. Intraoperative urine output was higher in the dexmedetomidine group (341 +/- 183 versus 282 +/- 188 mL, $P = 0.022$). Length of postoperative hospital stay, postoperative complications, ICU admission rate, percentage decrease in eGFR from baseline at 6-month follow-up, and incidence of a >20% decrease from baseline eGFR at 6-month follow-up did not differ significantly between the two groups. Conclusion: In high-risk PN patients with a solitary kidney or pre-existing CKD, intraoperative dexmedetomidine was associated with a clinically meaningful reduction in postoperative AKI. These findings suggest a potential renoprotective role of dexmedetomidine in this vulnerable surgical population, although this early renal benefit did not translate into long-term improvements in renal function. Copyright © 2026 Zhang et al

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