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July 2025

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Book a session today at https://forms.office.com/e/HyiSXfDaYV (these sessions will be held on a monthly basis)

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1. **Association between the lactate-to-albumin ratio and sepsis-associated acute kidney injury: a cross-sectional study.**

Authors: Ao T.;Huang Y.;Zhen P. and Hu, M.

Publication Date: 2025

Journal: European Journal of Medical Research 30(1) (pagination), pp. Article Number: 518. Date of Publication: 01 Dec 2025

Abstract: Background: Patients who develop sepsis-associated acute kidney injury (SAKI) in the intensive care unit face a significantly elevated mortality risk. The lactate-to-albumin ratio (LAR) has been utilized as an important marker for the occurrence and development of various diseases. Nevertheless, the association between LAR and SAKI remains inadequately explored. This study seeks to investigate the connection between the LAR and SAKI. Method(s): Patients identified with SAKI were selected from the Medical Information Mart for Intensive Care-IV (MIMIC-IV) database. LAR was recorded at the time of admission, with the primary endpoint being the development of AKI within 7 days following the sepsis diagnosis. Logistic regression and subgroup analyses were utilized to assess the relationship between LAR and SAKI. Result(s): The final analysis incorporated data from 4,113 patients retrieved from the MIMIC-IV database. Logistic regression analysis revealed that a 1-unit increase in LAR was linked to a 49% rise in the incidence of SAKI (95% confidence interval, 1.27 to 1.76; P Result(s): The final analysis incorporated data from 4,113 patients retrieved from the MIMIC-IV database. Logistic regression analysis revealed that a 1-unit increase in LAR was linked to a 49% rise in the incidence of SAKI (95% confidence interval, 1.27 to 1.76; P Conclusion(s): Higher LAR at admission was independently associated with an increased risk of SAKI.Copyright © The Author(s) 2025.

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2. **The relationship of neutrophil gelatinase-associated lipocalin (NGAL) as a predictor of events acute kidney injury (AKI) in septic patients treated in ICU.**

Authors: Aulia M.F.;Lubis A.P.;Silaen E.L. and Harahap, J.

Publication Date: 2025

Journal: Critical Care and Shock 28(2), pp. 53–60

Abstract: Introduction: Sepsis is defined as life-threatening organ dysfunction caused by dysregulation of the body's response to infection. Sepsis can cause multiple organ dysfunctions, including kidney dysfunction, leading to sepsis-related acute kidney injury (S-AKI). Recent studies have found that neutrophil gelatinase-associated lipocalin (NGAL) can be a biomarker responsive to tissue stress and injury to the nephron, so acute kidney damage is recognized more quickly. This biomarker also functions as a monitor of development and recovery, and predicts the final outcome. Method(s): This study was a prospective observational study to see the relationship between NGAL levels as a predictor of AKI incidence in septic patients in the intensive care unit (ICU). The research sample was taken according to the inclusion and exclusion criteria, and the sample size was 40. Result(s): NGAL levels >150 ng/ml with the occurrence of sepsis with AKI were found in 32 (94.1%) samples, and sepsis without AKI in 2 (5.9%) samples. NGAL levels Result(s): NGAL levels >150 ng/ml with the occurrence of sepsis with AKI were found in 32 (94.1%) samples, and sepsis without AKI in 2 (5.9%) samples. NGAL levels Result(s): NGAL levels >150 ng/ml with the occurrence of sepsis with AKI were found in 32 (94.1%) samples, and sepsis without AKI in 2 (5.9%) samples. NGAL levels Conclusion(s): There was a relationship between NGAL and the incidence of AKI, and it had a specificity of 97%, specificity of 71%, PPV of 94%, NPV of 83%, and AUC of 86%.

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3. **Pregnancy-Associated Acute Kidney Injury: A Retrospective Analysis from a Tertiary Hospital.**

Authors: Banode R. and Yadav, S.

Publication Date: 2025

Journal: International Journal of Life Sciences Biotechnology and Pharma Research 14(6), pp. 290–295

Abstract: Background:Pregnancy-associated acute kidney injury (PRAKI) is a potentially life-threatening condition with significant maternal and fetal implications. While its incidence has declined in developed nations, it continues to present a serious challenge in resource-limited settings due to delayed diagnosis and limited access to renal replacement therapy. Aim(s):To evaluate the prevalence, clinical profile, etiological factors, management approaches, and maternal-fetal outcomes of PRAKI in a tertiary care hospital setting. Material(s) and Method(s):This retrospective observational study was conducted at Indore Medical College between January 2021 and December 2023. A total of 15,897 pregnant or postpartum women were screened, among which 25 cases met the KDIGO criteria for acute kidney injury during pregnancy or within six weeks postpartum. Relevant demographic, clinical, laboratory, imaging, and outcome data were collected and analyzed using SPSS version 26.0. Statistical significance was defined as pMaterial(s) and Method(s):This retrospective observational study was conducted at Indore Medical College between January 2021 and December 2023. A total of 15,897 pregnant or postpartum women were screened, among which 25 cases met the KDIGO criteria for acute kidney injury during pregnancy or within six weeks postpartum. Relevant demographic, clinical, laboratory, imaging, and outcome data were collected and analyzed using SPSS version 26.0. Statistical significance was defined as pResult(s):The prevalence of PRAKI was 1.57 per 1,000 pregnancies (0.16%). Most patients were aged 26-35 years (52%) and presented at 28-36 weeks gestation (52%). Common clinical features included oliguria (84%), edema (72%), and hypertension (64%). Pre-eclampsia (48%) was the leading etiological factor, followed by eclampsia (24%) and sepsis (20%). Hemodialysis was required in 44% of cases. Maternal recovery was complete in 76% of patients, while 12% had residual kidney dysfunction and 12% died. Fetal outcomes included 68% live births, 24% intrauterine deaths, 40% preterm deliveries, and 8% neonatal deaths. Significant predictors of poor maternal outcome included gestational age Result(s):The prevalence of PRAKI was 1.57 per

1,000 pregnancies (0.16%). Most patients were aged 26-35 years (52%) and presented at 28-36 weeks gestation (52%). Common clinical features included oliguria (84%), edema (72%), and hypertension (64%). Pre-eclampsia (48%) was the leading etiological factor, followed by eclampsia (24%) and sepsis (20%). Hemodialysis was required in 44% of cases. Maternal recovery was complete in 76% of patients, while 12% had residual kidney dysfunction and 12% died. Fetal outcomes included 68% live births, 24% intrauterine deaths, 40% preterm deliveries, and 8% neonatal deaths. Significant predictors of poor maternal outcome included gestational age Conclusion(s):Although rare, PRAKI remains a serious obstetric complication associated with substantial maternal and fetal morbidity. Early gestational onset, hypertensive disorders, and sepsis are major risk factors for adverse outcomes. Prompt diagnosis and comprehensive multidisciplinary management are essential to improving maternal prognosis, though fetal survival continues to require enhanced support systems.Copyright ©2025Int. J. LifeSci.Biotechnol.Pharma.Res.

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4. **Clinical profile of acute kidney injury in intensive care unit patients.**

Authors: Chandrakanth V.;Bentoor S.N. and Patil, S.

Publication Date: 2025

Journal: International Journal of Life Sciences Biotechnology and Pharma Research 14(6), pp. 390–401

Abstract: Background: Patients in intensive care unit (ICU) frequently experience acute kidney injury (AKI), which is a clinical problem that predicts a poor outcome. AKI is one among the leading causes of ICU admissions & common contributor to in hospital morbidity and mortality & linked to prolonged hospital stays. AKI may be treatable with early detection and treatment, but higher rate of morbidity and mortality may result from a delayed diagnosis. Methodology: A cross-sectional study was conducted at Shri B.M. Patil Medical College Hospital & Research Centre, BLDE (DU). 78 patients above 18 years of age, admitted in ICU diagnosed with AKI using KDIGO criteria or developed AKI after admission to ICU were taken for study. Data collection involved detailed history, clinical examination & investigations like CBC, RFT, urine microscopy, peripheral smear, LFT, USG abdomen, ABG analysis. The Aim of study is to analyse clinical spectrum of AKI in ICU, to study causes & risk factors of AKI, & to analyse final outcome of patients with AKI admitted to ICU. Result(s): Most cases were over 50 years of age. Sepsis was most common etiology, second being Acute GE. Other etiologies include hepatorenal syndrome, cardiorenal syndrome, CVA, snake bite, post-operative cases & poisoning. 64.10% patients were managed conservatively, 35.90 % required hemodialysis. Out of 78 patients, 50 patients survived. Mortality was seen in 28 patients. Conclusion(s): Most frequent cause of AKI in ICU patients was sepsis. It also has high death rate. In each case of sepsis, preventing development of multi-organ failure is crucial. Dialysis was used to treat our patients whenever necessary. Common causes of increased mortality include multi-organ dysfunction, infections, delayed diagnosis & treatment, & frequent occurrence of comorbidities. Although there was a correlation between AKI & hospital outcomes, prognosis of AKI severity is more affected by organ failure.Copyright ©2025Int. J. Life Sci. Biotechnol. Pharma. Res

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5. **The Protective Effect of Remote Ischemic Preconditioning on Acute Kidney Injury Following Pediatric Cardiac Surgery: A Systematic Review and Meta-Analysis.**

Authors: Cheng P.;Wang G. and An, Y.

Publication Date: 2025

Journal: Journal of Cardiothoracic and Vascular Anesthesia (pagination), pp. Date of Publication: 2025

Abstract: Cardiac surgery in children is a major risk factor for acute kidney injury (AKI) because of the high risk of AKI due to the combination of hemodynamic instability, ischemia-reperfusion injury, and inflammation. However, the protective role of remote ischemic preconditioning (RIPC) in this setting is unclear. This systematic review and meta-analysis was conducted to assess whether RIPC reduces the

incidence of AKI in pediatric cardiac surgery patients. PubMed, EMBASE, and the Cochrane Library were systematically searched for randomized controlled trials (RCTs) of RIPC in pediatric cardiac surgery. The primary outcome indicator was the incidence of postoperative AKI, and secondary outcome indicators included serum creatinine (sCr) level, tumor necrosis factor (TNF)-alpha level, and intensive care unit (ICU) length of stay (LOS). Six RCTs with a total of 1,098 patients were included in the analysis. RIPC significantly reduced the incidence of AKI (odds ratio, 0.38; 95% confidence interval, 0.25-0.60; p 0.05 for all; I2 >80%). Sensitivity analyses showed a large impact of some studies on the results. The data indicate that RIPC significantly reduced the incidence of AKI after pediatric cardiac surgery, showing its potential renoprotective effect. Although the effect on other postoperative indicators was not significant, high heterogeneity limits the certainty of the conclusions. Future studies should focus on multicenter, large-scale trials with detailed subgroup analyses to explore the mechanism of action and effects of RIPC in different patient populations.

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6. **Increased Plasma Fibroblast Growth Factor 23 Significantly Associates with In-Hospital Acute Kidney Injury after Cardiac Surgery.**

Authors: Cheruku S.R.;Neyra J.A.;Mohammad H.;Trinh J.;Hernandez G.;Nakonezny P.A.;Jessen M.E.;Moe O.W. and Fox, A. A.

Publication Date: 2025

Journal: Anesthesiology (pagination)

Abstract: Background: Acute kidney injury (AKI) occurs in 20-30% of cardiac surgery patients and is most often classified as mild. A prior study reported that intact fibroblast growth factor 23 (iFGF23) and C-terminal fibroblast growth factor 23 (cFGF23) measured after cardiopulmonary bypass (CPB) were associated with severe AKI after cardiac surgery, but did not analyze the association between iFGF23 and all-stage AKI. The primary aim of our study was to determine whether FGF23 biomarker measurements six hours following CPB were associated with all-stage AKI after cardiac surgery. Method(s): This prospective observational study included 173 patients undergoing non-emergent coronary artery bypass graft (CABG) and/or valve surgery on CPB. The primary study outcome was all-stage postoperative in-hospital AKI defined using the Kidney Disease: Improving Global Outcomes (KDIGO) serum creatinine criteria through postoperative day seven or earlier if hospital stay was less than 7 days. Plasma iFGF23 and cFGF23 were measured six hours after the end of CPB. Result(s): A total of 32 patients developed in-hospital postoperative AKI (18.5%) by the seventh post-operative day. The incidence of AKI was 18.5% in CABG patients, 14.3% in valve surgery patients, and 41.2% in combined CABG-valve patients. A 2-fold increase in cFGF23 was associated with 1.57 greater predicted odds of developing in-hospital postoperative AKI (OR 1.57; 95% CI: 1.26 - 1.96; pResult(s): A total of 32 patients developed in-hospital postoperative AKI (18.5%) by the seventh post-operative day. The incidence of AKI was 18.5% in CABG patients, 14.3% in valve surgery patients, and 41.2% in combined CABG-valve patients. A 2-fold increase in cFGF23 was associated with 1.57 greater predicted odds of developing in-hospital postoperative AKI (OR 1.57; 95% CI: 1.26 - 1.96; pConclusion(s): Early postoperative measurements of cFGF23 and iFGF23 are associated with all-stage AKI after cardiac surgery. The utility of these biomarkers for risk-classification in cardiac surgery patients remains to be determined.

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7. **Prognostic Implications of High-Sensitivity Cardiac Troponins in Patients With Acute Kidney Injury Without Myocardial Infarction.**

Authors: Cyon L.;Kadesjo E. and Roos, A.

Publication Date: 2025

Journal: American Journal of Cardiology 251, pp. 70–78

Abstract: Elevated and dynamic high-sensitivity cardiac troponin T (hs-cTnT) concentrations are often

observed in patients with acute kidney injury (AKI) without myocardial infarction (MI), yet their prognostic implications are unknown. This study investigated associations between hs-cTnT measurements and prognosis in patients with AKI in the emergency department (ED). All first visits to 7 EDs during 2010 to 2017 by patients without MI fulfilling AKI criteria and >=1 hs-cTnT measured were included. Logistic and Cox regression analyses were applied to estimate short- and long-term risks of mortality and major adverse cardiovascular events (MACE) according to peak hs-cTnT and relative hs-cTnT change (DELTAhs-cTnT). A total of 12,136 patients were included. In-hospital- and long-term mortality was 15% and 49% (median follow-up: 3.8 years, IQR: 1.3 to 6.0). Adjusted in-hospital mortality risk increased with higher peak hs-cTnT, being >8-fold (aOR 8.68, 95% CI: 6.85 to 11.0) in the highest quintile of hs-cTnT, in whom long-term risk of cardiovascular mortality and MACE was 3-fold (HR: 3.01, 95% CI: 2.74 to 3.31) and 2-fold (HR: 2.12, 95% CI: 2.00 to 2.24). Associated risks were elevated already at intermediately elevated hs-cTnT and evident in patients with transient AKI and with normalized eGFR at discharge. Patients with the highest DELTAhs-cTnT experienced an increased short-term mortality risk, but DELTAhs-cTnT was not associated with long-term mortality and only weakly associated with the risk of MACE. In conclusion, in patients with AKI but without acute MI, peak hs-cTnT are associated with a worse prognosis in both the short and long term, whereas dynamic hs-cTnT changes may have less prognostic significance.

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8. **Toward the standardization of big datasets of urine output for AKI analysis: a multicenter validation study.**

Authors: Hasidim A.A.;Klein M.A.;Ben Shitrit I.;Einav S.;Ilan K. and Fuchs, L.

Publication Date: 2025

Journal: Scientific Reports 15(1), pp. 20009

Abstract: Acute kidney injury (AKI) is a prevalent condition in ICU patients. However, inconsistencies in urine charting and guideline interpretations hinder accurate diagnosis and research. This study aimed to derive and validate a standardization for the processing of big urine output datasets to improve consistency in AKI diagnosis and staging. Using a derivation cohort from 14 ICUs at Beth Israel Deaconess Medical Center (2008-2019) and a validation cohort from an academic center in Amsterdam (2003-2016), we developed and validated an algorithm for computing hourly urine output rates and identifying oliguric AKI across its definitions. Peak AKI stages computed using the method were significantly associated with all clinical outcomes, including severity scores, serum creatinine levels, ICU and hospital lengths of stay, renal replacement therapy requirements, and hospital mortality (all p

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9. **Chronic obstructive pulmonary disease is associated with a higher incidence of acute kidney injury in non-cardiac but not in cardiac surgery ICU-patients: a retrospective MIMIC-III database analysis.**

Authors: Hochhausen N.;Moza A.;Kroh A.;Rossaint R. and Kork, F.

Publication Date: 2025

Journal: Respiratory Medicine 244(pagination), pp. Article Number: 108160. Date of Publication: 01 Aug 2025

Abstract: Purpose: Acute kidney injury (AKI) and chronic obstructive pulmonary disease (COPD) are both associated with high mortality. We hypothesized that COPD impacts the incidence of AKI and the outcome of surgical intensive care unit (ICU)-patients. Material(s) and Method(s): We analyzed data of surgical ICU-patients from the Medical-Information-Mart-for-Intensive-Care-III-database. We compared the incidence of AKI, in-hospital-mortality, ICU-and hospital-length-of-stay (ICU-LOS, HLOS) in patients with and without COPD. In a subgroup analysis, we compared the outcomes of patients undergoing cardiac (CS) and non-cardiac surgery (NCS). Result(s): The data of 21,720 cases were analyzed, 9.7 % suffered from COPD. COPD-patients were younger compared to patients without COPD

(64years(52-75)vs.71years(63-78),p Result(s): The data of 21,720 cases were analyzed, 9.7 % suffered from COPD. COPD-patients were younger compared to patients without COPD (Conclusion(s): COPD has a different impact on outcomes in CS- and NCS-patients. While COPD was associated with a higher risk for in-hospital mortality in CS-patients, COPD was associated with a higher risk of AKI, longer ICU-LOS and HLOS in NCS-patients.

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10. **Characteristics and prognosis of patients with pathogenic microorganism-positive sepsis AKI from ICU: a retrospective cohort study.**

Authors: Jin P.;Meng X.;Yu C. and Zhou, C.

Publication Date: 2025

Journal: Frontiers in Cellular and Infection Microbiology 15(pagination), pp. Article Number: 1509180. Date of Publication: 2025

Abstract: Background: Sepsis-associated acute kidney injury (SA-AKI) carries a disproportionately high morbidity and mortality rate. While the synergism between dysregulated host response and renal vulnerability is increasingly recognized, the multifactorial drivers of poor prognosis remain poorly defined. The purpose of this study was to investigate the prognosis and clinical characteristics of patients with pathogenic microorganism-positive SA-AKI. Method(s): Using a retrospective analysis approach, we extracted populations from the Medical Information Mart for Intensive Care IV (MIMIC-IV) database that fulfilled the diagnostic criteria for confirmed sepsis with microbiological evidence of pathogenic organisms, and patients were divided into two cohorts according to with or without AKI. The severity of the disease in the two groups was collected for evaluation, and the clinical indicators and prognostic results of the patients were evaluated. The objective of this study was to explore the risk factors affecting the prognosis of patients with pathogenic microorganism-positive SA-AKI. Outcome(s): The hospital mortality rate of AKI in patients with pathogenic microbial-positive sepsis was 18.96%. Further analysis showed that the use of vasoactive drug therapy, high lactate level, SAPS II score, SAPS III score, LODS score, and clinical indicators of prolonged hospital stay were independent risk factors for in-hospital mortality in patients with pathogenic microorganism-positive SA-AKI. Among them, SAPS III score plays an important role in predicting the prognosis of sepsis patients with AKI. Further studies found that lactate level was positively correlated with SAPS II score, SAPS III score, and LODS score. Conclusion(s): The use of vasoactive drug therapy, high lactate level, SAPS II score, SAPS III score, and LODS score plays an important role in assessing the prognosis of patients with pathogenic microorganism-positive SA-AKI, and multivariate comprehensive assessment is significant in predicting the prognosis of sepsis AKI patients.

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11. **In-Hospital Mortality and Severe Respiratory and Renal Outcomes-A Territory-Wide Comparison Between RSV and Influenza.**

Authors: Kwok W.;Leung I.;Ho J.;Tsui C.;Lam D.;Ip M.;To K. and Yap, D.

Publication Date: 2025

Journal: Influenza and Other Respiratory Viruses 19(6) (pagination), pp. Article Number: e70130. Date of Publication: 01 Jun 2025

Abstract: Introduction: Respiratory syncytial virus (RSV) and influenza virus are important respiratory viruses. Although RSV vaccines have been developed and recommended for patients aged >= 60, there is limited data on the clinical impact among the non-elderly population. It is also important to know the patient subgroups that are at risk of complications from RSV infections. Method(s): We conducted a territory-wide retrospective study on adults hospitalized for RSV or influenza virus infection between 1/1/2016 and 6/30/2023 in Hong Kong. The in-patient mortality, severe respiratory failure (SRF), secondary bacterial pneumonia, and acute kidney injury (AKI) were compared. Subgroup analyses were performed in different age groups. The risk factors for mortality and serious respiratory outcomes were assessed. Result(s): A total of 41,206 and 3565 patients were hospitalized for influenza

and RSV infections. Patients with RSV infection showed a significantly higher risk of in-patient mortality, SRF, secondary bacterial pneumonia, and AKI compared with those with influenza (p = 60, = 60, = 60, Conclusion(s): Adults hospitalized for RSV infection were associated with a significantly increased risk of in-patient mortality and adverse respiratory and kidney outcomes than those with influenza. The findings are consistent across various age groups, and the results call for an update on RSV vaccination recommendations in adults, especially for vulnerable subgroups.Copyright © 2025 The Author(s). Influenza and Other Respiratory Viruses published by John Wiley & Sons Ltd.

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12. **Incidence and Risk Factors of Acute Kidney Injury (AKI) in ICU Patients: A Prospective Observational Study.**

Authors: Maniyala M.M. and Arundas, H.

Publication Date: 2025

Journal: International Journal of Life Sciences Biotechnology and Pharma Research 14(6), pp. 140–144

Abstract: Background: Acute kidney injury (AKI) is a common and severe complication among critically ill patients in intensive care units (ICUs) with a significant contribution to morbidity and mortality. Identification of risk individuals early on is paramount to enhancing outcomes. Incidence, risk factors, and clinical effects of AKI among ICU patients were the aims of this study. Method(s): A prospective observational study was done in the ICU of a tertiary care center for a specific time. Adult patients who were admitted for greater than 24 hours were enrolled. AKI was diagnosed and staged based on KDIGO criteria. Clinical and laboratory parameters were noted, and associations of risk factors with AKI were examined by applying proper statistical analysis. Result(s): Of 220 enrolled patients, 94 (42.7%) developed AKI. Among them, 38 (40.4%) had Stage 1, 31 (33.0%) had Stage 2, and 25 (26.6%) had Stage 3 AKI. AKI patients were older and had increased rates of diabetes, hypertension, sepsis, mechanical ventilation, and use of vasopressors (pResult(s): Of 220 enrolled patients, 94 (42.7%) developed AKI. Among them, 38 (40.4%) had Stage 1, 31 (33.0%) had Stage 2, and 25 (26.6%) had Stage 3 AKI. AKI patients were older and had increased rates of diabetes, hypertension, sepsis, mechanical ventilation, and use of vasopressors (pConclusion(s): AKI is prevalent among ICU patients and is closely associated with adverse clinical outcomes. Discovery of modifiable risk factors and the adoption of early preventive strategies are essential in limiting AKI occurrence and enhancing survival in this at-risk group.Copyright ©2025Int. J. Life Sci. Biotechnol. Pharma. Res.

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13. **RECOVID: Retrospective Observational Study of Renal Outcomes and Long-Term Mortality in Patients With COVID-19-Associated AKI, A Comparison Between Vaccinated and Unvaccinated Patients.**

Authors: Nobakht N.;Jang C.;Grogan T.;Fahim P.;Kurtz I.;Schaenman J.;Wilson J. and Kamgar, M.

Publication Date: 2025

Journal: Kidney Medicine 7(7) (pagination), pp. Article Number: 101020. Date of Publication: 01 Jul 2025

Abstract: Rationale & Objective: Acute kidney injury (AKI) is a common complication in patients with Coronavirus disease-2019 (COVID-19) infections, with rates as high as 32% to 46%, and it has been associated with poor outcomes. However, the long-term renal and survival outcomes among hospitalized patients with COVID-19 and AKI are not fully understood. Study Design: A single-center cohort study. Setting & Participants: Total of 972 adult patients admitted with COVID-19 infection and AKI at a single large urban academic medical center from March 1, 2022, to March 30, 2022. Among these, 411 (42.3%) did not receive a dose of a US FDA-approved COVID-19 vaccine, and 467 (48.0%) had completed the primary vaccine series. Exposure: Patients admitted with COVID-19 infection and AKI were analyzed using vaccination status as the exposure. Additional exposures included demographics, comorbid conditions, and need for continuous renal replacement therapy (CRRT) during

hospitalization. Outcome(s): The primary outcome was in-hospital mortality. Secondary outcomes included long-term mortality, length of hospital stay, and the need for renal replacement therapy (RRT) at discharge. Analytical Approach: The vaccinated and unvaccinated cohorts were characterized using descriptive analyses. The cohorts were analyzed using the Kaplan-Meier method and groups were compared using the log-rank test. Multivariable cox, logistic, and linear regression models were used for mortality, RRT status at discharge, and length of stay, respectively. Result(s): Among 3,527 hospitalized patients with a COVID-19 infection, AKI occurred in 972 patients. Of the 972 patients with AKI, 411 (42.3%) did not receive a dose of a US FDA-approved COVID-19 vaccine and 467 (48.0%) had completed the primary vaccine series. Unvaccinated patients had a higher rate of requiring CRRT during their hospitalization compared with vaccinated patients (15.8% vs 10.9%, P = 0.03). The CRRT during hospitalization was significantly associated with in-hospital death (adjusted HR 2.82; 95% CI, 1.88-4.25) and long-term follow-up death (adjusted HR 2.44; 95% CI, 1.73-3.42). Unvaccinated patients also had a 2.56 (95% CI, 1.52-4.30) times higher odds of being discharged on RRT when compared with those who were vaccinated. In an adjusted multivariable analysis, those who were unvaccinated had both significantly increased in-hospital mortality (adjusted HR 5.54; 95% CI, 3.36-9.13) and long-term follow-up mortality (adjusted HR 4.78; 95% CI, 3.39-6.73) when compared with those who were vaccinated. Limitation(s): There was a lack of data on the ventilation status and other indicators of infection severity in patients in intensive care unit who received CRRT. In addition, data on booster COVID-19 vaccinations were lacking. Conclusion(s): Vaccinated patients with a COVID-19 infection and AKI had an increase overall survival and were less likely to remain on RRT at the time of discharge. Further studies evaluating the underlying etiologies of AKI and renal outcomes among patients admitted with COVID-19 infection in both vaccinated and unvaccinated patients is important in the development of targeted therapies and guidance on management and follow-up approaches to monitor renal recovery and model outcomes for providing chronic kidney disease care for these patients. Plain Language Summary: Acute kidney injury (AKI) is a common complication among unvaccinated and vaccinated patients hospitalized with Coronavirus disease-2019 COVID-19 infection. This study of 972 patients demonstrated that unvaccinated patients hospitalized with COVID-19 infection and acute kidney disease had increased in-hospital and long-term mortality compared with vaccinated patients. Among the 411 unvaccinated patients, a third died in the hospital and almost a half died at long-term follow-up compared with less than a fifth in vaccinated patients. Unvaccinated patients also had longer duration of hospitalizations and higher rates of needing continuous renal replacement therapy during hospitalization and renal replacement therapy dependence on discharge compared with vaccinated patients.

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14. **Epidemiology of Septic Shock Associated Acute Kidney Injury: A National Retrospective Cohort Study.**

Authors: Patanwala A.E. and Erstad, B. L.

Publication Date: 2025

Journal: Critical Care Medicine (pagination)

Abstract: Objectives: Septic shock is the most severe and final stage of sepsis. These patients may have a higher risk for sepsis-associated acute kidney injury (AKI). The purpose of this study is to determine the frequency of AKI, major adverse kidney events at 30 days (MAKE-30), and use of renal replacement therapy (RRT) in patients with septic shock. We also aim to determine the association between stage of AKI and in-hospital mortality. Design(s): Retrospective, multicenter, cohort study. Setting(s): This was conducted in 220 geographically diverse community and teaching hospitals across the United States. Patient(s): Adult patients were included if they had septic shock on hospital admission. Intervention(s): None. Measurements and Main Results: Measurements include stage 1, 2, and 3 AKI, RRT, and MAKE-30. Of the 21,803 patients included in the final cohort, 92.8% had AKI during hospital admission. Patients had a mean (sd) age of 66.0 years (15.1 yr), 48.6% were female, 29.5% had chronic kidney disease, and mean (sd) estimated glomerular filtration rate was 35.8 mL/min/1.73 m2 (24.3 mL/min/1.73 m2). The maximum stage of AKI during hospitalization was none (7.2%), stage 1 (22.9%), stage 2 (27.3%), or stage 3 (42.7%). The proportion of patients who received RRT was 6.4%. MAKE-30 occurred in 42.0% and 30.9% died. There was no significant association

between stage 1 (odds ratio [OR], 1.12; 95% CI, 0.97-1.29; p = 0.109), but there was a significant association between stage 2 (OR, 1.25; 95% CI, 1.09-1.43; p = 0.001), and stage 3 AKI (OR, 1.66; 95% CI, 1.46-1.89; p). The maximum stage of AKI during hospitalization was none (7.2%), stage 1 (22.9%), stage 2 (27.3%), or stage 3 (42.7%). The proportion of patients who received RRT was 6.4%. MAKE-30 occurred in 42.0% and 30.9% died. There was no significant association between stage 1 (odds ratio [OR], 1.12; 95% CI, 0.97-1.29; p = 0.109), but there was a significant association between stage 2 (OR, 1.25; 95% CI, 1.09-1.43; p = 0.001), and stage 3 AKI (OR, 1.66; 95% CI, 1.46-1.89; p Conclusion(s): Among hospitalized patients with septic shock, most patients have AKI, and stage 3 AKI is associated with the highest risk of mortality.

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15. **Ambulatory Acute Kidney Injury in Patients With Cirrhosis Is Common and Burdensome.**

Authors: Patidar K.R.;Hernaez R.;Liu Y.;Cholankeril G.;Kramer J.R.;Taylor T.;Jalal P.;Lee T.H.;Flores A.G.;Cullaro G.;Allegretti A.S.;Gines P. and Kanwal, F.

Publication Date: 2025

Journal: Clinical Gastroenterology and Hepatology (pagination), pp. Date of Publication: 2025

Abstract: Background & Aims: Little is known about ambulatory acute kidney injury (A-AKI), which develops in an outpatient setting. Method(s): We conducted a retrospective cohort study of patients diagnosed with cirrhosis between January 1, 2018, and December 31, 2019 from 130 hospitals in the Veterans Affairs healthcare system. Patients were classified as having incident A-AKI if they met the International Club of Ascites AKI criteria in an outpatient setting. We used multivariable regression models to identify factors associated with A-AKI development within 1 year of cirrhosis diagnosis. We also conducted a structured implicit review of patients' medical charts to determine the precipitants of A-AKI. We examined the rates of AKI-resolution, hemodialysis and death at 90 days. Result(s): Among 55,880 patients with cirrhosis [median age 66 years, 38% alcohol-related cirrhosis (alcohol-associated liver disease), median Model for End-Stage Liver Disease-Sodium 10, 34% ascites] followed for a median of 3.4 years, 6889 (12%) patients developed incident A-AKI. Patients with ascites (odds ratio [OR], 2.51), Model for End-Stage Liver Disease-Sodium >15 (OR, 1.58), hepatocellular carcinoma (OR, 1.45) or alcohol-associated liver disease (OR, 1.37) had higher odds of developing A-AKI. In total, 60% had AKI-resolution, 4.5% progressed to hemodialysis, and 12% died within 90 days of A-AKI onset. In a review of medical records of 250 randomly selected patients with A-AKI, key precipitants were hypovolemia due to diuretics and gastrointestinal losses, and nephrotoxin medication exposure. Overall, 42% of A-AKI events were unrecognized. Conclusion(s): A-AKI is common in cirrhosis, associated with high 90-day mortality, and significantly under-recognized. Targeted interventions for early diagnosis and treatment could improve outcomes in high-risk patients.

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16. **Long-term mortality after stage 1 acute kidney injury in critically ill patients - an observational cohort study.**

Authors: Pfortmueller C.A.;Hahn M.;Eggimann A.;Rodemund N.;Kokoefer A.;Lindner G.;Schefold J.C. and Waskowski, J.

Publication Date: 2025

Journal: Journal of Critical Care 89(pagination), pp. Article Number: 155130. Date of Publication: 01 Oct 2025

Abstract: Background: Acute Kidney Injury (AKI) is prevalent in intensive care units (ICU) and is linked with increased mortality. The Kidney Disease: Improving Global Outcomes (KDIGO) guidelines define AKI using serum creatinine and urinary output criteria. While moderate and severe AKI according the creatinine criterion correlate with increased mortality, the significance of stage 1 AKI remains debated. Method(s): Retrospective cohort analysis from two tertiary care centres in Switzerland and Austria

(2013-2021) to investigate the association between stage 1 AKI (KDIGO creatinine criterion) in the first seven days after ICU admission and one-year mortality in adult ICU patients. Data were extracted using standardized protocols. Baseline creatinine was determined using estimation formulas. We applied multivariable regression models adjusted for key confounders and conducted sensitivity analyses. Result(s): Of 42,446 patients, 4667 (11 %) developed stage 1 AKI, 13 % (n = 5449) moderate/ severe AKI and 32,330 patients no AKI (76 %). Stage 1 AKI associates with one-year mortality (OR 1.6 [95 %CI 1.48; 1.73], p Result(s): Of 42,446 patients, 4667 (11 %) developed stage 1 AKI, 13 % (n = 5449) moderate/ severe AKI and 32,330 patients no AKI (76 %). Stage 1 AKI associates with one-year mortality (OR 1.6 [95 %CI 1.48; 1.73], p Result(s): Of 42,446 patients, 4667 (11 %) developed stage 1 AKI, 13 % (n = 5449) moderate/ severe AKI and 32,330 patients no AKI (76 %). Stage 1 AKI associates with one-year mortality (OR 1.6 [95 %CI 1.48; 1.73], p Result(s): Of 42,446 patients, 4667 (11 %) developed stage 1 AKI, 13 % (n = 5449) moderate/ severe AKI and 32,330 patients no AKI (76 %). Stage 1 AKI associates with one-year mortality (OR 1.6 [95 %CI 1.48; 1.73], p Result(s): Of 42,446 patients, 4667 (11 %) developed stage 1 AKI, 13 % (n = 5449) moderate/ severe AKI and 32,330 patients no AKI (76 %). Stage 1 AKI associates with one-year mortality (OR 1.6 [95 %CI 1.48; 1.73], p Result(s): Of 42,446 patients, 4667 (11 %) developed stage 1 AKI, 13 % (n = 5449) moderate/ severe AKI and 32,330 patients no AKI (76 %). Stage 1 AKI associates with one-year mortality (OR 1.6 [95 %CI 1.48; 1.73], p Conclusion(s): Stage 1 AKI is associated with 1-year mortality in adult ICU patients even in steps below 26.5 mumol/L. This highlights the prognostic significance of subclinical renal injury and underlines the need for increased efforts to diagnose AKI in its full spectrum. The analysis is limited by basing the AKI diagnosis on creatinine criterion.Copyright © 2024

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17. **Renal Doppler ultrasound to predict acute kidney injury in critically ill patients with acute circulatory failure.**

Authors: Rajaraman B.;Darlong V.;Soni K.D.;Aggarwal R.;Dehran M.;Devasenathipathy K.;Trikha A. and Baidya, D. K.

Publication Date: 2025

Journal: Journal of Clinical Monitoring and Computing (pagination), pp. Date of Publication: 2025

Abstract: Renal Doppler ultrasonography may have an important role in the detection of acute kidney injury (AKI) in early stages. This study was aimed to determine whether renal Doppler parameters at day 1 can predict the development of AKI at day 5 in acute circulatory failure (ACF). After ethics committee approval and informed written consent from patients or legally acceptable representatives, we recruited n = 80 critically ill adult patients with ACF in this single-center, prospective observational study. Baseline demographic, clinical, and laboratory parameters were noted. Renal resistive index (RRI), power Doppler ultrasound (PDU) score, and their ratio (RRI/PDU) were measured at baseline and three consecutive days. The primary outcome was the development of AKI at day five, and the secondary outcomes were 28-day mortality, length of ICU stay, duration of ventilation, and vasopressor-free days. Out of 80 patients, n = 32 (40%) developed AKI. At baseline, fluid balance (ml/kg) and APACHE II score were higher and pH was lower in AKI group. RRI and RRI/PDU values were significantly higher, and PDU was significantly lower in the AKI group compared to the non-AKI group from day 1 to day 3. Moreover, changes in these parameters (DELTAPDU and DELTARRI/PDU at day 2 and day 3) were significantly more in the AKI group. On regression analysis, all three Doppler parameters from day 1 to day 3 demonstrated very good to excellent accuracy in predicting the development of AKI. To conclude, renal Doppler parameters (RRI, PDU, and RRI/PDU) on day 1 through day 3 can predict the development of AKI by day 5 in critically ill adults with acute circulatory failure.Copyright © The Author(s), under exclusive licence to Springer Nature B.V. 2025.

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18. **PROGNOSTIC FACTORS AND OUTCOME OF ACUTE KIDNEY INJURY IN CRITICALLY ILL PATIENTS.**

Authors: Shobana and Radhakrishnan, H.

Publication Date: 2025

Journal: International Journal of Medicine and Public Health 15(2), pp. 1305–1310

Abstract: Background: The incidence of acute kidney injury (AKI) among critically ill patients admitted in hospital is extremely high. The aetiology and symptoms of AKI varies in each case butearly diagnosis, timely intervention and preventing exposure to nephrotoxic drugs can be achieved in patients who are at risk of developing AKI. Aim(s): The aim of this study is to investigate the prognostic factors and outcomes of acute kidney injury (AKI) in critically ill patients. Objective(s): To determine the incidence, severity, and outcomes of AKI in critically ill patients, including mortality. Material(s) and Method(s): This Prospective Cohort Study is conducted in tertiary care center in south India in medical and surgical intensive care unit during the study period January 2014 to march 2015, after obtaining institutional ethical committee clearance. Patients who have admitted in the hospital ICU aged more than 18 years developing acute kidney injury (AKI) during hospital stay in the intensive care unit (ICU) were included in this study. Around 1400 patients were admitted in ICU during this period and in them 61 developed AKI during their stay. Clinical and laboratory data were collected at admission and monitored daily thereafter. The recorded data included patient characteristics, primary underlying medical conditions, co-morbidities, AKIN KDIGO stage, SOFA score, duration of ICU stay, and final outcomes. Result(s): The major causes of AKI during the course of hospital were Sepsis 39(63.9%) followed by drug induced 10 (16.4%), preoperative 8(13.1%), cardiac diseases 4(6.6%). The overall in-hospital mortality of AKI in this study is 16.4%. Refractory septic shock and multi organ dysfunction were the chief cause of death in critically ill patient with AKI. Sepsis was the most common cause of AKI in intensive care unit of which survivors and non survivors were 32(82.1%) and 7(17.9%) respectively. In our study, increased KDIGO staging and SOFA score were significantly associated with higher mortality rates (P Result(s): The major causes of AKI during the course of hospital were Sepsis 39(63.9%) followed by drug induced 10 (16.4%), preoperative 8(13.1%), cardiac diseases 4(6.6%). The overall in-hospital mortality of AKI in this study is 16.4%. Refractory septic shock and multi organ dysfunction were the chief cause of death in critically ill patient with AKI. Sepsis was the most common cause of AKI in intensive care unit of which survivors and non survivors were 32(82.1%) and 7(17.9%) respectively. In our study, increased KDIGO staging and SOFA score were significantly associated with higher mortality rates (P Conclusion(s): The incidence of AKI in patient admitted in ICU in the present study was 4.35% and the mortality of AKI in critically ill patient was 16.4%. Most of the causes of AKI are avoidable, so early diagnosis and timely treatment can save the patients.

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19. **Association between the early use of beta-blocker and the risk of sepsis-associated acute kidney injury: A retrospective cohort study using the MIMIC-IV database.**

Authors: Wang C.;Hu Y. and Song, Y.

Publication Date: 2025

Journal: Plos One 20(6 June) (pagination), pp. Article Number: e0325980. Date of Publication: 01 Jun 2025

Abstract: Background Sepsis-associated acute kidney injury (SA-AKI) is a common and life-threatening complication in critically ill patients. Studies have shown that the use of beta-blockers improves hemodynamics and the risk of death in patients with sepsis. However, the association between beta-blockers use and the risk of AKI in patients with sepsis remains poorly understood. The present study aimed to evaluate this potential association. Method Sepsis patients for this retrospective cohort study were extracted from the Medical Information Mart for Intensive Care-IV (MIMIC) database. Propensity score matching (PSM) was used to balance the basic characteristics between beta-blocker users and non-users. Univariate and multivariable logistic regression analysis were employed to evaluate the association between early use of beta-blocker and SA-AKI. Odds ratio (OR) and 95% confidence interval (CI) were estimated as effect measurements. Results Totally 4,419 patients with sepsis were enrolled in our study. The follow-up period was from the 24th hour of intensive care unit (ICU) admission to the occurrence of AKI or ICU discharge, with 2,122 (48.02%) cases of developed AKI. After PSM, a lower SA-AKI risk was observed in the early use of the beta-blockers group

compared to the non-user group (adjusted OR: 0.80; 95%CI: 0.64-0.99). Similar associations of early use of beta-blockers and SA-AKI were observed in patients younger than 65 years old, male, without comorbidities, and with Simplified Acute Physiology Score II/ Charlson comorbidity index scores below the median (all P hour of intensive care unit (ICU) admission to the occurrence of AKI or ICU discharge, with 2,122 (48.02%) cases of developed AKI. After PSM, a lower SA-AKI risk was observed in the early use of the beta-blockers group compared to the non-user group (adjusted OR: 0.80; 95%CI: 0.64-0.99). Similar associations of early use of beta-blockers and SA-AKI were observed in patients younger than 65 years old, male, without comorbidities, and with Simplified Acute Physiology Score II/ Charlson comorbidity index scores below the median (all P

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20. **First 24-hour arterial oxygen partial pressure is correlated with mortality in ICU patients with acute kidney injury: an analysis based on MIMIC-IV database.**

Authors: Wang Z.;Tao L.;Zou B. and An, S.

Publication Date: 2025

Journal: Nan Fang Yi Ke Da Xue Xue Bao = Journal of Southern Medical University 45(5), pp. 1056–1062

Abstract: OBJECTIVES: To evaluate the correlation of mean arterial oxygen tension (PaO2) during the first 24 h following intensive care unit (ICU) admission with mortality in critically ill patients with acute kidney injury (AKI) and determine the optimal PaO2 threshold for devising oxygen therapy strategies for these patients. METHOD(S): We collected the clinical data of ICU patients with AKI from the MIMIC-IV database. Based on the optimal first 24-h PaO2 threshold determined by receiver operating characteristic (ROC) curve analysis and the Youden index maximization principle, we classified the patients into hyperoxia group (with PaO2 >=137.029 mmHg) and hypoxemia group (PaO2METHOD(S): We collected the clinical data of ICU patients with AKI from the MIMIC-IV database. Based on the optimal first 24-h PaO2 threshold determined by receiver operating characteristic (ROC) curve analysis and the Youden index maximization principle, we classified the patients into hyperoxia group (with PaO2 >=137.029 mmHg) and hypoxemia group (PaO2RESULT(S): Among the 18 335 patients, 46.7% were in the hyperoxia group, who had an overall mortality rate of 16.9%. The optimal PaO2 threshold (137.029 mm Hg) had a sensitivity of 78.3%, a specificity of 63.7%, and an AUC of 0.76 (95% CI: 0.74=0.78). Hyperoxia within the first 24 h after ICU admission was associated with a significantly lower in-hospital mortality (OR=0.78) and 90-day mortality (OR=0.77), particularly in stage 1 AKI patients. A non-linear relationship was identified between PaO2 and mortality of the patients (PRESULT(S): Among the 18 335 patients, 46.7% were in the hyperoxia group, who had an overall mortality rate of 16.9%. The optimal PaO2 threshold (137.029 mm Hg) had a sensitivity of 78.3%, a specificity of 63.7%, and an AUC of 0.76 (95% CI: 0.74=0.78). Hyperoxia within the first 24 h after ICU admission was associated with a significantly lower in-hospital mortality (OR=0.78) and 90-day mortality (OR=0.77), particularly in stage 1 AKI patients. A non-linear relationship was identified between PaO2 and mortality of the patients (PRESULT(S): Among the 18 335 patients, 46.7% were in the hyperoxia group, who had an overall mortality rate of 16.9%. The optimal PaO2 threshold (137.029 mm Hg) had a sensitivity of 78.3%, a specificity of 63.7%, and an AUC of 0.76 (95% CI: 0.74=0.78). Hyperoxia within the first 24 h after ICU admission was associated with a significantly lower in-hospital mortality (OR=0.78) and 90-day mortality (OR=0.77), particularly in stage 1 AKI patients. A non-linear relationship was identified between PaO2 and mortality of the patients (PCONCLUSION(S): Maintenance of a PaO2 level >=137.029 mmHg within 24 h after ICU admission may improve clinical outcomes of critically ill AKI patients, which underscores the importance of targeted oxygen delivery in ICU care.

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21. **The relationship between estimated pulse wave velocity and 28-day mortality in patients with acute kidney injury combined with congestive heart failure: a retrospective cohort analysis of the MIMIC-IV database.**

Authors: Wei L.;Liu F.;Lv Y. and Wu, J.

Publication Date: 2025

Journal: Renal Failure 47(1) (pagination), pp. Article Number: 2506831. Date of Publication: 2025

Abstract: Background: Estimated pulse wave velocity (ePWV) is considered a standalone predictor of mortality in acute kidney injury (AKI) patients throughout their hospitalization. As ePWV increases, the all-cause mortality of heart failure patients increases. This research aimed to explore the connection between ePWV and 28-day mortality among patients diagnosed with AKI alongside congestive heart failure (CHF). Method(s): This study includes 12,119 patients with AKI combined with CHF from the MIMIC-IV database. The ePWV was categorized into a high group (>11.355 m/s) and a low group (Method(s): This study includes 12,119 patients with AKI combined with CHF from the MIMIC-IV database. The ePWV was categorized into a high group (>11.355 m/s) and a low group (Result(s): Survival analysis reveals that patients exhibiting high ePWV demonstrate a significantly reduced survival rate of 28-day in comparison to those with low ePWV. Moreover, after adjusting for covariates, a strong correlation exists between high ePWV and an increased risk of mortality within 28 days (HR = 1.87,95% CI = 1.68-2.08, p Result(s): Survival analysis reveals that patients exhibiting high ePWV demonstrate a significantly reduced survival rate of 28-day in comparison to those with low ePWV. Moreover, after adjusting for covariates, a strong correlation exists between high ePWV and an increased risk of mortality within 28 days (HR = 1.87,95% CI = 1.68-2.08, p Conclusion(s): ePWV was significantly associated with 28-day risk of death in patients with AKI-CHF and was a standalone forecasting factor of it.Copyright © 2025 The Author(s). Published by Informa UK Limited, trading as Taylor & Francis Group.

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22. **Nonlinear association between estimated plasma volume status and acute kidney injury in acute pancreatitis patients.**

Authors: Wu W.;Zhang Y.P.;Zhang Y.L.;Qu X.G.;Zhang Z.H.;Zhang R. and Peng, Z. Y.

Publication Date: 2025

Journal: World Journal of Gastroenterology 31(20) (pagination), pp. Article Number: 105269. Date of Publication: 28 May 2025

Abstract: BACKGROUND Acute pancreatitis (AP), a severe pancreatic inflammatory condition, with a mortality rate reaching up to 40%. Recently, AP shows a steadily elevating prevalence, which causes the greater number of hospital admissions, imposing the substantial economic burden. Acute kidney injury (AKI) complicates take up approximately 15% of AP cases, with an associated mortality rate of 74.7%-81%. AIM To evaluate the efficacy of estimated plasma volume status (ePVS) in forecasting AKI in patients with AP. METHODS In this retrospective cohort study, AP cases were recruited from the First College of Clinical Medical Science of China Three Gorges University between January 2019 and October 2023. Electronic medical records were adopted for data extraction, including demographic data and clinical characteristics. The association between ePVS and AKI was analyzed using multivariate logistic regression models, with potential confounders being adjusted. Nonlinear relationship was examined with smooth curve fitting, and infection points were calculated. Further analyses were performed on stratified subgroups and interaction tests were conducted. RESULTS Among the 1508 AP patients, 251 (16.6%) developed AKI. ePVS was calculated using Duarte (D-ePVS) and Kaplan-Hakim (KH-ePVS) formulas. After adjusting for covariates, the AKI risk exhibited 46% [odds ratio (OR) = 1.46, 95% confidence interval (CI): 0.96-2.24] and 11% (OR = 1.11, 95%CI: 0.72-1.72) increases in the low tertile (T1) of D-ePVS and KH-ePVS, respectively, and 101% (OR = 2.01, 95%CI: 1.31-3.05) and 51% (OR = 1.51, 95%CI: 1.00-2.29) increases in the high tertile (T3) relative to the reference tertile (T2). Nonlinear curve fitting revealed a U-shaped association of D-ePVS with AKI and a J-shaped association for KH-ePVS, with inflection points at 4.3 dL/g and -2.8%, respectively. Significant interactions were not observed in age, gender, hypertension, diabetes mellitus, sequential organ failure assessment score, or AP severity (all P for interaction > 0.05). CONCLUSION

Our results indicated that ePVS demonstrated the nonlinear association with AKI incidence in AP patients. A U-shaped curve was observed with an inflection point at 4.3 dL/g for the Duarte formula, and a J-shaped curve at - 2.8% for the Kaplan-Hakim formula.

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23. **A study on the factors influencing mortality risk in sepsis-induced acute kidney injury based on analysis of the MIMIC database.**

Authors: Ye C.;Zhu C.;Hu S.;Mei Y. and Yang, T.

Publication Date: 2025

Journal: Clinical and Experimental Medicine 25(1) (pagination), pp. Article Number: 192. Date of Publication: 01 Dec 2025

Abstract: Sepsis-induced acute kidney injury (SA-AKI) significantly increases mortality and healthcare burdens. Identifying key mortality risk factors is crucial for improving patient outcomes. This study aims to identify the primary factors affecting mortality in SA-AKI patients using the MIMIC-III database. A retrospective analysis was conducted on 4868 SA-AKI patients from the MIMIC-III database. Clinical data from the first 24 h of ICU admission were analyzed using logistic regression to identify mortality predictors. Key mortality predictors included advanced age (OR = 1.015, 95% CI: 1.006-1.024), severe AKI stages (OR = 1.470, 95% CI: 1.285-1.676), low serum albumin (OR = 0.606, 95% CI: 0.506-0.722), delayed antibiotics (OR = 1.001, 95% CI: 1.000-1.002), high AST (OR = 1.035, 95% CI: 1.027-1.083), and bilirubin (OR = 1.055, 95% CI: 1.037-1.083). The area under the curve (AUC) of the combined predictors for mortality risk was 0.796, indicating high predictive accuracy. Conclusion(s): Early intervention and monitoring of identified risk factors such as age, AKI stage, albumin levels, and antibiotic timeliness can enhance survival rates in SA-AKI patients.

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24. **Association between Body Mass Index and Acute Kidney Injury in Patients who Underwent Coronary Revascularization: A Retrospective Cohort Study from the MIMIC-IV Database.**

Authors: Zhang Y.;Jia X.;Fan W.;Gao F. and Cui, H.

Publication Date: 2025

Journal: Kardiologiya 65(4), pp. 10–15

Abstract: Aim Acute kidney injury (AKI) remains a common complication of coronary artery revascularization surgery and is associated with adverse outcomes in critically ill surgical patients. Body mass index (BMI) is associated with various diseases. This study aimed to evaluate the association between BMI and the risk of AKI in patients undergoing coronary artery revascularization surgery. Material and methods In this retrospective cohort study, data were extracted from the Medical Information Mart for Intensive Care (MIMIC) - IV database from 2008 to 2019 for patients undergoing coronary artery revascularization surgery. The outcome was the occurrence of AKI after ICU admission. Covariates were selected using LASSO regression. Univariable and multivariable logistic regression models were utilized to assess the association between BMI and the odds of developing AKI in patients undergoing coronary artery revascularization surgery, with results presented as odds ratios (OR) and 95% confidence intervals (CI). Subgroup analyses were performed based on age, surgery, anticoagulant use, and the Sequential Organ Failure Assessment (SOFA) score was computed to further explore the association between BMI and AKI. Results This study included 3017 patients who underwent coronary artery revascularization surgery, of whom 2172 (72.8%) developed AKI. Increasing BMI was significantly associated with elevated odds of AKI in patients undergoing coronary revascularization (OR = 1.10, 95% CI: 1.08-1.12), indicating a 10% increase in AKI risk for each unit increase in BMI, adjusted for demographic variables (age and gender) in Model 1. After further adjustment in Model 2 for significant baseline characteristics including comorbidities (type 2 diabetes, heart failure, malignant tumors, and chronic kidney disease) and ICU scoring systems (SOFA, APS III, SAPS II, OASIS, and CCI), the association remained significant with an 11% increased

risk of AKI per BMI unit increase (OR = 1.11, 95% CI: 1.08-1.13). Conclusion BMI may be a promising parameter for assessing the risk of AKI in paty revascularization surgery, providing valuable information for risk stratification and management of ICU patients undergoing such procedures.

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25. **Comparative Efficacy and Safety of Antibiotic Regimens in Sepsis-Induced Acute Kidney Injury: A Retrospective Cohort Study.**

Authors: Zhou Y. and Sun, Y.

Publication Date: 2025

Journal: Clinical Therapeutics (pagination), pp. Date of Publication: 2025

Abstract: Purpose: Acute kidney injury (AKI) is a prevalent and serious complication in septic patients, potentially exacerbated by certain medications, which significantly affects morbidity and mortality rates. This study aims to evaluate the comparative efficacy and safety of different antibiotic regimens for treating sepsis-induced AKI. Method(s): This retrospective cohort study analyzed adult patients with AKI resulting from sepsis between 2022 and 2024. Patients were divided into three groups: Group 1 received beta-lactam monotherapy (e.g., piperacillin-tazobactam); Group 2 was treated with non-beta-lactam antibiotics (e.g., fluoroquinolones, macrolides); and Group 3 received combination therapy (e.g., betalactam plus vancomycin for MRSA). Data on demographics, clinical parameters, and outcomes-including in-hospital mortality, length of stay, and renal function-were collected. Finding(s): A total of 552 patients were included, with no significant differences in baseline characteristics among the groups. The combination therapy group experienced a shorter duration of fever (1.33 +/- 0.57 days, P = 0.001), lower 30-day mortality, and shorter ICU stays (4.36 = 0.81 days, P = 0.001). Serum creatinine levels rose significantly across all groups (P = 0.005), with the highest levels observed in the combination therapy group. AKI incidence was 25.3% in fluoroquinolone patients, 15.7% in beta-lactam patients, and 18.9% in the combination therapy group. Renal replacement therapy was required for 11.2% of betalactam and 16.5% of fluoroquinolone patients. Implications: This study underscores significant differences in renal outcomes associated with various antibiotic regimens in septic patients with AKI. While combination therapy may improve infection control, it also poses risks to renal function. Clinicians should consider these findings when selecting antibiotic regimens for septic patients, particularly those with preexisting renal impairment.

Sources Used:

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