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1. **Acute Kidney Injury Survivor Remote Patient Monitoring: A Single Center's Experience and an Effectiveness Evaluation.**

Authors: Charkviani M.;Kattah A.G.;Rule A.D.;Ferguson J.A.;Mara K.C.;Kashani K.B.;May H.P.;Rosedahl J.K.;Reddy S.;Philpot L.M. and Barreto, E. F.

Publication Date: 2024

Journal: Kidney Medicine 6(11) (pagination), pp. Article Number: 100905. Date of Publication: November 2024

Abstract: Rationale & Objective: Remote patient monitoring (RPM) could improve the quality and efficiency of acute kidney injury (AKI) survivor care. This study described our experience with AKI RPM and characterized its effectiveness. Study Design: A cohort study matched 1:3 to historical controls. Setting & Participants: Patients hospitalized with an episode of AKI who were discharged home and were not treated with dialysis. Exposure: Participation in an AKI RPM program, which included use of a home vital sign and symptom monitoring technology and weekly in-center laboratory assessments. Outcome(s): Risk of unplanned hospital readmission or emergency department (ED) visit within 6 months. Analytic Approach: Endpoints were assessed using Cox proportional hazards models. Result(s): Forty of the 49 patients enrolled in AKI RPM (82%) participated in the program after hospital discharge. Seventy three percent of patients experienced one AKI RPM alert, most commonly related to fluid status. Among those with stage 3 AKI, the risk of unplanned readmission or ED visit within 6 months of discharge was not different between AKI RPM patients (n = 34) and matched controls (n = 102) (HR 1.33 [95% CI, 0.81-2.18]; P = 0.27). The incidence of an ED visit without hospitalization was significantly higher in the AKI RPM group (HR 1.95, [95% CI, 1.05-3.62]; P = 0.035). The risk of an unplanned readmission or ED visit was higher in those with baseline eGFR Result(s): Forty of the 49 patients enrolled in AKI RPM (82%) participated in the program after hospital discharge. Seventy three percent of patients experienced one AKI RPM alert, most commonly related to fluid status. Among those with stage 3 AKI, the risk of unplanned readmission or ED visit within 6 months of discharge was not different between AKI RPM patients (n = 34) and matched controls (n = 102) (HR 1.33 [95% CI, 0.81-2.18]; P = 0.27). The incidence of an ED visit without hospitalization was significantly higher in the AKI RPM group (HR 1.95, [95% CI, 1.05-3.62]; P = 0.035). The risk of an unplanned readmission or ED visit was higher in those with baseline eGFR 2 exposed to AKI RPM (HR 2.24 [95% CI, 1.19-4.20]; P = 0.012) when compared with those with baseline eGFR >=45 mL/min/1.73 m2 (HR 0.69 [95% CI, 0.29-1.67]; P = 0.41) (test of interaction P = 0.04). Limitation(s): Small sample size that may have been underpowered for the effectiveness endpoints. Conclusion(s): AKI RPM, when used after hospital discharge, led to alerts and interventions directed at optimizing kidney health and AKI complications but did not reduce the risk for rehospitalization.

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2. **Kidney replacement therapy in COVID-19-Related acute kidney injury: The impact of timing on mortality.**

Authors: de Almeida, Carlos Augusto Pereira;de Oliveira, Marcia Fernanda Arantes;Teixeira, Alexandre Macedo;Cabrera, Carla Paulina Sandoval;Smolentzov, Igor;Reichert, Bernardo Vergara;Gessolo Lins, Paulo Ricardo;Rodrigues, Camila Eleuterio;Seabra, Victor Faria and Andrade, Lucia

Publication Date: 2024

Journal: PLoS ONE [Electronic Resource] 19(10), pp. e0309655

Abstract: The objective of this study was to determine the impact of the timing of KRT, dichotomized by a temporal criterion or by creatinine level, in patients with COVID-19-related AKI. This was a retrospective study involving 512 adult patients admitted to the ICU. All participants had laboratory-confirmed COVID-19 and a confirmed diagnosis of AKI. The potential predictors were the determination of the timing of KRT based on a temporal criterion (days since hospital admission) and that based on a serum creatinine cutoff criterion. Covariates included age, sex, and the SOFA score, as well as the

need for mechanical ventilation and vasopressors. The main outcome measure was in-hospital mortality. We evaluated 512 patients, of whom 69.1% were men. The median age was 64 years. Of the 512 patients, 76.6% required dialysis after admission. The overall in-hospital mortality rate was 72.5%. When the timing of KRT was determined by the temporal criterion, the risk of in-hospital mortality was significantly higher for later KRT than for earlier KRT-84% higher in the univariate analysis (OR = 1.84, 95%, [CI]: 1.10-3.09) and 140% higher after adjustment for age, sex, and SOFA score (OR = 2.40, 95% CI: 1.36-4.24). When it was determined by the creatinine cutoff criterion, there was no such difference between high and low creatinine at KRT initiation. In patients with COVID-19-related AKI, earlier KRT might be associated with lower in-hospital mortality.

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3. **Costs and benefits of routine labs in hospital patients: iatrogenic anaemia and undiagnosed acute kidney injury.**

Authors: Dean, Dawson

Publication Date: Oct 23 ,2024

Journal: BMJ Open Quality 13(4)

Abstract: IMPORTANCE: Guidelines recommend avoiding unnecessary laboratory tests to minimise risks of anaemia in hospitalised patients as well as reduce costs, but there are costs to skipping routine labs including missing acute kidney injury. OBJECTIVE: Quantify the costs and benefits of routine labs in dollar costs as well as mortality. EVIDENCE REVIEW: This is a retrospective analysis of 48 204 admissions at University of Kentucky Hospitals and simulates different strategies for skipping labs. FINDINGS: In a simplified estimate of pure dollar costs, the costs of daily labs appear to outweigh the costs of missing acute kidney injury. CONCLUSIONS AND RELEVANCE: In both dollar costs and the number of patients with mortality effects, the benefits of randomly skipping labs appear to significantly outweigh the costs, but the costs are not insignificant. Copyright © Author(s) (or their employer(s)) 2024. Re-use permitted under CC BY-NC. No commercial re-use. See rights and permissions. Published by BMJ.

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4. **Non-dilated obstructive nephropathy.**

Authors: Feliciangeli V.;Noce A.;Montalto G.;Germani S.;Miano R. and Asimakopoulos, A. D.

Publication Date: 2024

Journal: Clinical Kidney Journal 17(10) (pagination), pp. Article Number: sfae249. Date of Publication: 01 Oct 2024

Abstract: Obstructive nephropathy (ON) is a common and reversible cause of post-renal acute kidney injury (AKI) and may be caused by a variety of conditions. It occurs when both the upper urinary tracts are obstructed, or when one tract is obstructed in patients with a solitary kidney. ON is suspected whenever there is evidence of hydronephrosis at imaging. However, not all patients with obstruction develop hydronephrosis and significant obstruction can be present in the absence of hydronephrosis. This syndrome is called non-dilated obstructive uropathy (NDOU). It accounts for about 5% of cases of urinary obstruction and the diagnosis can be challenging. The current paper provides an overview of the literature aiming to identify the main causes of NDOU and its clinical presentation, in order to clarify when to suspect it among AKI cases. A narrative review was performed due to the overall low quality of the available evidence. Only patients with post-renal AKI and a non-dilated or minimal dilation of the intrarenal collecting system were included. As evidenced by our review, NDOU is most prevalent in the fifth and sixth decades of life and affects mainly the male gender. On hospital admission serum creatinine levels are usually very high. Among the most common clinical presentations are oliguria/anuria, abdominal pain, signs of retention such as oedema or pleural effusion, and

nausea/vomiting. About three out of four cases of NDOU are due to an ab-extrinsic compression of the ureters caused by retroperitoneal fibrosis or malignant disease. An effective and minimally invasive urinary diversion is obtained with ureteric stenting or a percutaneous nephrostomy. A correct diagnosis of NDOU may be challenging but it is of paramount importance as it can lead to a prompt management with a potential complete resolution of both obstruction and acute renal failure. Copyright © 2024 The Author(s).

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5. **Long-Term Follow-Up of Kidney Function after Acute Liver Failure or Acute Liver Injury: A Cohort Study.**

Authors: Fidalgo, Pedro;Povoa, Pedro;Germano, Nuno;Karvellas, Constantine J. and Cardoso, Filipe S.

Publication Date: Oc ,2024

Journal: Portuguese Journal of Gastroenterology 31(5), pp. 351–359

Abstract: Introduction: Acute liver failure (ALF) is a rare disease with high mortality. Acute kidney injury (AKI) following ALF is frequent. We assessed AKI impact on long-term kidney function among ALF survivors. Methods: Observational cohort study including consecutive adult (age >=16 years) patients with ALF or acute liver injury (ALI) admitted to a Portuguese tertiary center intensive care unit (ICU) between October 2013 and February 2020. KDIGO criteria were used to define AKI and chronic kidney disease (CKD). Primary outcome was the estimated glomerular filtration rate (eGFR), defined by the Chronic Kidney Disease Epidemiology Collaboration formula, at least 1 year after index ICU admission. Results: Among 104 patients with ALF (n = 74) or ALI (n = 30), mean (SD) age was 43.7 (18.0) years, and 44 were male. Among all patients (n = 104), following adjustment for age and SOFA score, AKI during the first 7 ICU days (n AKI = 57 and n renal replacement therapy [RRT] = 32) was independently associated with all-cause mortality (adjusted HR [95% CI] 11.61 [1.49-90.34]; p = 0.019). Among hospital survivors with long-term kidney function available (n = 56), median (interquartile range) >1 year eGFR was 95.3 (75.0-107.7) mL/min/1.73 m2 (mean [SD] follow-up of 3.1 [1.6] years). Among these hospital survivors, following adjustment for baseline eGFR, AKI during the first 7 ICU days (n AKI = 19 and n RRT = 10) was not associated with >1 year eGFR (p = 0.15). At least 1 year after index ICU admission, 5 patients developed CKD, none RRT-dependent. Conclusions: Among ALF or ALI survivors, AKI was not associated with significant long-term loss of kidney function. Copyright © 2024 The Author(s).Published by S. Karger AG, Basel.; Publisher Introducao: A falencia hepatica aguda (ALF) e uma doenca rara com alta mortalidade. A lesao renal aguda (AKI) apos ALF e frequente. Avaliamos o impacto da AKI na funcao renal de longo prazo entre os sobreviventes de ALF. Metodos: Estudo observacional de coorte incluindo adultos consecutivos (idade >=16 anos) com FHA ou lesao hepatica aguda (ALI) internados numa unidade de cuidados intensivos (UCI) num centro terciario portugues entre Outubro de 2013 e Fevereiro de 2020. Os criterios KDIGO foram usados para definir AKI e doenca renal cronica (CKD). O endpoint primario foi a taxa de filtracao glomerular estimada (eGFR), definida pela formula da Chronic Kidney Disease Epidemiology Collaboration, pelo menos um ano apos a admissao na UCI. Resultados: Entre 104 pacientes com ALF (n = 74) ou ALI (n = 30), a idade media (DP) foi de 43.7 (18.0) anos e 44 eram do sexo masculino. Entre todos os pacientes (n = 104), apos ajuste para idade e score SOFA, AKI durante os primeiros 7 dias de UCI (n AKI = 57 e n terapia de substituicao renal (RRT) = 32) foi independentemente associada a mortalidade por todas as causas (HR ajustado [IC 95%] 11.61 [1.49-90.34]; p = 0.019). Entre os sobreviventes no hospital com funcao renal de longo prazo disponivel (n = 56), a eGFR mediana (IQR) >1 ano foi de 95.3 (75.0-107.7) mL/min/1.73 m2 (media [DP] de acompanhamento de 3.1 [1.6] anos). Entre esses sobreviventes, apos ajuste para eGFR basal, AKI durante os primeiros 7 dias de UCI (n AKI = 19 e n RRT = 10) nao se associou com a eGFR >1 ano (p = 0.15). Pelo menos 1 ano apos admissao na UCI, 5 pacientes desenvolveram DRC, nenhum dependente de RRT. Conclusoes: Entre os sobreviventes de ALF ou ALI, AKI nao se associou com perda significativa da funcao renal a longo prazo. Language: Portuguese

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6. **Development of acute kidney injury following repair of Stanford type A aortic dissection is**

associated with increased mortality and complications: a systematic review, meta-analysis, and meta-regression analysis

Authors: Goyal, Aman;Maheshwari, Surabhi;Abbasi, Haleema Qayyum;Mashkoor, Yusra;Shamim, Urooj;Chambari, Mahla;Kelaiya, Arjun;Safi, Darsh;Saeed, Humza;Jain, Hritvik;Pokhrel, Prakriti and Ullah, Irfan

Publication Date: De ,2024

Journal: Cardiovascular Endocrinology & Metabolism 13(4), pp. e00314

Abstract: Acute kidney injury (AKI) frequently complicates the repair of Stanford type A aortic dissection (TAAD). This systematic review, meta-analysis, and meta-regression analysis aimed to elucidate the prognostic impact of AKI in these patients. A literature search in PubMed, EMBASE, and Google Scholar identified relevant studies on the predictors and outcomes of AKI following TAAD repair. The primary endpoint was 30-day mortality; secondary endpoints included stroke, dialysis/continuous renal replacement therapy (CRRT), and other complications. Random-effects meta-analyses were used, with significance set at P

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7. **Neurological Manifestation of Neonatal Acute Kidney Injury: Focusing on the Clinico-Radiological Profile.**

Authors: Gupta, Purnima;Meena, Ankit Kumar;Parakh, Esha;Wander, Arvinder;Rathore, Bhanupratap;Jangid, Hemant and Parakh, Manish

Publication Date: Se ,2024

Journal: Cureus 16(9), pp. e69253

Abstract: Purpose This study aimed at studying the neurological manifestation of neonatal acute kidney injury, focusing on the clinico-radiological profile. Methodology In this cross-sectional study, newborns hospitalized in the neonatal intensive care unit of a tertiary care hospital were enrolled over a study period of one year. As per the Kidney Disease: Improving Global Outcome (KDIGO) criteria, 74 neonates were enrolled, and magnetic resonance imaging (MRI) was performed on the same neonates. Result In this study, acute kidney injury (AKI) was seen more often in neonates with admission weights between 1,500 and 2,499 grams, accounting for 52.7% of total study participants. In the current study, neonates admitted with AKI presented more with signs and symptoms of encephalopathy, such as lethargy (78.4%), seizures (64.8%), and irritability (35.1%) at admission. Signs and symptoms of fever and decreased urine output were more common after the first week of life. Abnormal MRI findings were observed in 64.9% of neonates with AKI. The mean blood urea and serum creatinine levels in neonates with abnormal MRI were 188.14 +/- 108.25 mg/dL and 2.93 +/- 2.16 mg/dL, respectively. The mean blood urea and serum creatinine levels in neonates with normal MRI were 169.84 +/- 65.45 mg/dL and 2.41 +/- 1.85 mg/dL, respectively. Of the 74 neonates enrolled with AKI, 12 (16.21%) had CSVT. These neonates had a mean blood urea level of 231.58 +/- 111.66 mg/dL (p = 0.047) and a mean creatinine level of 3.77 +/- 2.78 mg/dL. Conclusion Neonatal AKI has a variable presentation with high mortality and morbidity. Elevated serum urea and creatinine can be used to predict CSVT.

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8. **Factors and outcomes related to new-onset acute kidney injury in septic medical intensive care unit patients.**

Authors: Inci, Kamil;Aygencel, Gulbin;Dundar, Nazlihan Boyaci;Helvaci, Ozant and Turkoglu, Melda

Publication Date: 2024

Journal: Northern Clinics of Istanbul 11(5), pp. 414–421

Abstract: OBJECTIVE: Sepsis-induced acute kidney injury (AKI) is a significant threat, contributing to worse outcomes in intensive care unit (ICU) patients. Thus, understanding the complex relationship between sepsis and renal dysfunction in ICU patients is crucial. We aimed to investigate the factors that may predispose to the development and the clinical consequences of new-onset AKI in septic medical ICU patients in this study. METHODS: This retrospective cohort was conducted between December 2019 and April 2023 in the tertiary medical ICU of Gazi University Hospital, Ankara, Turkiye. Participants included septic medical ICU patients aged >=18 without AKI on ICU admission. Data included demographics, comorbidities, disease severity and prognostic scoring, ICU admission, and ICU follow-up data. Statistical analyses, including logistic regression, were performed to identify independent risk factors for new-onset AKI development and ICU mortality. RESULTS: Patients with new-onset AKI (36% incidence) had higher APACHE-II (21 [16-27] vs. 16 [12-18]) and SOFA (6 [3-9] vs. 3 [2-5]) scores and lower GCS (10 [6-15] vs. 14 [10-15]) on ICU admission (p: Patients with new-onset AKI (36% incidence) had higher APACHE-II (21 [16-27] vs. 16 [12-18]) and SOFA (6 [3-9] vs. 3 [2-5]) scores and lower GCS (10 [6-15] vs. 14 [10-15]) on ICU admission (p: Patients with new-onset AKI (36% incidence) had higher APACHE-II (21 [16-27] vs. 16 [12-18]) and SOFA (6 [3-9] vs. 3 [2-5]) scores and lower GCS (10 [6-15] vs. 14 [10-15]) on ICU admission (p: Patients with new-onset AKI (36% incidence) had higher APACHE-II (21 [16-27] vs. 16 [12-18]) and SOFA (6 [3-9] vs. 3 [2-5]) scores and lower GCS (10 [6-15] vs. 14 [10-15]) on ICU admission (p: Patients with new-onset AKI (36% incidence) had higher APACHE-II (21 [16-27] vs. 16 [12-18]) and SOFA (6 [3-9] vs. 3 [2-5]) scores and lower GCS (10 [6-15] vs. 14 [10-15]) on ICU admission (p: Patients with new-onset AKI (36% incidence) had higher APACHE-II (21 [16-27] vs. 16 [12-18]) and SOFA (6 [3-9] vs. 3 [2-5]) scores and lower GCS (10 [6-15] vs. 14 [10-15]) on ICU admission (pCONCLUSION: This study reveals new-onset AKI incidence of 36% in septic medical ICU patients. Additionally, it underlines the potential impact of infection sources on new AKI development. New-onset shock, IMV, and disease severity were independently associated with both new-onset AKI and ICU mortality in this population.

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9. **Stepped-Wedge Trial of Decision Support for Acute Kidney Injury on Surgical Units.**

Authors: James, Matthew T.;Dixon, Elijah;Tan, Zhi;Mathura, Pamela;Datta, Indraneel;Lall, Rohan N.;Landry, Jennifer;Minty, Evan P.;Samis, Gregory A.;Winkelaar, Gerald B. and Pannu, Neesh

Publication Date: Oc ,2024

Journal: KI Reports 9(10), pp. 2996–3005

Abstract: Introduction: Acute kidney injury (AKI) is common in the perioperative setting and associated with poor outcomes. Whether clinical decision support improves early management and outcomes of AKI on surgical units is uncertain. Methods: In this cluster-randomized, stepped-wedge trial, 8 surgical units in Alberta, Canada were randomized to various start dates to receive an education and clinical decision support intervention for recognition and early management of AKI. Eligible patients were aged >=18 years, receiving care on a surgical unit, not already receiving dialysis, and with AKI. Results: There were 2135 admissions of 2038 patients who met the inclusion criteria; mean (SD) age was 64.3 (16.2) years, and 885 (41.4%) were females. The proportion of patients who experienced the composite primary outcome of progression of AKI to a higher stage, receipt of dialysis, or death was 16.0% (178 events/1113 admissions) in the intervention group; and 17.5% (179 events/1022 admissions) in the control group (time-adjusted odds ratio, 0.76; 95% confidence interval [CI], 0.53-1.08; P = 0.12). There were no significant differences between groups in process of care outcomes within 48 hours of AKI onset, including administration of i.v. fluids, or withdrawal of medications affecting kidney function. Both groups experienced similar lengths of stay in hospital after AKI and change in estimated glomerular filtration rate (eGFR) at 3 months. Conclusion: An education and clinical decision support intervention did not significantly improve processes of care or reduce progression of AKI, length of hospital stays, or recovery of kidney function in patients with AKI on surgical units.

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10. **Association between inflammatory biomarkers and postoperative acute kidney injury after cardiac surgery in patients with preoperative renal dysfunction: a retrospective pilot analysis.**

Authors: Jiang, Wuhua;Fang, Yi;Ding, Xiaoqiang;Luo, Zhe;Zhang, Dong;Xu, Xialian and Xu, Jiarui

Publication Date: Oct 03 ,2024

Journal: Journal Of Cardiothoracic Surgery 19(1), pp. 583

Abstract: BACKGROUND: Acute kidney injury (AKI) represents a significant post-cardiac surgery complication, particularly prevalent among individuals with pre-existing renal dysfunction. Chronic kidney disease (CKD) is frequently accompanied by persistent, low-grade inflammation, which is known to exacerbate systemic stress responses during surgical procedures. This study hypothesizes that these inflammatory responses might influence the incidence and severity of postoperative acute kidney injury (AKI), potentially serving as a protective mechanism by preconditioning the kidney to stress. METHODS: This retrospective study enrolled patients with preoperative renal dysfunction (eGFR between 15 and 60 ml/min/1.73 m2) who underwent cardiac surgery between January 2020 and December 2022. Preoperative inflammatory biomarkers were evaluated. The primary outcome was the incidence of postoperative AKI, as defined by the Kidney Disease: Improving Global Outcomes (KDIGO) criteria. Multivariate regression models and sensitivity analyses were conducted to ascertain the relationship between inflammatory biomarkers and AKI. Restricted cubic spines (RCS) was conducted to explore nonlinear associations between inflammatory biomarkers and AKI. RESULTS: AKI occurred in 53.4% (392/734) of patients, accompanied by significant mortality and length of hospital stay increases in cases of AKI (P : AKI occurred in 53.4% (392/734) of patients, accompanied by significant mortality and length of hospital stay increases in cases of AKI (P : AKI occurred in 53.4% (392/734) of patients, accompanied by significant mortality and length of hospital stay increases in cases of AKI (P CONCLUSIONS: This study identified an inverse association between preoperative inflammatory biomarkers and postoperative AKI in patients with preoperative renal dysfunction. The findings implied that preoperative inflammation may play a protective role against postoperative AKI in this patient population undergoing cardiac surgery. Copyright © 2024. The Author(s).

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11. **A clinical comparative study on carbamylated haemoglobin as a surrogate marker to differentiate acute kidney injury from chronic kidney disease.**

Authors: Keshava, H. K.;Sultana, Sana;Suhas, G. C. and Chadrashekhar, H. R.

Publication Date: Se ,2024

Journal: Journal of Family Medicine & Primary Care 13(9), pp. 3995–4000

Abstract: Introduction: Carbamylated haemoglobin is the result of reaction of isocyanate with N-terminal valine residues of the alpha and beta chains of haemoglobin. Carbamylated haemoglobin concentration is dependent on the degree and duration of uraemia and thus may potentially serve as a marker to differentiate acute kidney injury (AKI) and chronic kidney disease (CKD). Methods: A hospital-based prospective clinical comparative study was conducted in an urban tertiary medical care centre. Carbamylated haemoglobin was estimated in a total of 60 patients, 30 each of chronic kidney disease and acute kidney injury. The comparison of the carbamylated haemoglobin levels among the CKD and AKI groups was done using Mann-Whitney test. The mean value of carbamylated haemoglobin among the CKD group was 240.71 +/- 75.64 mugVH/g, whereas among the AKI group, it was 67.15 +/- 17.05 mugVH/g. These values are statistically significant with P Results: Carbamylated haemoglobin values were elevated in relation to renal dysfunction, and it significantly correlated with chronicity of kidney disease. Mean CarHb among the CKD group was significantly high in comparison to the AKI group with statistical significance, with a P value of value of Conclusion: It was significantly attributed in this study that carbamylated haemoglobin >100 mugVH/g is diagnostic of CKD and a value : It was significantly attributed in this study that carbamylated haemoglobin >100 mugVH/g is diagnostic of CKD and a value Copyright: © 2024 Journal of Family Medicine and Primary Care.

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12. **Identification of risk factors and establishment of prediction models for mortality risk in patients with acute kidney injury: A retrospective cohort study.**

Authors: Li, Shengtao;Li, Zhanzhan and Li, Yanyan

Publication Date: 2024

Journal: PLoS ONE [Electronic Resource] 19(10), pp. e0312482

Abstract: This study investigated factors influencing death in patients with Acute Kidney Injury (AKI) and developed models to predict their mortality risk. We analyzed data from 1079 AKI patients admitted to Changsha First Hospital using a retrospective design. Patient information including demographics, medical history, lab results, and treatments were collected. Logistic regression models were built to identify risk factors and predict 90-day and 1-year mortality. The 90-day mortality rate among 1079 AKI patients was 13.8% (149/1079) and the one-year mortality rate was 14.8% (160/1079). For both 90-day and 1-year mortality in patients with AKI, age over 60, anemia, hypotension, organ failure, and an admission Scr level above 682.3 mumol/L were identified as independent risk factors through multivariate logistic regression analysis. Additionally, mechanical ventilation was associated with an increased risk of death at one year. To ensure the generalizability of the models, we employed a robust 5-fold cross-validation technique. Both the 90-day and 1-year mortality models achieved good performance, with area under the curve (AUC) values exceeding 0.8 in the training set. Importantly, the AUC values in the validation set (0.828 for 90-day and 0.796 for 1-year) confirmed that the models' accuracy holds true for unseen data. Additionally, calibration plots and decision curves supported the models' usefulness in predicting patient outcomes. The logistic regression models built using these factors effectively predicted 90-day and 1-year mortality risk. These findings can provide valuable insights for clinical risk management in AKI patients.

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13. **Prolonged exposure to air pollution and risk of acute kidney injury and related mortality: a prospective cohort study based on hospitalized AKI cases and general population controls from the UK Biobank.**

Authors: Liu, Minghui;Gao, Meng;Hu, Dan;Hu, Jiao;Wu, Jing;Chen, Zhiyong and Chen, Jinbo

Publication Date: Oct 21 ,2024

Journal: BMC Public Health 24(1), pp. 2911

Abstract: BACKGROUND: Previous investigations identified a connection between air pollution and kidney diseases. Nevertheless, there is a lack of comprehensive evidence on the long-term risks posed by air pollution with respect to acute kidney injury (AKI) and AKI-related death. METHODS: This prospective cohort analysis included 414,885 UK Biobank (UKB) participants who did not exhibit AKI at the study's outset. AKI was defined based on ICD-10 codes recorded for hospitalized patients. Cox proportional hazards models were used to assess the association between prolonged exposure to air pollutants (particulate matter with diameters of 2.5 micrometers or less (PM2.5), between 2.5 and 10 micrometers (PM2.5-10), and 10 micrometers or less (PM10), along with nitrogen dioxide (NO2) and nitrogen oxides (NOx)) and the risk of AKI and AKI-related death, adjusting for potential confounders including sex, age, ethnicity, education, income, lifestyle factors, and relevant clinical covariates. Restricted cubic splines were applied to evaluate non-linear dose-response relationships, and stratified analyses were performed to explore potential effect modification across subgroups. RESULTS: Over an average follow-up duration of 11.7 years, 14,983 cases of AKI and 326 cases of AKI-related death were diagnosed. Quartile analysis showed individuals exposed to higher levels of these air pollutants had a significantly higher risk of developing AKI and AKI-related death compared to those in the lowest quartile (all P : Over an average follow-up duration of 11.7 years, 14,983 cases of AKI and 326 cases of AKI-related death were diagnosed. Quartile analysis showed individuals exposed to higher levels of these air pollutants had a significantly higher risk of developing AKI and AKI-related death compared to those in the lowest quartile (all P 2.5, PM2.5-10, PM10, NO2, NOx, and the risk of AKI showed a

significant departure from linearity (P for non-linearity 2.5, NO2, NOx, and the risk of AKI-related death did not exhibit a significant departure from linearity (P for non-linearity > 0.05). Sensitivity analyses confirmed the robustness of our findings. CONCLUSION: Our study reveals a direct association between prolonged air pollution exposure and elevated risks of both AKI and AKI-related death. These findings offer scientific validation for the adoption of environmental and public health measures directed towards the reduction of air pollution. Such initiatives could potentially ease the impact associated with AKI and AKI-related death. Copyright © 2024. The Author(s).

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14. **Current updates in radiocontrast-associated acute kidney injury**

Authors: Mahgoub, Mohammed;Fan, Jerry;Concepcion, Luis;Tanner, Stephan B.;Adams, Kadilee and Widmer, Robert J.

Publication Date: 2024

Journal: Baylor University Medical Center Proceedings 37(6), pp. 938–944

Abstract: Contrast-associated acute kidney injury (CA-AKI) is an abrupt decline in kidney function occurring after a recent exposure to iodinated radiocontrast media. CA-AKI presents as elevated serum creatinine level or decreased urine output. CA-AKI is the third leading cause of inpatient AKI. The incidence of CA-AKI varies according to patient population characteristics, ranging from 5% in the general population to as high as 30% in special populations with preexisting comorbidities such as diabetes mellitus, cardiovascular disease, and chronic kidney disease. The development of CA-AKI places a heavy toll on patients and the healthcare system secondary to increased patient morbidity, mortality, hospital length of stay, readmission risk, and healthcare cost. Patients undergoing cardiac catheterization are of special interest, since they have higher risk of developing CA-AKI and its associated complications. The recognition, prevention, and management of CA-AKI has improved over the past few years with the introduction of fluid management guidelines, using less nephrotoxic radiocontrast media, and preprocedural CA-AKI risk assessment. Future advancements in patients' CA-AKI risk stratification and early detection will facilitate prompt initiation of mitigation treatment plans and decrease associated complications. Copyright © 2024 Baylor University Medical Center.

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15. **Epidemiology and Long-term Outcomes of Acute Kidney Injury in Adult Patients with Perforation Peritonitis Undergoing Emergency Laparotomy.**

Authors: Priya, Pallavi;Baidya, Dalim K.;Anand, Rahul K.;Ray, Bikash R.;Khanna, Puneet;Krishna, Asuri and Maitra, Souvik

Publication Date: Se ,2024

Journal: Indian Journal of Critical Care Medicine 28(9), pp. 854–858

Abstract: Background: Reported incidence of acute kidney injury (AKI) is around 5.0-7.5% of all hospitalized patients, and 40% of them are postoperative patients. Major abdominal surgeries account for 3.1-35% of cases of postoperative AKI in various series. The aim of the study was to identify the incidence and risk factors of AKI in peritonitis patients undergoing emergency laparotomy. Materials and methods: Adult patients aged 18-65 years undergoing emergency laparotomy for perforation peritonitis were included in this prospective observational study. Baseline clinical and laboratory data, intraoperative details and postoperative outcome data (AKI at day 7, length of intensive care unit and hospital stay, and mortality) were recorded. Logistic regression model was constructed to predict AKI at day 7. Results: N = 140 patients were included in this study and 69 patients (49.3%) developed AKI within day 7. Larger volume of crystalloid [OR (95% CI) 1.00 (1.00-1.00); p = 0.012], intraoperative vasopressor use (OR 7.42 (2.41-22.83); p p = 0.003] and the presence of chronic liver disease (CLD) [OR 22.44 (1.68-299.26); p = 0.019] were risk factors for the development of AKI. Acute kidney injury patients had increased mortality at day 90 (24.6% vs 1.4%; p p p Conclusion: In peritonitis patients undergoing emergency laparotomy, as many as 49% of patients develop AKI within 1 week. The presence of CLD, intraoperative blood loss, and the use of crystalloids and vasopressor increase the

odds of developing AKI. How to cite this article: Priya P, Baidya DK, Anand RK, Ray BR, Khanna P, Krishna A, et al. Epidemiology and Long-term Outcomes of Acute Kidney Injury in Adult Patients with Perforation Peritonitis Undergoing Emergency Laparotomy. Indian J Crit Care Med 2024;28(9):854-858. Copyright © 2024; The Author(s).

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16. **Acute Kidney Injury in Critically Ill Pregnant Women:A Retrospective Study on Risk Factors and Outcomes.**

Authors: Song Q.;Jia J.;Chen C. and Li, G.

Publication Date: 2024

Journal: Iranian Journal of Kidney Diseases 18(4), pp. 195–203

Abstract: INTRODUCTION: Despite the significant decline in the incidence of pregnancy-related acute kidney injury (AKI) in recent decades due to advancements in medicine and increased awareness of this disease, it remains an important risk factor for maternal morbidity and mortality. However, as fertilization techniques allow women of advanced age to become pregnant, the incidence of pregnancy-related AKI has increased. Consequently, early identification of and intervention for pregnancy-related AKI are particularly important. METHOD(S): This was a retrospective clinical analysis. Data were collected from pregnant patients who were treated in the ICU of Shengjing Hospital of China Medical University from January 2014 to June 2020; The patients were divided into two groups based on their kidney function status: AKI and non-AKI. Additionally, they were further categorized into recovered and non-recovered groups based on their prognosis. The Wilcoxon rank sum test and the chi-square test were used for multigroup comparisons, while logistic regression analysis was used for the analysis of risk factors. P METHOD(S): This was a retrospective clinical analysis. Data were collected from pregnant patients who were treated in the ICU of Shengjing Hospital of China Medical University from January 2014 to June 2020; The patients were divided into two groups based on their kidney function status: AKI and non-AKI. Additionally, they were further categorized into recovered and non-recovered groups based on their prognosis. The Wilcoxon rank sum test and the chi-square test were used for multigroup comparisons, while logistic regression analysis was used for the analysis of risk factors. P RESULT(S): Among 874 pregnant women in this study, 136 had AKI (15.56%), while 36 developed chronic renal insufficiency (26.47%). Statistically significant associations were shown for shock (P = .002), sepsis (P RESULT(S): Among 874 pregnant women in this study, 136 had AKI (15.56%), while 36 developed chronic renal insufficiency (26.47%). Statistically significant associations were shown for shock (P = .002), sepsis (P RESULT(S): Among 874 pregnant women in this study, 136 had AKI (15.56%), while 36 developed chronic renal insufficiency (26.47%). Statistically significant associations were shown for shock (P = .002), sepsis (P RESULT(S): Among 874 pregnant women in this study, 136 had AKI (15.56%), while 36 developed chronic renal insufficiency (26.47%). Statistically significant associations were shown for shock (P = .002), sepsis (P CONCLUSION(S): We identified the relevant risk factors leading to pregnancy-related AKI and affecting the patients' prognosis. Shock, sepsis, coagulation disorders, liver insufficiency, postpartum hemorrhage, intrauterine fetal death and mechanical ventilation are independent risk factors for pregnancy-related AKI, while an elevated baseline creatine level is a key factor for poor prognosis. Meanwhile, early CRRT can effectively reverse renal outcomes.

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17. **Caregiver Awareness and Knowledge of Acute Kidney Injury in Hospitalized Children.**

Authors: Starr, Michelle C.;Vanderkolk, Julia;Goswami, Shrea;Slagle, Cara L. and Soranno, Danielle E.

Publication Date: Oct 01 ,2024

Journal: JAMA Network Open 7(10), pp. e2442442

Abstract: plain-language-summary This cross-sectional analyzes knowledge of acute kidney disease (AKI) diagnosis and associated risks among caregivers of hospitalized children. Language: English

18. **Clinical Profile and Predictors Affecting Outcome in Community-Acquired Acute Kidney Injury: A 3 Months Follow-Up Study.**

Authors: Tarachandani, Rajesh;Pursnani, Lalit;Balakrishnan, Muthukumar;Mahapatra, Himansu Sekhar;Bhattacharyya, Sutanay;Chaudhary, Preeti and Gupta, Vipul

Publication Date: 2024

Journal: Indian Journal of Nephrology 34(5), pp. 475–481

Abstract: Background: Community-Acquired Acute Kidney Injury (CA-AKI) is often a devastating clinical syndrome allied with high hospital mortality. Moreover, only limited prospective data exist on the outcomes of CA-AKI. Hence, this follow-up study was conducted to assess clinical profiles and the factors affecting outcomes in CA-AKI. Materials and Methods: A prospective study enrolling 283 participants was conducted from the year 2021 to 2022. AKI patients defined as per Kidney Disease Improving Global Outcomes (KDIGO) criteria were included. Data were collected on demographics, clinical features, and etiological factors. Patients were followed for three months. Univariate and multinomial analyses were done to predict outcomes. The Cox regression model was fitted to identify predictors of mortality. Results: The mean age of patients was 41.67+/-16.21 years with male predominance. Most of the patients required non-ICU (81.9%) care. Around 36% and 39.6 % of AKI patients were oliguric and required dialysis, respectively. Most patients had a single etiology, with sepsis being the most common cause. Most patients were in KDIGO stage 3, followed by stage 2. At three months of follow-up, 40.6%, 12.3%, and 4.2% had complete, partial, and non-recovery, respectively, and 30.4% died. Age, single etiology, hepatorenal syndrome, sepsis, requirement of mechanical ventilation and vasopressors, comorbidities and glomerulonephritis were significantly associated with mortality. Conclusion: CA-AKI is significantly associated with higher mortality, even for those patients who require non-ICU care on presentation. This highlights the pressing need for AKI prevention, early detection, and intervention to mitigate reversible risk factors and optimize clinical outcomes. Copyright © 2024 Indian Journal of Nephrology Published by Scientific Scholar.

19. **Impact of a kidney-adjusted ERAS protocol on postoperative outcomes in patients undergoing partial nephrectomy.**

Authors: Walach M.T.;Korner M.;Weiss C.;Terboven T.;Muhlbauer J.;Wessels F.;Worst T.S.;Kowalewski K.F. and Kriegmair, M. C.

Publication Date: 2024

Journal: Langenbeck's Archives of Surgery 409(1) (pagination), pp. Article Number: 319. Date of Publication: December 2024

Abstract: Purpose: Evaluation of a kidney-adjusted enhanced recovery after surgery (ERAS) protocol (kERAS) in patients undergoing nephron-sparing surgery (PN). Method(s): The kERAS protocol is a multidimensional protocol focusing on optimized perioperative fluid and nutrition management as well as strict intraoperative and postoperative blood pressure limits. It was applied in a prospective cohort (n = 147) of patients undergoing open or robotic PN. Patients were analyzed for the development of acute postoperative renal failure (AKI), achievement of TRIFECTA criteria, upstaging or new onset of chronic kidney disease (CKD) and length of hospital stay (LOS) and compared to a retrospective cohort (n = 162) without application of the protocol. Result(s): Cox regression analyses could not confirm a protective effect of kERAS on the development of AKI post-surgery. A positive effect was observed on TRIFECTA achievement (OR 2.2, 95% CI 1.0-4.5, p = 0.0374). Patients treated with the kERAS protocol showed less long-term CKD upstaging compared to those treated with the standard protocol (p = 0.0033). There was no significant effect on LOS and new onset of CKD. Conclusion(s): The implementation of a kERAS protocol can have a positive influence on long-term renal function in patients undergoing PN. It can be used safely without promoting AKI. Furthermore, it can be realized with a manageable amount of additional effort.Copyright © The Author(s) 2024.

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