DAFTAR PUSTAKA

1. Kellum JA, Romagni P, Ashuntang G, Ronco C, Zarbock A, dan Anders HJ. Acute kidney injury. Primer. Nature review. 2021;52(7):1-17.
2. Kidney Disease Improving Global Outcomes. Scope of work: KDIGO Clinical Practice Guideline for Acute Kidney Injury (AKI) and Acute Kidney Disease (AKD) Update 2023:1-20.
3. Yang L. Review: Acute Kidney Injury in Asia. Kidney Dis. 2016;2(4):1-8.
4. Lydia A, Rebecca RV, Sedono R, dan Mansjoer A. Factor asscociated with mortality on intensive care unit patients with acute kidney injury at Cipto Mangunkusomo National Central General Hospital. Acta Med Indones. 2019;51(4):324-330.
5. Kahar LA. Clinical Medicine: Development of acute kidney injury predictor score in intensive care unit patients in Padang Indonesia. Acta Med Indones. 2024;53(2):1-10.
6. Sepsis ascociated acute kidney injury: A consensus report of the 28th Acute Disease Quality Initiative workgroup. Nature Reviews Nephrology. 2023;19(6):401-17.
7. Peeraporratana S, Caballero CLM, Gomez H, dan Kellum JA. Acute kidney injury from sepsis: current concepts, epidemiology, pathopysiology, prevention and treatment. Kidney Int. 2019;96(5):1083-99.
8. Coca SG, Singamala S, dan Parikh CR. Chronic kidney disease after acute kidney injury: a systemic review and metaanalysis. Kidney Int. 2012;81(5):442-8.
9. Moledina DG dan Parikh CR. Phenotyping of Acute Kidney Injury Beyond Serum Creatinine. Semin Neprhol. 2018;38 (1):-11.
10. Zou C, Wang C, dan Lu L. Advances in the study of subclinical AKI biomarkers. Front. Physiol. 2022;13(8):1-15.
11. Granado RC, Macedo E, dan Iniguez JS. Perspective : Biomarkers for early diagnosis of AKI: could it backfire? Kidney360. 2022;3:1780-4.

12. Bhosale SJ, Kulkarni AP. Invited article: Biomarkers in acute kidney inury. Indian Journal Of Critical Care Medicine. 2020;10:1-4.
13. Liu C, Liu X, He Z, Zhang J, Tan X, Yang W et al. Article: Proenkephalin a secreted by renal proximal tubules functions as a brake kidney regeneration. Nature Communication. 2023;14(7146):1-15.
14. Chen Y, He Y, Zhao S, He X, Xue D, Xia Y. Review: Hypoxic/ischemic inflammation microRNAs and delta opioid receptors: hypoxia/ischemia-sensitive versus insensitive organs. Frontiers in Aging Neuroscience.2022;14(5):1-15.
15. Lin LC, Chuan MH, Liao HW, Ng LI, Magnusson M et al. Research: Proenkephalin as a biomarker correlates with acute kidney injury: a systematic review with metaanalysis and trial sequential analysis. BMC Critical Care. 2023;27(481):1-12.
16. Rosenqvist M, Bronton K, Hartmann O, Bergmann A, Struck J, dan Melander O. Proenkephalin A 119-159 (penKid) a novel biomarker for acute kidney injury in sepsis: an observational study. BMC Emergency Medicine. 2019;19(75):1-10.
17. Kim H, Hur M, Lee S, Marino R, Magrini L et al. Proenkephalin, Neutrophil Gelatinase-Associated Lipocalin, and eGFR in patient with sepsis. Ann Lab Med. 2017;37:388-97.
18. Evans L, Rhodes A, Ahazzani W, Antonelli M, Coopersmith CM, French C et al. Surviving sepsis campaign: international guidelines for management of sepsis and septic shock 2021. Critical Care Medicine. 2021;49(11):1-81.
19. Toker AK, Kose S, dan Turken M. Comparison of SOFA score, SIRS, qSOFA, and qSOFA + L Criteria in the Diagnosis and Prognosis of Sepsis. Eurasian J Med. 2021;53(1):40-7.
20. World Health Organization. Sepsis. Diakses dari https://www.who.int/news-room/fact-sheets/detail/sepsis pada 18 April 2025.
21. Rudd KE, Jhonson SC, Agesa KM, Shackekford K A, Tsoi D, Kievlan DR et al. Global, regional, and national sepsis incidence and mortality, 1990-

2017:analysis for the global burden disease study. Lancet. 2020;395(10219):200-11.

22. Via LL, Sangiorgio G, Stefani S, Marino A, Nunnari SC, La Mantia I et al. Review: the global burden of sepsis and septic shock. Epidemiologia. 2024;5(7):1-23.
23. Purba AKR, Mariana N, Aliska G, Wijaya SH, Wulandari RR, Hadi U et al. The burden and cost of sepsis and reimbursement of its treatment in a developing country: an observational study on focal infections in Indonesia. Int Journ of Infect Dis. 2020;96:211-18.
24. Fadrian F, Decroli E, Ahmad A, Kam A, Muharramah DH, Pradana G et al. In hospital mortality and its determinant factors among patients with sepsis. Univ Med.2025;44;3-15.
25. Zhang W, Jiang H, Wu G, Huang P, Wang H, An H et al. Review: the pathogenesis and potential therapeutic targets in sepsis. MedComm. 2023;4:1-37.
26. Lameire N. Commentary: Reflection on the KDIGO definition of acute kidney injury and its integration in the concept of acute diseases and disorders and chronic kidney disease. Kidney and Dialysis. 2022;2(2):69-79.
27. Alkhunaizi AM, Shammary A. In hospital acute kidney injury. Diakses dari: https://www.emro.who.int/emhj-volume-26-2020/volume-26-issue-8/in-hospital-acute-kidney-injury.html pada 23 Desember 2024.
28. Makris K dan Spanou L. Review article : Acute kidney injury : definition, pathophysiology and clinical henotypes. Clin Biochem Rev. 2016;37(2):85-98.
29. Baskoro R, Fitriani C, dan Suryono B. Acute Kidney Injury (AKI) sebagai faktor prediktor kematian pasien di ICU RSUP dr Sardjito. Jurnal Komplikasi Anestesi. 2015;2(2):19-28.
30. Hidayat, Kestriani ND, Pradian E. Angka kejadian, lama rawat, mortalitas pasien AKI di ICU RSPU Dr. Hasan Sadikin Bandung. JAP. 2020;8(2):108-18.
31. Abebe A, Kumela K, Belay M, Kabede B, dan Wobie Y. Mortality and predictors of acute kidney injury in adults : a hospital based prospective observational study. Scientific Report. 2021;15672(11).

32. Kinsey GR, Okusa MD. Pathogenesis of Acute Kidney Injury- Foundation for clinical practice. Am J Kidney Dis. 2011;58(2):291-301.
33. Fatoni AZ, Kestriani ND. Tinjauan pustaka : Acute kidney injury (AKI) pada pasein kritis. Anesthesia & Critical Care. 2018;36(6):64-77.
34. Matsuura R, Srisawat N, Granado RCD, Doi K, Yoshida T, Nagaku M et al. Use of the renal angina index in determining acute kidney injury. KIReports. 2018;3:1-7.
35. Li C, Yu Y, Zhu S, Hu Y, Ling X, Xu L et al. The emerging role of regulated cell death in ischemia and reperfusion-induced acute kidney injury: current evidence and future perspectives. Springer. 2024;5:1-10.
36. He FF, Wang YM, Chen YY, Huang W, Qi Z, Zhang C. Sepsis-induced AKI: from pathogenesis to therapeutic approaches. Front Pharmacol. 2022;13(9):1-15.
37. Nusshag C, Weigand M A, Zeier M, Morath C, dan Brenner T. Review: Issues of acute kidney injury staging management in sepsis and criticall illness. Int. J. Mol. Sci. 2017;18(6):1-25.
38. Pasare MA, Prepeliuc CS, Grigoriu MG, Miftode IL, Miftode EG. Biomarkers as beacons: illuminating sepsis associated hepatorenal injury. Int J Mol Sci. 2025;26(4825):1-21
39. Khorashadi M, Beunders R, Pickkers P, Legrand M. Review article : proenkephalin a new biomarker for glomerular filtration rate and acute kidney injury. 2020. Nephron; 144(12):655-661.
40. Matsiras D, Ventoulis I, Verras C, Bistola V, Bezati S, Fyntanidou B et al. Proenkephalin 119 – 159 in heart failure from pathophysiology. J Clin Med. 2025;14(2657):1-26.
41. Deng Z, Chen X, Zhang R, Kong L, Fang Y, Guo J et al. Delta opioid peptide (D-ala2, D-leu5) Enkephalin's ability to enhance mitophagy via TRPV4 to relieve ischemia/reperfusion injury in brain microvascular endothelial cells. Stroke & Vascular Neurology. 2024;4:1-13.
42. Beunders R, Donato LJ, Von Groenendael R, Arlt B, Wodarz CC, Schulte J et al. Assesing GFR with proenkephalin. KI Report. 2023; 8:2345-65.

43. Shah KS, Taub P, PatelM, Rehfeldt M, Struck J, Clopton P et al. Proenkephalin predicts acute kidney injury in cardiac surgery patients. Clicinal Nephrology. 2015;83(1):29-35.
44. Hollinger A, Wittebole X, Francois B, Pickkers P, Antonelli M, Gayat E et al. Proenkephalin A 119-159 (Penkid) is an early biomarker of septic acute kidney injury-the kidney in sepsis and septic shock (Kid-SSS) study. Kireports. 2018;3:1-10.
45. Breidthardt T, Jaeger C, Christ A, Klima T, Mosimann T, Twerenbold R et al. Proenkephalin for early detection of acute kidney injury in hospitalzed patients with CKD. Eur J Clin Invest. 2018;48(10).
46. Lima C, Gorab DL, Fernandes CR, Macedo E. Role of proenkephalin in the diagnosis of severe and subclinical acute kidney injury during perioperative period of the liver transplant. Pract Lab Med.2022;24(1):1-7.
47. Dahlan MS. Besar sampel dan cara pengambilan sampel dalam penelitian kedokteran. Jakarta:Salemba Medika; 2010.
48. Martin L, Martin C, Peine A, Imohl M, Kersten A, Kramann R et al. Implentation and one year evaluation of proenkephalin a in critical care. Int. J. Mol. Sci. 2025;26(2602):1-17.
49. Nilai rujukan laboratorium RS Dr M Djamil Padang, 2025.
50. McDonagh T, Metra M, Adamo M, Gardner RS, Baumbach A, Bohm M et al. Essential messages from the ESC Guidelines for the diagnosis and treament of acute and chronic heart failure. Eu Heart Jour. 2021.
51. Soelistijo SA, Suastika K, Lindarto D, Decroli E, Permana H, Sucipto KW et al. Pedoman pengelolaan dan pencegahan diabetes melitus tipe 2 dewasa di Indonesia. PERKENI. 2021.
52. Bakta IM, Suega K, Adyana WL, Rena Ni MRA. *Pendekatan terhadap pasien anemia*. Dalam : Alwi I, Setiati S, Syam AF, Sudoyo AW, Kolopaking MS, Nasution SA (editor). Buku Ajar Ilmu Penyakit Dalam Edisi VII. Jakarta: Interna Publishing. 2024;3121-32.

53. Peraturan Menteri Kesehatan Republik Indonesia Nomor 25 tahun 2016. Rencana Aksi Nasional Kesehatan Lanjut Usia Tahun 2016—2019. Kemenkes RI.
54. Didik S, Golosova D, Xu B, Staruschenko A. Opioid and the kidney: a Compendium. Kidney360. 2023;4:1816-23.
55. Wicaksono A, Adisasmita A, Harijanto E. Frekuensi dan mortalitas pasien sepsis dan syok septik di ICU rumah sakit swasta tipe B di Tangerang Selatan. Jurnal Epidemiologi Kesehatan Indonesia. 2022;6(6):1-11.
56. Jonny J, Hasyim M, Angelia V, Jahya AN, Hilman LP, Kusumaningrum VF et al. Incidence of acute kidney injury and use of renal replacement therapy in intensive care unit in Indonesia. BMC Nephrology. 2020;21(191):1-18.
57. Song MJ, Jang Y, Legrand M, Park S, Ko R, Suh GY et al. Epidemiology of sepsis-associated acute kidney injury in critically ill patients a multicenter, prospective, observational cohort study in South Korea. Critical Care. 2024;28(384):1-11.
58. Takeuchi T, Flannery AH, Liu LJ, Ghazi LJ, Olivares AC, Fushimi K et al. Epidemiology of sepsis associated acute kidney injury in the ICU with contemporary consensus definitions. Critical Care. 2025;29(128):1-11.
59. Shum HP, Kong HY, Chan KC, Yan WW, Chan TM. Septic acute kidney injury in critically ill patient a single center study on its incidence, clinical characteristics, and outcome predictors. Renal Failure. 2016;38(5):1-11.
60. Alhamyani AH, Alamri MS, Aljuaid NW, Aloubthani AH, Alzahrani S, Alghamdi AA et al. Sepsis in aging population a review of risk factors, diagnosis, and management. Cureus. 2024;16(12):1-11.
61. Haynes. Aging of the immune system research challenges to enhance the health span of older adults. Front Aging. 2020;1(2):1-4.
62. Marzuki MJ, Nursamsu N, Rifai A. Comparison of hospital mortality, length of stay, renal recovery and needs for hemodialysis in acute kidney injury (AKI) patients due to septic and non-septic and factors affecting patients mortality. Jurnal Penyakit Dalam Indonesia. 2022;9(1):1-12.

63. Esper AM, Moss M, Martin GS. The effect of diabetes mellitus on organ dysfunction with sepsis: an epidemiology study. Critical care. 2009;13(18):1-6.
64. Constantini E, Carlin M, Porta M, Brizzi MF. Type 2 diabetes mellitus and sepsis: state of the art, certainties and missing evidence. Acta Diabetoligica. 2021;58:1139-51.
65. Frydrich LM, Fattahi F, He K, Ward PA, Delano MJ. Diabetes and sepsis: risk, recurrence, and ruination. Front. Endocrinol. 2017;8(271):1-22.
66. Dorlious V, Kakaletsis N, Stamou D, Champla A, Tsakiri K, Agapakis D et al. Diabetes mellitus and multidrugs resistant gram negative bacterial in critically ill COVID-19 patients: a retrospective observational study. Diagnostics. 2025;15(10):1-18.
67. Yan X, Song J, Zhang L, Li X. Analysis of risk factor for multidrug resistant organisms in diabetic foot infection. BMC Endocrine Disoders. 2022;22(46):1-7.
68. Venot M, Weis L, Clech C, Darmon M, Allaouchiche B, Toledano DG et al. Acute kidney injury in severe sepsis and septic shock in patient with and without diabetes mellitus: A multicenter study. PloS ONE. 2015;10 (5):1-10.
69. Gui Y, Palanza Z, Fu H, Zhou D. Acute kidney injury in diabetes mellitus: epidemiology, diagnostics and therapeutic concept. FASEB J. 2023;37(4):1-35.
70. Mo M, Huang Z, Gao T, Luo Y, Pan X, Yang Z et al. Development and validation of short term renal prognosis prediction model in diabetic patients with acute kidney injury. Diabetology & Metabolic Syndrome. 2022;14(197):1-10.
71. Chen WH, Yang C, Chen YT, Li ZJ, Guan K, Li JJ, Huang RC. Systolic blood pressure time in the target range and acute kidney injury patient with hypertension. Hypertension. 2025;82:2218-26.
72. Mullens W, Abrahams Z, Francis GS, Sokos G, Taylor DO, Starling RC et al. Importance of venous congestion for worsening of renal function in advanced decompensated heart failure. JACC. 2009;53(7):1-8.

73. Banerjee D, Ali M A, Wang A Y, Jha V. Acute kidney injury in acute heart failure when to worry and when not to worry. Nephrol Dial Transplant. 2025;40:10-18.
74. Setiawan IR, Salsabila S, Prasetyawan B, Ilmawan M, Gunawan A, Daryanyo A et al. Diabetes mellitus and hypertension as risk factors of acute kidney injury induced by COVID-19: A systematic review and metaanalysis. Pneumon. 2022;35(4):1-9.
75. Widjanarko ND, Tamio E, Alvianto S, Surya ND, Kuatama R, Iryaningrum M R. Sequential organ failure assesment (SOFA) score as a predictor of acute kidney injury in COVID-19 patient: a systematic review and metaanaylsisis. Udayana Journal of Internal Medicine. 2023;7(1):19-26.
76. Hua Y, Ding N. Jung H, Xie Y, Wu H, Wu Y, Lan B. Association between SOFA score and risk of acute kidney injury in patients with diabetic ketoacidosis: an analysis of the MIMIC-IV database. Front. Endocrinol. 2024;15:1-10.
77. Ramesh A, Doddi A, Abasi A, Al Mamun M, Sakhuja A, Shawwa K. Use of vasopressors in patients with acute kidney injur on continuous kidney replacement therapy. PloS ONE. 2024;19(12):1-9.
78. Dafitri IA, Khairsyaf O, Medison I, Sabri YS. Korelasi qSOFA dan NLR terhadap kadar prokalsitonin untuk memprediksi luaran pasien sepsis pneumonia di RSUP dr. M. Djamil Padang. J Respir Indo. 2020;40(3):173 -81.
79. Editorial: Pneumonia a neglected global threat. Lancet Infect Disease. 2024;24:974-1002.
80. Nelwan EJ. Editorial : The threat of emerging and re-emerging infections in Indonesia. Acta Med Indones. 2019;51(3):1-2.
81. Burhan E. Management of severe community acquired pneumonia. Dalam: Suradi, Reviono, Sutanto Y S, Djalalaksana S, Marhana I A (editors). Kumpulan Makalah Work Confrence XIV Indonesian Society of Respirology. Solo:UNS Press. 2019.
82. Han SS, Baek SH, Ahn SY, Chin HJ, Na KY, Chae DW et al. Anemia is a risk factor acute kidney injry and long term mortality in critically ill patients. Tohuku J Exp Med. 2015;237:287-95.

83. Thonprayoon PH, Gharamani N. Hypoalbuminemia an independent risk factor for acute kidney injury in hospitalized patients: A metaanalysis. Chest Ann Meeting. 2020;10.
84. Wiedermann CJ. Review: Controversies sorrounding albumin use in sepsis: Lesson from cirrhosis. Int J Mol Sci. 2023;24(17606):1-17.
85. Yesiltas S, Guzel C, Sumer I, Uysal H, Daskaya H, Turkay M et al. The effect of exogenous human albumin administration on acute kidney injury development in hypoalbuminemic patients in intensive care unit. Bezmialem Science. 2022;10(2):144-9.
86. Liu G, Lv H, An Y, Wein X, Yi X, Yi H. Early lactate level for prediction of mortality in patients with sepsis or septic shock: a metaanalysis. Int J Clin Exp Med. 2017;10(1):37-47.
87. Schulz C A, Chrsitensson A, Ericson U, Almgren P, Hindy G, Nilsson P et al. High level of fasting plasma proenkephalin A predicts deterioration of kidney function and incidence of CKD. J Am Soc Nephrol. 2016;28(1):291-302.
88. Bullen AL, Katz R, Poursadrolah S, Short S AP, Long DL, Cheung KLC et al. Plasma proenkephalin A and incident chronic kidney disease and albuminuria in the Reasons for Geographic And Racial Difference in Stroke (REGARDS) cohort. BMC Nephrology. 2024;25(16):1-10.
89. Nilsson C, Christensson A, Nilsson PM, Melander O, Bennet L. Proenkephalin and its association with renal function in Middle Eastern immigrants and native Swedes. Scand. J. Clin. Lab. Invest. 2021;81(7):1-10.
90. Rangaswami J, Bhalla V, Blair JEA, Chang TI, Costa S, Lentine KL et al. Cardiorenal syndrome: classification, pathophysiology, diagnosis, and treatment strategies. Circulation. 2019;139(840):1-39.
91. Emmens JE, Maaten JM, Veldhuisen DJ, de Boer RA, Struck J, Bergmaan A et al. Proenkephalin, an opioid system surogate as a novel comprehensive renal marker in heart failure. Circ Heart Fail. 2019;12(5):1-13.
92. Ng LL, Squire IB, Jones DJL, Cao TH, Chan DCS, Sandhu JK et al. Proenkephalin, renal dysfunction and prognosis in patients with acute heart failure. J Am Coll Cardiol. 2017;69:56-69.

93. Martin L, Martin C, Peine A, Imoohl M, Kersten A, Kramaan R et al. Implementation and one year evaluation of proenkephalin A in critical care. Int. J. Mol Sci. 2025;26:1-17.
94. Verras C, Bezati S, Bistola V, Ventoulis I, Matsiras D, Tsiodras S et al. Point of care serum proenkephalin as an early predictor of mortality in patients presenting to the emergency departement with septic shock. Biomedicine. 2024;12(1004):1-17.
95. Frigyesi A, Bostroom L, Lengquist M, Johnson P, Lundberg OH, Spangfors M et al. Plasma proenkephalin A 119 – 159 in intensive care unit admission in a predictor of organ failure and 30 day mortality. ICMx. 2021;9(36):1-12.
96. Hassan M, Arnob AS, Ahmed AH, Rahman S, Akbar AAG, Jabin P et al. Proenkephalin is an early biomarker to predict septic acute kidney injury among patients in intensive care unit. Arch Neprol Urol. 2021;4(2):71-83.
97. Ji BK, Xie ZN, Pu XH, Gao N, Ye JL, Han YF. Proenkephalin A 119 – 159 as a biomarker for predicting sepsis associated acute kidney injury. Int Urol Nephrol. 2025;57(12):4279-85.
98. Puspitasari S, Semedi BP, Rehatta NM, Mauydia, Purnomo W. Comparison of kidney injury molecule-1, proenkephalin and presepsin as predictors of diagnostics and severity of sepsis asscociated acute kidney injury. Edelweiss Appied Science and Technology.2025;9(2):331-42.
99. Schulte J, Depret F, Hartmann O, Pickkers P, Laterre PF, Uhle F et al. Clinical perfomance of proenkephalin A 119 – 159 for early diagnosis of acute kidney injury in patients with sepsis or septic shock. 2024;10:1-26.