

DAFTAR PUSTAKA

1. Srzić I, Adam VN, Pejak DT. Sepsis Definition: What's New In The Treatment Guidelines. *Acta Clin Croat*. 2022;61:67–72.
2. Gyawali B, Ramakrishna K, Dhamoon AS. Sepsis: The evolution in definition, pathophysiology, and management. Vol. 7, *SAGE Open Medicine*. SAGE Publications Ltd; 2019.
3. World Health Organization (WHO). Global report on the epidemiology and burden of sepsis : current evidence, identifying gaps and future directions. World Health Organization; 2020.
4. Rudd KE, Johnson SC, Agesa KM, Shackelford KA, Tsoi D, Kievlan DR, et al. Global, regional, and national sepsis incidence and mortality, 1990–2017: analysis for the Global Burden of Disease Study. *The Lancet*. 2020;395(10219):200–11.
5. Suetrong B, Walley KR. Lactic acidosis in sepsis: It's Not All anaerobic: Implications for diagnosis and management. Vol. 149, *Chest*. American College of Chest Physicians; 2016. p. 252–61.
6. Leśnik P, Łysenko L, Krzystek-Korpaczka M, Woźnica-Niesobka E, Mierzchała- Pasierb M, Janc J. Renin as a Marker of Tissue Perfusion, Septic Shock and Mortality in Septic Patients: A Prospective Observational Study. *Int J Mol Sci*. 2022;23(16).
7. Busse LW, Schaich CL, Chappell MC, McCurdy MT, Staples EM, Ten Lohuis CC, et al. Association of Active Renin Content with Mortality in Critically Ill Patients: A Post hoc Analysis of the Vitamin C, Thiamine, and Steroids in Sepsis (VICTAS) Trial*. *Crit Care Med*. 2024;52(3):441–51.
8. Jeyaraju M, McCurdy MT, Levine AR, Devarajan P, Mazzeffi MA, Mullins KE, et al. Renin Kinetics Are Superior to Lactate Kinetics for Predicting In-Hospital Mortality in Hypotensive Critically Ill Patients. *Crit Care Med*. 2022;50(1):50–60.
9. Gleeson PJ, Crippa IA, Mongkolpun W, Cavicchi FZ, Van Meerhaeghe T, Brimiouille S, et al. Renin as a marker of tissue-perfusion and prognosis in critically ill patients. *Crit Care Med*. 2019;47(2):152–8.
10. Hagraas AMA, Aboelsuod MAA, Gad GLAER, Mohammed AEWAESS, Daboun AMA. Use of renin versus lactic acid as tissue perfusion biomarkers for mortality prediction in hypotensive critically ill patients. *Egypt J Anaesth*. 2024;40(1):152–9.
11. Picod A, Garcia B, Van Lier D, Pickkers P, Herpain A, Mebazaa A, et al. Impaired angiotensin II signaling in septic shock. Vol. 14, *Annals of Intensive Care*. Springer Science and Business Media Deutschland GmbH; 2024.
12. Liu S, Yang T, Jiang Q, Zhang L, Shi X, Liu X, et al. Lactate and Lactylation in Sepsis: A Comprehensive Review. Vol. 17, *Journal of Inflammation Research*. Dove Medical Press Ltd; 2024. p. 4405–16.
13. Iskandar A, Vincentia MI, Jaya W, Aryati A, Pramadhani A, Aprilia A. THE PROFILE OF LACTATE, ALBUMIN, AND LACTATE/ALBUMIN RATIO AS PREDICTORS OF MORTALITY IN SEPSIS PATIENTS. *Russian Journal of Infection and Immunity*. 2021;11(6):1095–100.

14. Shadvar K, Nader-Djalal N, Vahed N, Sanaie S, Iranpour A, Mahmoodpoor A, et al. Comparison of lactate/albumin ratio to lactate and lactate clearance for predicting outcomes in patients with septic shock admitted to intensive care unit: an observational study. *Sci Rep.* 2022;12(1).
15. Baihaqi FA, Delarosa DO, Ramadhan R. Rasio Laktat/Albumin sebagai Prediktor Mortalitas pada Pasien dengan Sepsis dan Syok Sepsis: Studi Meta-Analisis. *Jurnal Penyakit Dalam Indonesia.* 2022;9(3):146.
16. Shin J, Hwang SY, Jo IJ, Kim WY, Ryoo SM, Kang GH, et al. Prognostic value of the lactate/albumin ratio for predicting 28-day mortality in critically ill sepsis patients. *Shock.* 2018;50(5):545–50.
17. aboraya karim, Makram E, Ibrahim M, abdel rahman ahmed. Serum lactate/albumin ratio as a predictor of morbidity and mortality in patients with severe sepsis and septic shock. *Benha Medical Journal.* 2022;0(0):0–0.
18. Evans T. Diagnosis and management of sepsis. *Clin Med (Lond).* 2018;18(2):146–55. Available from: www.nice.org.uk/guidance/ng51
19. Jarczak D, Kluge S, Nierhaus A. Sepsis—Pathophysiology and Therapeutic Concepts. Vol. 8, *Frontiers in Medicine.* Frontiers Media S.A.; 2021.
20. Arora J, Mendelson AA, Fox-Robichaud A. Sepsis: network pathophysiology and implications for early diagnosis. *Am J Physiol Regul Integr Comp Physiol.* 2023;324(5):613–24.
21. Kakihana Y, Ito T, Nakahara M, Yamaguchi K, Yasuda T. Sepsis-induced myocardial dysfunction: Pathophysiology and management. Vol. 4, *Journal of Intensive Care.* BioMed Central Ltd.; 2016.
22. Liu C, SS, Luo L, Chen X, Ling C,, Cao S. SOFA Score in relation to Sepsis: Clinical Implications in Diagnosis, Treatment, and Prognostic Assessment. *Comput Math Methods Med.* 2022;1–10.
23. Fan SL, Miller NS, Lee J, Remick DG. Diagnosing sepsis – The role of laboratory medicine. Vol. 460, *Clinica Chimica Acta.* Elsevier B.V.; 2016. p. 203–10.
24. Guarino M, Perna B, Cesaro AE, Maritati M, Spampinato MD, Contini C, et al. 2023 Update on Sepsis and Septic Shock in Adult Patients: Management in the Emergency Department. Vol. 12, *Journal of Clinical Medicine.* Multidisciplinary Digital Publishing Institute (MDPI); 2023.
25. Gauer R, Forbes D, Boyer N. Sepsis: Diagnosis and Management. *Am Fam Physician.* 2020;101(7):408.
26. Leśnik P, Łysenko L, Krzystek-Korpacka M, Woźnica-Niesobka E, Mierzczała- Pasierb M, Janc J. Renin as a Marker of Tissue Perfusion, Septic Shock and Mortality in Septic Patients: A Prospective Observational Study. *Int J Mol Sci.* 2022;23(16).
27. Li X, Yang Y, Zhang B, Lin X, Fu X, An Y, et al. Lactate metabolism in human health and disease. Vol. 7, *Signal Transduction and Targeted Therapy.* Springer Nature; 2022.

28. Marik PE. Lactate guided resuscitation-nothing is more dangerous than conscientious foolishness. Vol. 11, *Journal of Thoracic Disease*. AME Publishing Company; 2019. p. S1969–72.
29. Sun ZX, Song Y, Li J, Li Y, Yu YH, Wang X. Potential biomarker for diagnosis and therapy of sepsis: Lactylation. Vol. 11, *Immunity, Inflammation and Disease*. John Wiley and Sons Inc; 2023.
30. Tejaswini P, Singhai A, Pawar A, Joshi R, Saigal S, Pakhare AP. Study on Assessing Serum Lactate as an Early Prognostic Determinant in Sepsis Outcome. *Cureus*. 2024;
31. Karampela I, Kounatidis D, Vallianou NG, Panagopoulos F, Tsilingiris D, Dalamaga M. Kinetics of the Lactate to Albumin Ratio in New Onset Sepsis: Prognostic Implications. *Diagnostics*. 2024;14(17).
32. Pasmawati D, Wisudarti C, Adiyanto B. The Relationship Of Lactate-Albumin Ratio To Mortality And Length Of Stay In Sepsis Patients At Icu Dr. Sardjito General Hospital. *Jurnal Komplikasi Anestesi*. 2024;12(1):13–31.
33. Pérez MC, Fernández-Sarmiento J, Bustos JD, Ferro-Jackaman S, Ramírez-Caicedo P, Nieto A, et al. Association between the lactate-albumin ratio and microcirculation changes in Pediatric Septic patients. *Sci Rep*. 2024;14(1).
34. Bou Chebl R, Geha M, Assaf M, Kattouf N, Haidar S, Abdeldaem K, et al. The prognostic value of the lactate/albumin ratio for predicting mortality in septic patients presenting to the emergency department: a prospective study. *Ann Med*. 2021;53(1):2268–77.
35. Kabra R, Acharya S, Shukla S, Kumar S, Wanjari A, Mahajan S, et al. Serum Lactate-Albumin Ratio: Soothsayer for Outcome in Sepsis. *Cureus*. 2023;
36. Krishnamoorthy G, Kotecha A, Pimentel J. Complete resolution of erythrodermic psoriasis with first-line apremilast monotherapy. *BMJ Case Rep*. 2019;12(1).
37. Bou Chebl R, Jamali S, Sabra M, Safa R, Berbari I, Shami A, et al. Lactate/Albumin Ratio as a Predictor of In-Hospital Mortality in Septic Patients Presenting to the Emergency Department. *Front Med (Lausanne)*. 2020;7.
38. Krishnamoorthy G, Kotecha A, Pimentel J. Complete resolution of erythrodermic psoriasis with first-line apremilast monotherapy. *BMJ Case Rep*. 2019;12(1).
39. Chung KS, Song JH, Jung WJ, Kim YS, Kim SK, Chang J, et al. Implications of Plasma Renin Activity and Plasma Aldosterone Concentration in Critically Ill Patients with Septic Shock. *The Korean Journal of Critical Care Medicine*. 2017;32(2):142–53.
40. Wieruszewski PM, Khanna AK. Vasopressor Choice and Timing in Vasodilatory Shock. Vol. 26, *Critical Care*. BioMed Central Ltd; 2022.
41. Khanna AK. Tissue Perfusion and Prognosis in the Critically Ill - Is Renin the New Lactate?*. Vol. 47, *Critical Care Medicine*. Lippincott Williams and Wilkins; 2019. p. 288–90.
42. Zhang Y, McCurdy MT, Ludmir J. Sepsis Management in the Cardiac Intensive Care Unit. Vol. 10, *Journal of Cardiovascular Development and Disease*. Multidisciplinary Digital Publishing Institute (MDPI); 2023.

43. Lipcsey M, Bergquist M, Sirén R, Larsson A, Huss F, Pravda J, et al. Urine Hydrogen Peroxide Levels and Their Relation to Outcome in Patients with Sepsis, Septic Shock, and Major Burn Injury. *Biomedicines*. 2022;10(4).
44. Bhandari R, Bhandari R, Paudel M, Malla GB. Serum Lactate Level as a Predictor of Outcome in Patients with Septic Shock. *Journal of BP Koirala Institute of Health Sciences*. 2019;2(1):43–51.
45. Kang Y, Um S, Koh W. Initial lactate level and mortality in septic shock patients with hepatic dysfunction. *Anaesth Intensive Care*. 2011;39(5).
46. Le Xuan D, Hai GN, Anh DV, Thanh H Do. Prognostic Value of Lactate/Albumin Ratio and NEWS-Lactate in Predicting Sepsis-Associated Acute Kidney Injury: A Retrospective Analysis. *Arch Acad Emerg Med*. 2025;13(1).
47. Yang X, Zhou Y, Liu A, Pu Z. Relationship between Dynamic Changes of Microcirculation Flow, Tissue Perfusion Parameters, and Lactate Level and Mortality of Septic Shock in ICU. *Contrast Media Mol Imaging*. 2022;2022.
48. Rahman R, Rahman AA, Fysal MdO, Akther F, Paul S, Rahman MdM, et al. Serum Lactic Acid: A Predictor of Septic Shock in Childhood Cancers with Febrile Neutropenia in a Tertiary Care Hospital in Bangladesh. *Asian Journal of Pediatric Research*. 2025;15(1):38–45.
49. Tanwar A, Fiza B, Medatwal B, Singh R, Sinha M. Study of Serum Lactate Levels In Patients With Sepsis on The Basis of Survival and Non-Survival. *Indian Journal F Research*. 2021;10(9):8.
50. Zhao X, Peng Q, Li W, Hu D, Guan Y, Wang J. Elevated lactate/albumin ratio is associated with poor prognosis in sepsis patients: a systematic review and meta- analysis. *J Med Biochem*. 2024;43(3):334–49.
51. Jeong JH, Heo M, Lee SJ, Jeong YY, Lee JD, Yoo JW. Clinical usefulness of red cell distribution width/albumin ratio to discriminate 28-day mortality in critically ill patients with pneumonia receiving invasive mechanical ventilation, compared with lactate/albumin ratio: A retrospective cohort study. *Diagnostics*. 2021;11(12).
52. Thapa S, Prasad P, Shakya Y. Serum Lactate Albumin Ratio as a Predictor of Mortality in Severe Sepsis and Septic Shock at Tribhuwan University Teaching Hospital, Kathmandu. *Birat Journal of Health Sciences*. 2017;2(2).
53. Yin M, Si L, Qin W, Li C, Zhang J, Yang H, et al. Predictive Value of Serum Albumin Level for the Prognosis of Severe Sepsis Without Exogenous Human Albumin Administration: A Prospective Cohort Study. *J Intensive Care Med*. 2018;33(12):687–94.
54. Gong Y, Li D, Cheng B, Ying B, Wang B. Increased neutrophil percentage-to-albumin ratio is associated with all-cause mortality in patients with severe sepsis or septic shock. *Epidemiol Infect*. 2020;148.
55. Lee GT, Ko BS, Kim DS, Kim M, Park JE, Hwang SY, et al. Diagnostic Accuracy of Plasma Renin Concentration and Renin Activity in Predicting Mortality and Kidney Outcomes in Patients With Septic Shock and Hypoperfusion or Hypotension: A Multicenter, Prospective, Observational Study. *Ann Lab Med*. 2024;44(6):497–506.

56. Alhamyani AH, Alamri MS, Aljuaaid NW, Aloubthani AH, Alzahrani S, Alghamdi AA, et al. Sepsis in Aging Populations: A Review of Risk Factors, Diagnosis, and Management. *Cureus*. 2024;
57. Candemir B, İnci K, Aygencel G, Türkoğlu M. Sepsis and Septic Shock: Outcomes in Elderly and Very Elderly Intensive Care Patients. *Turkish Journal of Intensive Care*. 2022;20(1):9–16.
58. Englert NC, Ross C. The Older Adult Experiencing Sepsis. *Crit Care Nurs Q*. 2015;38(2):175–81.
59. Angus DC, van der Poll T. Severe Sepsis and Septic Shock. *New England Journal of Medicine*. 2013;369(9):840–51. Available from: <http://www.nejm.org/doi/10.1056/NEJMra1208623>
60. Juneja D. Severe sepsis and septic shock in the elderly: An overview. *World J Crit Care Med*. 2012;1(1):23.
61. Failla KR, Connelly CD. Systematic Review of Gender Differences in Sepsis Management and Outcomes. *Journal of Nursing Scholarship*. 2017;49(3):312–24.
62. Angele MK, Pratschke S, Hubbard WJ, Chaudry IH. Gender differences in sepsis: Cardiovascular and immunological aspects. Vol. 5, *Virulence*. Taylor and Francis Inc.; 2014. p. 12–9.
63. Luethi N, Bailey M, Higgins A, Howe B, Peake S, Delaney A, et al. Gender differences in mortality and quality of life after septic shock: A post-hoc analysis of the ARISE study. *J Crit Care*. 2020;55:177–83.
64. Li J, Liu H, Wang N, Wang F, Shang N, Guo S, et al. Persistent high sepsis-induced coagulopathy and sequential organ failure assessment scores can predict the 28-day mortality of patients with sepsis: A prospective study. *BMC Infect Dis*. 2024;24(1).
65. Rehman F, Zafar S Bin, Aziz A, Aziz A, Memon PS, Ejaz T, et al. Early Lactate Clearance as a Determinant of Survival in Patients with Sepsis: Findings from a Low-resource Country. *J Crit Care Med*. 2023;9(1):30–8.
66. Lee SG, Song J, Park DW, Moon S, Cho HJ, Kim JY, et al. Prognostic value of lactate levels and lactate clearance in sepsis and septic shock with initial hyperlactatemia: A retrospective cohort study according to the Sepsis-3 definitions. *Medicine (United States)*. 2021;100(7):E24835.
67. Borah P, Saloi DK, Deka B, Konwar R, Kalita D, Mahanta P, et al. Sequential blood lactate measurement as a predictor of mortality in patients with sepsis in the critical care unit [Internet]. 2021. Available from: <https://www.researchsquare.com/article/rs-143668/v1>
68. Routsis C, Kokkoris S, Gkoufa A, Katsaros D, Karageorgiou S, Kavalieratos F, et al. Lactate to Albumin Ratio and Mortality in Patients with Severe Coronavirus Disease-2019 Admitted to Intensive Care Unit [Internet]. 2024. Available from: <https://www.preprints.org/manuscript/202410.2172/v1>
69. Gunnerson KJ, Saul M, He S, Kellum JA. Lactate versus non-lactate metabolic acidosis: a retrospective outcome evaluation of critically ill patients. *Crit Care*. 2006;10(1):R22–R22. Available from: <https://pubmed.ncbi.nlm.nih.gov/16507145>

70. Lois A, Save S. Serial Evaluation of Sequential Organ Failure Assessment Score (SOFA) as a Predictor of Outcome in Children Admitted in Pediatric Intensive Care Unit (PICU) at Tertiary Care Hospital. *Indian Journal of Critical Care Medicine*. 2023;27(8):588–93.
71. Doerschug KC, Delsing AS, Schmidt GA, Ashare A. Renin-angiotensin system activation correlates with microvascular dysfunction in a prospective cohort study of clinical sepsis. *Crit Care*. 2010;14(1).
72. Atik D, Cander B, Bulut B, Kaya H, Yazıcı R, Öztürk Demir T, et al. Evaluation of the Relationship Between C-reactive Protein, Lactate, Procalcitonin and Albumin Levels and Procalcitonin/Albumin Ratio with SOFA and APACHE-II Scores in Emergency ICU Patients. *Eurasian Journal of Emergency Medicine*. 2020;19(2):98–104.
73. Sekhar S, Pratap V, Gaurav K, Toppo S, Kamal AK, Nair R, et al. The Value of the Sequential Organ Failure Assessment (SOFA) Score and Serum Lactate Level in Sepsis and Its Use in Predicting Mortality. *Cureus*. 2023;15(Sepsis 3).
74. Jansen TC, Van Bommel J, Woodward R, Mulder PGH, Bakker J. Association between blood lactate levels, Sequential Organ Failure Assessment subscores, and 28-day mortality during early and late intensive care unit stay: A retrospective observational study. *Crit Care Med*. 2009;37(8):2369–74.
75. Ismawati Irwan, Syafruddin Gaus SKA. Korelasi Skor SOFA dengan Kadar Laktat Darah dan C-Reactive Protein pada Pasien Sepsis yang Dirawat di ICU. *Jurnal Kedokteran Terapi Intensif*. 2012;2:183–90.
76. Jemie J, Loesnihari R, Hanafie A. Correlation of lactate levels with sequential organ failure assessment (SOFA) score in sepsis patients in H. Adam Malik Hospital Medan. *Indonesia Journal of Biomedical Science*. 2019;13(1):26–30.
77. Li X, Yang Y, Zhang B, Lin X, Fu X, An Y, et al. Lactate metabolism in human health and disease. *Signal Transduct Target Ther*. 2022;7(1).
78. Ma F, Yu W. The Roles of Lactate and Lactylation in Diseases Related to Mitochondrial Dysfunction. *Int J Mol Sci*. 2025;26(15):7149.
79. Kushimoto S, Akaishi S, Sato T, Nomura R, Fujita M, Kudo D, et al. Lactate, a useful marker for disease mortality and severity but an unreliable marker of tissue hypoxia/hypoperfusion in critically ill patients. *Acute Medicine & Surgery*. 2016;3(4):293–7.
80. Deulkar P, Singam A, Mudiganti VNKS, Jain A. Lactate Monitoring in Intensive Care: A Comprehensive Review of Its Utility and Interpretation. *Cureus*. 2024;16(8):1–9.
81. Mahashabde ML, Bhimani YR, Bhavsar HM. The Correlation Between the Lactate/Albumin Ratio and Sequential Organ Failure Assessment (SOFA) Score in Patients With Sepsis and Septic Shock. *Cureus*. 2024;
82. Purohit A, Yadav A, Yadav R, Kumar S, Prasad S, Gupta D. Lactate Albumin Ratio as Predictor of 28 Days Mortality in Septic Shock Patients and its Correlation to SOFA Score for Assessment of Organ Dysfunction: A Prospective Observational Study [Internet]. Vol. 10, *Archives of Anesthesiology and Critical Care*. 2024. Available from: <http://aacc.tums.ac.ir>

83. Wang B, Chen G, Cao Y, Xue J, Li J, Wu Y. Correlation of lactate/albumin ratio level to organ failure and mortality in severe sepsis and septic shock. *J Crit Care*. 2015;30(2):271–5.
84. Karim TA, Hanafie A, Fauzi Tanjung Q, Amelia R. THE RELATIONSHIP OF LACTATE ALBUMIN RATIO WITH SOFA SCORE AS A PREDICTOR OF SEPSIS PATIENTS IN THE INTENSIVE CARE ROOM. *Jurnal Health Sains*. 2025;6(6).
85. Erdoğan M, Findikli HA. Prognostic value of the lactate/albumin ratio for predicting mortality in patients with pneumosepsis in intensive care units. *Medicine (United States)*. 2022;101(4):E28748.
86. Liu Z, Meng Z, Li Y, Zhao J, Wu S, Gou S, et al. Prognostic accuracy of the serum lactate level, the SOFA score and the qSOFA score for mortality among adults with Sepsis. *Scand J Trauma Resusc Emerg Med*. 2019;27(1).
87. Farhanah N, Wahjono H, Rachmawati B, Hadisaputro S, Gasem MH. The Role of several Biomarkers and Scoring Systems Assessed During Emergency Department Admission Day in Predicting Septic Shock. *Journal of Medicinal and Chemical Sciences*. 2023;6(6):2650–64.
88. Chung KS, Song JH, Jung WJ, Kim YS, Kim SK, Chang J, et al. Implications of Plasma Renin Activity and Plasma Aldosterone Concentration in Critically Ill Patients with Septic Shock. *The Korean Journal of Critical Care Medicine*. 2017;32(2):142–53.
89. Adan Jr. D, Batte A, Namazzi R, Mufumba I, Kazinga C, Mellencamp KA, et al. Renin as a Biomarker of Acute Kidney Injury and Mortality in Children With Severe Malaria or Sickle Cell Disease. *Cureus*. 2023;
90. Zhao L, Zhang R. Non-linear Association Between Lactate Levels and ICU Mortality in Septic Patients: A Multi-Center Study of 13,888 Cases. *J Intensive Care Med*. 2025;
91. Zhong B, Ren D, Wang S, Xiong J, Zhai S, Duan J, et al. Association between 24-Hour Lactate Fluctuation and 28-Day Mortality in Patients with Sepsis-Associated AKI: A MIMIC-IV Database Analysis [Internet]. 2025. Available from: <https://www.researchsquare.com/article/rs-6357675/v1>
92. Xu J, Ma X, Yu K, Wang R, Wang S, Liu R, et al. Lactate up-regulates the expression of PD-L1 in kidney and causes immunosuppression in septic Acute Renal Injury. *Journal of Microbiology, Immunology and Infection*. 2021;54(3):404–10.
93. Ao T, Huang Y, Zhen P, Hu M. Association between the lactate-to-albumin ratio and sepsis-associated acute kidney injury: a cross-sectional study. *Eur J Med Res*. 2025;30(1).
94. Chen Y, Yang K, Wu B, Lin W, Chen S, Xu X, et al. Association between lactate/albumin ratio and mortality in patients with heart failure after myocardial infarction. *ESC Heart Fail*. 2023;10(3):1