

## DAFTAR PUSTAKA

1. Cannon JW. Hemorrhagic Shock. *N Engl J Med* 2018;378(4):370-9.
2. Shagana J, Dhanraj M, Jain A, ASA T. Hypovolemic shock - A review. *Drug Intervention Today* 2018;10(7):1102-5.
3. Krausz MM. Initial resuscitation of hemorrhagic shock. *World J Emerg Surg* 2006;1:14.
4. Committee-on-trauma. *Advanced trauma life support 10th ed.* Chicago: American College of Surgeon; 2018.
5. Bernard C. *Lecons sur les phenomenes de la cummuns aux animauxet aux vegetaux.* Paris: JB Ballieve; 1879.
6. Wiggers C. *Physiology of Shock.* New York: Commonwealth; 1950.
7. Muchtar F, Arif SK, Tanra AH, Santoso A, Wiryana M, Bukhari A, et al. Comparison of the resuscitative effects between lactated Ringer's and lactated Ringer's/hydroxyethyl starch 6% (200/0.5) combination to serum lactate level in hemorrhagic shock in *Lepus nigricollis* rabbits. *Crit Care Shock* 2020;23:287-97.
8. Tachon G, Harrois A, Tanaka S, Kato H, Huet O, Pottecher J, dkk Microcirculatory alterations in traumatic hemorrhagic shock. *Crit Care Med* 2014;42(6):1433-41.
9. Caironi P, Tognoni G, Masson S, Fumagalli R, Pesenti A, Romero M, dkk Albumin replacement in patients with severe sepsis or septic shock. *N Engl J Med* 2014;370(15):1412-21.
10. De Backer D, Hollenberg S, Boerma C, Goedhart P, Buchele G, Ospina-Tascon G, dkk How to evaluate the microcirculation: report of a round table conference. *Crit Care* 2007;11(5):R101.
11. Charlton M, Sims M, Coats T, Thompson JP. The microcirculation and its measurement in sepsis. *J Intensive Care Soc* 2017;18(3):221-7.
12. Bellomo R, Kellum JA, Meade MO, et al. Fluid resuscitation in sepsis. *N Engl J Med* 2016;374(11):1017-27.
13. Bellomo R, Kellum JA, Meade MO, et al. Fluid resuscitation in sepsis. *N Engl J Med* 1999;55(4):821-43.
14. Starling EH, Crile W, Cannon JW, et al. The Starling principle: new views of tissue fluid balance. *Physiol* 2004;557(3):704.



14. Kundra P, Goswami S. Endothelial glycocalyx: Role in body fluid homeostasis and fluid management. *Indian J Anaesth* 2019;63(1):6-14.
15. Krausz MM. Fluid resuscitation strategies in the Israeli army. *J Trauma* 2003;54(5 Suppl):S39-42.
16. Dronen SC, Stern SA, Wang X, Stanley M. A comparison of the response of near-fatal acute hemorrhage models with and without a vascular injury to rapid volume expansion. *Am J Emerg Med* 1993;11(4):331-5.
17. Myburgh JA, Mythen MG. Resuscitation fluids. *N Engl J Med* 2013;369(13):1243-51.
18. Wu CY, Chan KC, Cheng YJ, Yeh YC, Chien CT, Research NCoMM. Effects of different types of fluid resuscitation for hemorrhagic shock on splanchnic organ microcirculation and renal reactive oxygen species formation. *Crit Care* 2015;19:434.
19. Severs D, Hoorn EJ, Rookmaaker MB. A critical appraisal of intravenous fluids: from the physiological basis to clinical evidence. *Nephrol Dial Transplant* 2015;30(2):178-87.
20. Santry HP, Alam HB. Fluid resuscitation: past, present, and the future. *Shock* 2010;33(3):229-41.
21. Smith T. Intravenous fluids. In: Smith T, Pinnock C, Lin T, editors. *Fundamentals of Anesthesia*. 3rd ed. USA: Cambridge University Press; 2008. p. 691-5.
22. Annane D, Siami S, Jaber S, Martin C, Elatrous S, Declere AD, et al. Effects of fluid resuscitation with colloids vs crystalloids on mortality in critically ill patients presenting with hypovolemic shock: the CRISTAL randomized trial. *J Am Med Assoc* 2013;310(17):1809-17.
23. Glover PA, Rudloff E, Kirby R. Hydroxyethyl starch: a review of pharmacokinetics, pharmacodynamics, current products, and potential clinical risks, benefits, and use. *J Vet Emerg Crit Care* 2014;24(6):642-61.



phal M, James MFM, Kozek-Langenecker S, Stocker R, Guidet B, Van  
 1 H. Hydroxyethyl Starches. *Anesthesiology* 2009;111(1):187-202.

25. Mitra S, Khandelwal P. Are All Colloids Same? How to Select the Right Colloid? *Indian J Anaesth* 2009;53(5):592-607.
26. Phipers B, Pierce JMT. Lactate physiology in health and disease. *Continuing Education in Anaesthesia Critical Care & Pain* 2006;6(3):128-32.
27. Brunkhorst FM, Engel C, Bloos F, Meier-Hellmann A, Ragaller M, Weiler N, et al. Intensive insulin therapy and pentastarch resuscitation in severe sepsis. *N Engl J Med* 2008;358(2):125-39.
28. Shires GT, Carrico CJ, Baxter CR, Giesecke AH, Jr., Jenkins MT. Principles in treatment of severely injured patients. *Adv Surg* 1970;4:255-324.
29. Shires T, Coln D, Carrico J, Lightfoot S. Fluid Therapy in Hemorrhagic Shock. *Arch Surg* 1964;88:688-93.
30. Riley ET, Cohen SE, Rubenstein AJ, Flanagan B. Prevention of hypotension after spinal anesthesia for cesarean section: six percent hetastarch versus lactated Ringer's solution. *Anesth Analg* 1995;81(4):838-42.
31. Bezemer R, Legrand M, Klijn E, Heger M, Post ICJH, van Gulik TM, et al. Real-time assessment of renal cortical microvascular perfusion heterogeneities using near-infrared laser speckle imaging. *Optics Express* 2010;18(14).
32. Bakker J, Nijsten MW, Jansen TC. Clinical use of lactate monitoring in critically ill patients. *Ann Intensive Care* 2013;3(1):12.
33. Levy B. Lactate and shock state: the metabolic view. *Curr Opin Crit Care* 2006;12(4):315-21.
34. Rishu AH, Khan R, Al-Dorzi HM, Tamim HM, Al-Qahtani S, Al-Ghamdi G, et al. Even mild hyperlactatemia is associated with increased mortality in critically ill patients. *Crit Care* 2013;17(5):R197.
35. Cecconi M, De Backer D, Antonelli M, Beale R, Bakker J, Hofer C, et al. Consensus on circulatory shock and hemodynamic monitoring. Task force of the European Society of Intensive Care Medicine. *Intensive Care Med* 2014;40(12):1795-815.



Kim JA, Song M, Li J. Lactic and hydrochloric acids induce different patterns of inflammatory response in LPS-stimulated RAW 264.7 cells. *Am J Physiol Regul Integr Comp Physiol* 2004;286(4):R686-92.

37. Puskarich MA, Trzeciak S, Shapiro NI, Arnold RC, Heffner AC, Kline JA, et al. Prognostic value and agreement of achieving lactate clearance or central venous oxygen saturation goals during early sepsis resuscitation. *Acad Emerg Med* 2012;19(3):252-8.
38. Zanaty OM, Megahed M, Demerdash H, Swelem R. Delta neutrophil index versus lactate clearance: Early markers for outcome prediction in septic shock patients. *Alexandria J Med* 2019;48(4):327-33.
39. Krausz MM, Bar-Ziv M, Rabinovici R, Gross D. "Scoop and run" or stabilize hemorrhagic shock with normal saline or small-volume hypertonic saline? *J Trauma* 1992;33(1):6-10.
40. Kowalenko T, Stern S, Dronen S, Wang X. Improved outcome with hypotensive resuscitation of uncontrolled hemorrhagic shock in a swine model. *J Trauma* 1992;33:349-53.
41. Nguyen HB, Rivers EP, Knoblich BP, Jacobsen G, Muzzin A, Ressler JA, et al. Early lactate clearance is associated with improved outcome in severe sepsis and septic shock. *Crit Care Med* 2004;32(8):1637-42.
42. Roumen RM, Redl H, Schlag G, Sandtner W, Koller W, Goris RJ. Scoring systems and blood lactate concentrations in relation to the development of adult respiratory distress syndrome and multiple organ failure in severely traumatized patients. *J Trauma* 1993;35(3):349-55.
43. Hutchins PM, Goldstone J, Wells R. Effects of hemorrhagic shock on the microvasculature of skeletal muscle. *Microvasc Res* 1973;5(2):131-40.
44. Gupta B, Garg N, Ramachandran R. Vasopressors: Do they have any role in hemorrhagic shock? *J Anaesth Clin Pharmacol* 2017;33(1).
45. Filho IT, Torres LN, Sondeen JL, Polykratis IA, Dubick MA. In vivo evaluation of venular glycocalyx during hemorrhagic shock in rats using intravital microscopy. *Microvasc Res* 2013;85:128-33.
46. Tsai AG, Cabrales P, Intaglietta M. Oxygen-carrying blood substitutes: a microvascular perspective. *Expert Opin Biol Ther* 2004;4(7):1147-57.



47. McNeil P, Haywood-Watson RJ, Holcomb JB, Gonzalez EA, Peng Z, Pati S, dkk Modulation of Syndecan-1 Shedding after Hemorrhagic Shock and Resuscitation. PLoS ONE 2011;6(8).
48. Bøe OW, Sveen K, Børset M, Druey KM. Raised Serum Levels of Syndecan-1 (CD138), in a Case of Acute Idiopathic Systemic Capillary Leak Syndrome (SCLS) (Clarkson's Disease). Am J Case Rep 2018;19:176-82.
49. Barelli S, Alberio L. The Role of Plasma Transfusion in Massive Bleeding: Protecting the Endothelial Glycocalyx? Front Med 2018;5:91.
50. Torres LN, Sondeen JL, Ji L, Dubick MA, Torres Filho I. Evaluation of resuscitation fluids on endothelial glycocalyx, venular blood flow, and coagulation function after hemorrhagic shock in rats. J Trauma Acute Care Surg 2013;75(5):759-66.
51. Rogobete AF, Ritiu SA, Bedreag OH, Papurica M, Popovici SE, Toma D, et al. Update on current concepts in management of severe hemorrhagic shock and optimal individualized fluid therapy in critically ill polytrauma patients. Preprints 2022; 2022080141.
52. Johnson M, Alarhayem A, Convertino V, Carter III R, Chung K, Stewart R, et al. Comparison of compensatory reserve and arterial lactate as markers of shock and resuscitation. J Trauma Acute Care Surg 2017;83(4):603-8.
53. Guerci P, Ergin B, Uz Z, Ince Y, Westphal M, Heger M, et al. Glycocalyx Degradation Is Independent of Vascular Barrier Permeability Increase in Nontraumatic Hemorrhagic Shock in Rats. Anesth Analg 2019;129(2):598-607.
54. Ando T, Uzawa K, Yoshikawa T, Mitsuda S, Akimoto Y, Yorozu T. The effect of tetrastarch on the endothelial glycocalyx layer in early hemorrhagic shock using fluorescence intravital microscopy: a mouse model. J Anesth 2023;37:104-18.
55. Uzawa K, Ushiyama A, Mitsuda S, Ando T, Sawa M, Miyao H, et al. The protective effect of hydroxyethyl starch solution on the glycocalyx layer in an experimental hemorrhage mouse model. J Anesth 2020;34:36-46.



56. Weiskopf RB, James MFM. Update of use of hydroxyethyl starches in surgery and trauma. *J Trauma Acute Care Surg* 2015;78(6):S54-9.
57. Komori M, Samejima Y, Okamura K, Ichikawa J, Kodaka M, Nishiyama K, et al. Effects of crystalloids and colloids on microcirculation, central venous oxygen saturation, and central venous-to-arterial carbon dioxide gap in a rabbit model of hemorrhagic shock. *J Anesth* 2019;33:108-17.
58. Wang G, Zhang H, Liu D, Wang X, Chinese Critical Ultrasound Study Group. Resuscitation fluids as drugs: targeting the endothelial glycocalyx. *Chinese Med J* 2022;135(2):137-44.
59. Haywood-Watson RJ, Holcomb JB, Gonzalez EA, Peng Z, Pati S, Park PW, et al. Modulation of Syndecan-1 Shedding after Hemorrhagic Shock and Resuscitation. *Plos One* 2011;6(8):e23530.
60. Filho IPT, Torres LN, Salgado C, Dubick MA. Plasma syndecan-1 and heparan sulfate correlate with microvascular glycocalyx degradation in hemorrhaged rats after different resuscitation fluids. *Am J Physiol* 2016;310:H1468-78.
61. Torres LN, Sondeen JL, Ji L, Dubick MA, Filho IT. Evaluation of resuscitation fluids on endothelial glycocalyx, venular blood flow, and coagulation function after hemorrhagic shock in rats. *J Trauma Acute Care Surg* 2013;75(5):759-66.
62. Hirata N. Fluid resuscitation with hydroxyethyl starch in perioperative acute hemorrhagic shock. *J Anesth* 2020;34:317-9.
63. Laszlo I, Demeter G, Oveges N, Erces D, Kaszaki J, Tanczos K, et al. Volume-replacement ratio for crystalloids and colloids during bleeding and resuscitation: an animal experiment. *Intensive Care Med Exp* 2017;5:52.
64. Uzawa K, Ushiyama A, Mitsuda S, Ando T, Sawa M, Miyao H, Yorozu T. The protective effect of hydroxyethyl starch solution on the glycocalyx layer in an acute hemorrhage mouse model. *J Anesth*. 2019.
65. Azumaguchi R, Tokinaga Y, Kazuma S, Kimizuka M, Hamada K, Sato T, et al. Validation of the relationship between coagulopathy and localization of hydroxyethyl starch on the vascular endothelium in a rat hemodilution model. *Shock* 2021;11:10694.



66. Ergin B, Guerci P, Uz Z, Westphal M, Ince Y, Hilty M, et al. Hemodilution causes glycocalyx shedding without affecting vascular endothelial barrier permeability in rats. *J Clin Trans Res* 2020;5(5):243-52.
67. Zhao H, Zhu Y, Zhang J, Wu Y, Xiang X, Zhang Z, et al. The Beneficial Effect of HES on Vascular Permeability and Its Relationship With Endothelial Glycocalyx and Intercellular Junction After Hemorrhagic Shock. *Front Pharmacol* 2020;11:597.

