

## DAFTAR PUSTAKA

1. Wang et al. Serial Serum Leukocyte Apoptosis Levels as Predictors of Outcome in Acute Traumatic Brain Injury. Hindawi Publishing Corporation BioMed Research International Volume 2014.
2. Yuksel et al. Clinical Factors Predictive for Intracranial Hemorrhage in Mild Head Injury. Hindawi Neurology Research International Volume 2017. Published 20 November 2017.1-5.
3. Al-Gahtany, Mubarak. Serum Leukocyte Count (WBC) Levels as an Indicator for Severity of Traumatic Brain Injury in Saudi Arabia Patients. Egyptian Journal of Neurosurgery. Volume 30/No.2/April-June 2015.145-150.
4. Tim Riskesdas 2018. Laporan Nasional RISKESDAS 2018. Jakarta; 2019. P. 253.
5. Morgan E, Bankole O, Kanu O, Ojo O, Poluyi E. Comparison of the Predictive Strength of Total White Blood Cell Count within 24 hours on Outcome of Traumatic Brain Injury with Glasgow Coma Score and Pupillary Reactivity. J Clin Case Rep Trials. 2018; Vol: 1, Issu: 2 (-13).
6. Rovlias A, Kotsou S. The blood leukocyte count and its prognostic significance in severe head injury. Surg Neurol 2001; 55;190-6.
7. Kelso ML, Gelman H. Bridge between neuroimmunity and traumatic brain injury. Curr Pharm Des. 2014; 20(26); 4284-4298.
8. Corps KN, Roth TL, McGavern DB. Inflammation and neuroprotection in traumatic brain injury. JAMA Neuron. 2015;72(3);355-362.
9. Baum J, Entezami P, Shah K, Medhkour A. Predictors of outcome in traumatic brain injury. World Neurosurg. 2016;90:525-529.
10. Santucci CA, Purcell TB, Meija C. Leucocytosis as a predictor of severe injury in blunt trauma. Western Journal of Emergency Medicine. 2008; 9(2):82-85.
11. Gurkanlar D, Lakadamyali H, Ergun T, Yilmaz C, Yucel E, Altinors N. Predictive value of leucocytosis in head trauma. Turkish Neurosurgery. 2009;19(3):211-15.
12. Hazeldin J, Lord JM, Belli A. Traumatic brain injury and peripheral immune suppression: primer and prospectus. Frontiers in Journal Sinaps, Vol. 1 No. 2 (2018) hlm. 20-28 Neurology. 2015;6:1-17.
13. Paladino L, Subramanian RA, Bonilla E, Sinert RH. Leucocytosis as prognostic indicator of major injury. Western J Emergency Med. 2010;11(5);450-5.
14. Chen W, Yang J, Li Bingbing, Peng G, Li Tianfei Wang S. Neutrophil to lymphocyte ratio as a novel predictor of outcome in patients with several traumatic brain injury. J Head Trauma Rehabil. 2017;1-7.
15. Chen J, Qu X, Li Z, Zhang D, Hou L. Peak neutrophil-to-lymphocyte ratio correlates with clinical outcome in patients with severe traumatic brain injury. Neurocrit Care. 2019;30(2): 334-339.
16. Gyoneva S, Ransohoff RM. Inflammatory reaction after traumatic brain injury: Therapeutic potential of targeting cell-cell communication by chemokines. Trends Pharmacol Sci. 2015;36(7):471-480.
17. Alioglu et al. Peripheral blood picture following mild head trauma in children. Pediatrics International. 2008; 50, 281–283.

18. Mayer, Cynthia L, Huber BR, Peskind E. Traumatic Brain Injury Neuroinflammation, and Post-Traumatic Headaches, London: Springer. 2013.
19. Awaloei AC, Mallo NT, Tomuka D. Gambaran Cedera Kepala yang Menyebabkan Kematian di Bagian Forensik dan Medikolegal RSUP Prof. Dr. R.D Kandou periode Juni 2015 – Juli 2016, Jakarta : Jurnal e-Clinic (eCI), Volume 4, Nomor 2 ; 2016.
20. Aldhimarta W, Islam A. Inflammation Process and Glukoneogenesis Process at Severe Head Injury. Jakarta : The Indonesian Journal of Medical Science, Vol 1; 2009.
21. Whalen MJ. Molecular Biology of Brain Injury. London: Springer; 2009.
22. Arent AM. Perspectives on Molecular Biomarkers of Oxidative Stress and Antioxidant Strategies in Traumatic Brain Injury. Vol X. London: Hindawi Publishing Corporation BioMed Research International; 2014.
23. Veenith T, Goon S, Burnstein R, et al. Molecular Mechanisms of Traumatic Brain Injury. World Journal of Emergency Surgery. 2009.
24. Armonda RA, Bell RS, Vo AH, Ling G, DeGraba TJ, Crandall B, et al. Wartime traumatic cerebral vasospasm: Recent review of combat casualties. Neurosurgery. 2006;59:1215-1225; discussion 1225.
25. Ling G, Bandak F, Armonda R, Grant G, Ecklund J. Explosive blast neurotrauma. Journal of neurotrauma. 2009;26:815-825.
26. Shavelle RM, Strauss DJ, Day SM, Ojdana KA. Life expectancy. In: Zasler ND, Katz DI, Zafonte RD, editor. Brain injury medicine: principles and practice. New York: Demos; 2007.
27. Satyanegara. Ilmu Bedah Saraf. 5th ed. Jakarta: PT. Gramedia Pustaka Utama; 2014.
28. Ruggiero et al. Severe hyperleukocytosis and multifocal intracranial haemorrhage: not always a fatal outcome. Int J Hematol (2009) 90:87–90.
29. Zacko JC, Hawryluk GW. Neurochemical Pathomechanism in Traumatic Brain Injury in Youmans & Winn Neurological Surgery Seventh Edition. Elsevier; 2017.
30. Nyanzu et al, Improving on Laboratory Traumatic Brain Injury Models to Achieve Better Results. International Journal of Medical Sciences. 2017; 14(5): 494-505. doi: 10.7150/ijms.1807.
31. Czigner A et al. Kinetics of the cellular immune response following closed head injury. Acta Neurochir (Wien). 2007;149; 281-89.
32. Clifton GL, Ziegler MG, Grossman RG. Circulating catecholamines and sympathetic activity after head injury. Neurosurgery. 1981;8:10-14.
33. Bednar MM, Gross CE, Howard DB, Lynn M. Neutrophil activation in acute human central nervous system injury. Neurol Res. 1997;19:359-86
34. Quattrocchi KB et al. Impairment of helper T-cell function and lymphokine-activated killer cytotoxicity following severe head injury. J Neurosurg. 1991;75:766-773.
35. Khrisna et al. Approaches to Monitor Circuit Disruption after Traumatic Brain Injury: Frontiers in Preclinical Research. International Journal of Molecular Sciences. Int. J. Mol. Sci. 2020, 21, 588.
36. Gyonefa S, Ransohoff RM. Inflammatory Reaction After Traumatic Brain Injury: Therapeutic Potential of Targeting Cell-cell Communication by Chemokines, Neuro/Immuno Discovery Biology. Cambridge; Elsevier: 2015.

37. Balu, R. Inflammation and Immune System Activation After Traumatic Brain Injury in Current Neurology and Neuroscience. Springer; 2014.
38. Plesnila, N. The Immune System in Traumatic Brain Injury. Elsevier; 2015.
39. Griffin, BG Gerald Dieter. The Injured Brain: TBI, mTBI, the Immune System, and Infection: Connecting the Dots. Military Medicine, 176, 4:364, 2011.
40. Liu YW, Li S, Dai SS. Neutrophils in traumatic brain injury (TBI): friend or foe?. J Neuroinflammation. 2018;15(1):146.
41. Zhang X, Cheng R, Rowe D, Sethu P, Daugherty A, Yu G, Shin HY. Shear-sensitive regulation of neutrophil flow behavior and its potential impact on microvascular blood flow dysregulation in hypercholesterolemia. Arterioscler Thromb Vasc Biol. 2014;34:587–593.
42. Farooq MU, Goshgarian C, Min J, Gorelick PB. Pathophysiology and management of reperfusion injury and hyperperfusion syndrome after carotid endarterectomy and carotid artery stenting. Exp Transl Stroke Med. 2016;8:7.
43. Sagiv JY, Michaeli J, Assi S, Mishalian I, Kisos H, Levy L, Damti P, Lumbroso D, Polyansky L, Sionov RV, et al. Phenotypic diversity and plasticity in circulating neutrophil subpopulations in cancer. Cell Rep. 2015;10:562–573.
44. Kim NY, Lim J, Lee S, Kim K, Hong JH, Chun DH. Hematological factors predicting mortality in patients with traumatic epidural or subdural hematoma undergoing emergency surgical evacuation: A retrospective cohort study. *Medicine (Baltimore)*. 2020;99(37):e22074.
45. Giede-Jeppe A, Bobinger T, Gerner ST, et al. Lymphocytopenia is an independent predictor of unfavorable functional outcome in spontaneous intracerebral hemorrhage. *Stroke* 2016;47:1239–46.
46. Morotti A, Marini S, Jessel MJ, et al. Lymphopenia, infectious complications, and outcome in spontaneous intracerebral hemorrhage. *Neurocrit Care* 2017;26:160–6.
47. Petrone AB, Gionis V, Giersch R, et al. Immune biomarkers for the diagnosis of mild traumatic brain injury. *NeuroRehabilitation* 2017;40:501–8.
48. Chen W, Yang J, Li Bingbing, Peng G, Li Tianfei, Wang S. Neutrophil to lymphocyte ratio as a novel predictor of outcome in patients with severe traumatic brain injury. *J Head Trauma Rehabil*. 2017; 1-7.
49. Chen J, Qu X, Li Z, Zhang D, Hou L. Peak neutrophil-to-lymphocyte ratio correlates with clinical outcome in patients with severe traumatic brain injury. *Neurocrit Care*. 2019;30(2): 334-339.
50. Gieroba DS, Malodobry K, Biernawska J, Robaa C, Romuald Bohatyrewicz, Rola R, et al. The neutrophil/lymphocyte count ratio predicts mortality in severe traumatic brain injury patients. *Journal of Clinical Medicine*. 2019;8(9): 1453.
51. Zhao JL, Du ZY, Yuan Q, Yu J, Sun YR, Wu X, et al. Prognosis value of neutrophil-to -lymphocyte ratio in predicting the 6-month outcome of patients with traumatic brain injury: a retrospective study. *World Neurosurgery*. 2019;124: 411-416.
52. Kimball R, Shachar E, Eyerly-Webb S, Patel DM, Spader H. Using the neutrophil-to-lymphocyte ratio to predict outcome in pediatric patients with traumatic brain injury. *Clinical Neurology and Neurosurgery*. 2020;193: 1-6.

53. Alexiou GA, Lianos GD, Tzima A, Sotiropoulos A, Nasios A, Metaxas A, et al. Neutrophil to lymphocyte ratio as a predictive biomarker for computed tomography scan use in mild traumatic brain injury. *Biomarkers in Medicine*. 2020;14(12): 1085-1090.
54. Huang, I., Pranata, R. Lymphopenia in severe coronavirus disease-2019 (COVID-19): systematic review and meta-analysis. *j intensive care* **8**, (2020);36.
55. Zhang G, Hu C, Luo L, Fang F, Chen Y, Li J, et al. Clinical features and outcomes of 221 patients with COVID-19 in Wuhan, China. *medRxiv*. 2020.
56. Zhang J Jin, Dong X, Cao Y Yuan, Yuan Y Dong, Yang Y Bin, Yan Y Qin, et al. Clinical characteristics of 140 patients infected with SARS-CoV-2 in Wuhan, China. *Allergy Eur J Allergy Clin Immunol*. 2020;1-12.
57. Wan S, Xiang Y, Fang W, Zheng Y, Li B, Hu Y, et al. Clinical features and treatment of COVID-19 patients in Northeast Chongqing. *J Med Virol*. 2020;1.
58. Cai Q, Huang D, Ou P, Yu H, Zhu Z, Xia Z, et al. COVID-19 in a designated infectious diseases hospital outside Hubei Province, China. *medRxiv*. 2020.
59. Kimball R, Shachar E, Eyerly-Webb S, Patel DM, Spader H. Using the neutrophil-to-lymphocyte ratio to predict outcomes in pediatric patients with traumatic brain injury. *Clinical neurology and neurosurgery*. 2020; 3.
60. Sabouri E, Jangjui P, Rahigh-Aghasan S, Alavi SA. Neutrophil-to-lymphocyte ratio and traumatic brain injury: A Review Study. *World Neurosurgery*. 2020; 30.
61. A.B. Petrone, V. Gionis, R. Giersch, T.L. Barr, Immune biomarkers for the diagnosis of mild traumatic brain injury, *NeuroRehabilitation* 40 (4) (2017) 501–508.
62. Y.-W. Liu, S. Li, S.-S. Dai, Neutrophils in traumatic brain injury (TBI): friend or foe? *J. Neuroinflammation* 15 (1) (2018) 146.
63. Khoshfetrat M, Yaghoubi MA, Hosseini BM, Farahmandrad R. The ability of GCS, FOUR, and APACHE II in predicting the outcome of patients with traumatic brain injury: A comparative study. *Biomedical Research and Therapy*. 2020 :21.
64. Khajeh A, Fayyazi A, Miri-Aliabad G, Askari H, Noori N, Khajeh B. Comparison between the ability of Glasgow Coma Scale and Full Outline of Unresponsiveness Score to predict the mortality and discharge rate of pediatric intensive care unit patients. *Iranian Journal of Pediatrics*. 2014;603.
65. Wang et al. Serial Serum Leukocyte Apoptosis Levels as Predictors of Outcome in Acute Traumatic Brain Injury. *Hindawi Publishing Corporation BioMed Research International Volume 2014*. 2014;11.
66. Al -Gahtany, Mubarak. Serum Leukocyte Count (WBC) Levels as an Indicator for Severity of Traumatic Brain Injury in Saudi Arabia Patients. *Egyptian Journal of Neurosurgery*. Vol. 30/No.2/April-June 2015.145-150.
67. Dixon KJ. Pathophysiology of traumatic brain injury. *Phys Med Rehabil Clin N Am*. 2017;28(2): 215-225.
68. Iaccarino C, Carretta A, Nicolosi F, Morselli C. Epidemiology of severe traumatic brain injury. *J Neurosurg Sci*. 2018;62(5): 535-541.

69. Mateu NC. Traumatic brain injury in Denmark 2008-2012. *Scand J Public Health*. 2020;48(3): 331-337.
70. Alexiou GA, Lianos GD, Tzima A, Sotiropoulos A, Nasios A, Metaxas A, *et al.* Neutrophil to lymphocyte ratio as a predictive biomarker for computed tomography scan use in mild traumatic brain injury. *Biomarkers in Medicine*. 2020;14(12): 1085-1090.
71. Nguyen R, Fiest KM, Chesney JM, Kwon CS, Jette N, Frolikis AD, *et al.* The international incidence of traumatic brain injury: a systematic review and meta-analysis. *Can J Neurol Sci*. 2016;43: 774-785.
72. Munivenkatappa A, Agrawal A, Shukla DP, Kumaraswamy D, Devi BI. Traumatic brain injury: Does gender influence outcomes?. *Int J Crit Illn Inj Sci*. 2016;6(2):70-73.
73. Mollayeva, T., Mollayeva, S. & Colantonio, A. Traumatic brain injury: sex, gender and intersecting vulnerabilities. *Nat Rev Neurol* **14**, (2018); 711–722.
74. Kamal VK, Agrawal D, Pandey RM. Epidemiology, clinical characteristics and outcomes of traumatic brain injury: Evidences from integrated level 1 trauma center in India. *J Neurosci Rural Pract*. 2016;7(4):515-525.
75. Cheng P, Yin P, Ning P, Wang L et al. Trends in traumatic brain injury mortality in China, 2006–2013: A population-based longitudinal study. *PLOS Medicine*, 2017;14.
76. Chen W, Yang J, Li Bingbing, Peng G, Li Tianfei, Wang S. Neutrophil to lymphocyte ratio as a novel predictor of outcome in patients with severe traumatic brain injury. *J Head Trauma Rehabil*. 2017; 1-7.
77. Zhao JL, Du ZY, Yuan Q, Yu J, Sun YR, Wu X, *et al.* Prognosis value of neutrophil-to-lymphocyte ratio in predicting the 6-month outcome of patients with traumatic brain injury: a retrospective study. *World Neurosurgery*. 2019; 411-416.
78. Kusuma GFP, Maliawan S, Mahadewa TGB, Senapathi TGA, Lestari AAW, Muliarta IM. Neutrophil-to-lymphocyte Ratio and Platelet-to-lymphocyte Ratio Correlations with C-reactive Protein and Erythrocyte Sedimentation Rate in Traumatic Brain Injury. *Open Access Maced J Med Sci*. 2020; 1185.
79. Silverthorn DU. Human Physiology: An Integrated Approach. 7<sup>th</sup> ed. Austin: Pearson; 2016.
80. Kusuma GFP, Maliawan S, Mahadewa TGB, Senapathi TGA. Neutrophil-to-lymphocyte Ratio and Platelet-to-lymphocyte Ratio as an Inflammatory Biomarker in Predicting the Severity of Secondary Brain Injury: A Review Article. *Open Access Maced J Med Sci*. 2020Oct.9 [cited 2020; 272-8].
81. Bangun, E., Prasetyo, E., Oley, M. Correlation between the level of interleukin-6 serum and blood peripheral leukocyte in patients with severe traumatic brain injury. *Bali Medical Journal* 8(3): 2019, 784-787.
82. Subramanian PS. Traumatic brain injury in children: how does it affect the eye and vision. *Journal of AAPOS*. 2018; 22(6):413-414.
83. Shichita T, Ito M, Yoshimura A. Post-ischemic inflammation regulates neural damage and protection. *Front Cell Neurosci*. 2014;8:319.
84. Siwicka-Gieroba, Dorota; Malodobry, Katarzyna; Biernawska, Jowita; Robba, Chiara; Bohatyrewicz, Romuald; Rola, Radoslaw; Dabrowski, Wojciech The Neutrophil/Lymphocyte Count Ratio Predicts Mortality in

- Severe Traumatic Brain Injury Patients. Journal of Clinical Medicine, (2019). 8-9.
85. Simon, D.W., McGeachy, M.J., Bayir, H., Clark, R.S.B., Loane, D.J., Kochanek, P.M. The far-reaching scope of neuroinflammation after traumatic brain injury. *Nat. Rev. Neurol.* 2017.
  86. Corbett, J.-M.; Ho, K.M.; Honeybul, S. Prognostic significance of abnormal hematological parameters in severe traumatic brain injury requiring decompressive craniectomy. *J. Neurosurg.* 2019.
  87. Turner, R.J.; Sharp, F.R. Implications of MMP9 for Blood Brain Barrier Disruption and Hemorrhagic Transformation Following Ischemic Stroke. *Front Cell Neurosci.* 2016.
  88. Scottish Intercollegiate Guidelines Network. Early management of patients with a head injury. Edinburgh; 2009.
  89. Wang, F, Wang, Li, Jiang, Ting-tin, Xia, Jian-jun, Xu, Feng, Shen, Li-juan et al. Neutrophil-to-Lymphocyte Ratio Is an Independent Predictor of 30-Day Mortality of Intracerebral Hemorrhage Patients: a Validation Cohort Study. *Neurotoxicity Research*, 2018.
  90. Capizzi A, Woo Jean, Monica Verduzco-Gutierrez. Traumatic Brain Injury An Overview of Epidemiology, Pathophysiology, and Medical Management. *Med Clin N Am* 104 (2020) 213–238

