

## DAFTAR PUSTAKA

- Adams, R.A., Passino, M., Sachs, B.D., Nuriel, T., & Akassoglou, K., 2004. Fibrin mechanisms and functions in nervous system pathology. *Mol. Interv.* 4: 163–176. doi:10.1124/mi.4.3.6
- Aktas, G., Alçelik, A., Tekçe, B.K., Savli, H., Uyeturk, U., Kurt, M., *et al.*, 2013. Mean Platelet Volume and Red Cell distribution width in Hepatosteatosi. *J. Med. Res.* 3: 264–266.
- American Cancer Society, 2020. Survival Rates for Selected Adult Brain and Spinal Cord Tumors [WWW Document]. URL <https://www.cancer.org/cancer/brain-spinal-cord-tumors-adults/detection-diagnosis-staging/survival-rates.html> (accessed 8.13.22).
- Awad, A.W., Karsy, M., Sanai, N., Spetzler, R., Zhang, Y., Xu, Y., *et al.*, 2017. Impact of removed tumor volume and location on patient outcome in glioblastoma. *J. Neurooncol.* 135: 161–171. doi:10.1007/s11060-017-2562-1
- Belinskaia, D.A., Voronina, P.A., Batalova, A.A., & Goncharov, N. V., 2020. Serum Albumin. *Encyclopedia* 1: 65–75. doi:10.3390/encyclopedia1010009
- Berntsson, S.G., Merrell, R.T., Amirian, E.S., Armstrong, G.N., Lachance, D., Smits, A., *et al.*, 2018. Glioma-related seizures in relation to histopathological subtypes: a report from the glioma international case-control study. *J. Neurol.* 265: 1432–1442. doi:10.1007/s00415-018-8857-0
- Binabaj, M.M., Bahrami, A., ShahidSales, S., Joodi, M., Joudi Mashhad, M., Hassanian, S.M., *et al.*, 2018. The prognostic value of MGMT promoter methylation in glioblastoma: A meta-analysis of clinical trials. *J. Cell. Physiol.* 233: 378–386. doi:10.1002/jcp.25896
- Budiarto, E. 2004. Metodologi Penelitian Kedokteran. Jakarta : EGC
- Bobola, M.S., Alnoor, M., Chen, J.Y.-S., Kolstoe, D.D., Silbergeld, D.L., Rostomily, R.C., *et al.*, 2015. O(6)-methylguanine-DNA methyltransferase activity is associated with response to alkylating agent therapy and with MGMT promoter methylation in glioblastoma and anaplastic glioma. *BBA Clin.* 3: 1–10. doi:10.1016/j.bbacli.2014.11.003
- Canadian Cancer Society, 2022. Survival statistics for brain and spinal cord tumours [WWW Document]. *Surviv. Stat.* URL <https://cancer.ca/en/cancer-information/cancer-types/brain-and-spinal-cord/prognosis-and-survival/survival-statistics> (accessed 9.12.22).
- Candra, B. 2008. Metodologi Penelitian Kesehatan. Jakarta: Penerbit Buku Kedokteran EGC
- Carr, M.T., Hochheimer, C.J., Rock, A.K., Dincer, A., Ravindra, L., Zhang, F.L., *et al.*, 2019. Comorbid Medical Conditions as Predictors of Overall Survival in Glioblastoma Patients. *Sci. Rep.* 9: 1–8. doi:10.1038/s41598-019-56574-w
- Cavaliere, R., Farace, E., Schiff, D. 2006. "Clinical Implications of Status Epilepticus in Patients with Neoplasm". *Arch Neurology.* 63:1746.
- Coburger, J., Merkel, A., Scherer, M., *et al.* 2016. " Low Grade Glioma Surgery in Intraoperative Magnetic Resonance Imaging: Result of a Multicenter Retrospective Assesment of the German Study Grup for Intraoperative Magnetic Resonance Imaging". *Neurosurgery.* 78:775-786.



- Chambless, L.B., Kistka, H.M., Parker, S.L., Hassam-Malani, L., McGirt, M.J., & Thompson, R.C., 2015. The relative value of postoperative versus preoperative Karnofsky Performance Scale scores as a predictor of survival after surgical resection of glioblastoma multiforme. *J. Neurooncol.* 121: 359–364. doi:10.1007/s11060-014-1640-x
- D'Audigier, C., Cochain, C., Rossi, E., Guérin, C.L., Bièche, I., Blandinières, A., et al., 2015. Thrombin receptor PAR-1 activation on endothelial progenitor cells enhances chemotaxis-associated genes expression and leukocyte recruitment by a COX-2-dependent mechanism. *Angiogenesis* 18: 347–359. doi:10.1007/s10456-015-9471-8
- Davalos, D., & Akassoglou, K., 2012. Fibrinogen as a key regulator of inflammation in disease. *Semin. Immunopathol.* 34: 43–62. doi:10.1007/s00281-011-0290-8
- Degen, J.L., & Palumbo, J.S., 2012. Hemostatic factors, innate immunity and malignancy. *Thromb. Res.* 129 Suppl: S1-5. doi:10.1016/S0049-3848(12)70143-3
- Ebrahimi, S., Jaberi, N., Avan, A., Ryzhikov, M., Keramati, M.R., Parizadeh, M.R., et al., 2017a. Role of thrombin in the pathogenesis of central nervous system inflammatory diseases. *J. Cell. Physiol.* 232: 482–485. doi:10.1002/jcp.25501
- Ebrahimi, S., Rahmani, F., Behnam-Rassouli, R., Hoseinkhani, F., Parizadeh, M.R., Keramati, M.R., et al., 2017b. Proinflammatory signaling functions of thrombin in cancer. *J. Cell. Physiol.* 232: 2323–2329. doi:10.1002/jcp.25753
- El-Ashry, R., El-Ayuoty, M.M., Azzam, H.A., & El-Naggar, M.A., 2020. Effect of antiepileptic drugs on plasma fibrinogen level. *Hematol. Rep.* 12. doi:10.4081/hr.2020.7952
- Englot, D.J., Chang, E.F., & Vecht, C.J., 2016. Epilepsy and brain tumors. *Handb. Clin. Neurol.* 134: 267–285. doi:10.1016/B978-0-12-802997-8.00016-5
- Esemen, Y., Awan, M., Parwez, R., Baig, A., Rahman, S., Masala, I., et al., 2022. Molecular Pathogenesis of Glioblastoma in Adults and Future Perspectives: A Systematic Review. *Int. J. Mol. Sci.* 23. doi:10.3390/ijms23052607
- Esemen, Y., Taneri, B., Asilmaz, E., Delikurt, T., Savas, P., & Targen, S., 2020. Human Genetics and Genomics - A Practical Guide.
- Esmon, C.T., 2005. The interactions between inflammation and coagulation. *Br. J. Haematol.* 131: 417–430. doi:10.1111/j.1365-2141.2005.05753.x
- Esmon, C.T., 2004. Crosstalk between inflammation and thrombosis. *Maturitas* 47: 305–314. doi:10.1016/j.maturitas.2003.10.015
- Esmon, C.T., 2001. Role of coagulation inhibitors in inflammation. *Thromb. Haemost.* 86: 51–56.
- Evans, T.W., 2002. Review article: albumin as a drug--biological effects of albumin unrelated to oncotic pressure. *Aliment. Pharmacol. Ther.* 16 Suppl 5: 6–11. doi:10.1046/j.1365-2036.16.s5.2.x
- Fanali, G., di Masi, A., Trezza, V., Marino, M., Fasano, M., & Ascenzi, P., 2012. Human serum albumin: from bench to bedside. *Mol. Aspects Med.* 33: 209–290. doi:10.1016/j.mam.2011.12.002
- Fender, A.C., Rauch, B.H., Geisler, T., & Schrör, K., 2017. Protease-Activated receptor PAR-4: An inducible switch between thrombosis and vascular inflammation? *Thromb. Haemost.* 117: 2013–2025. doi:10.1160/TH17-03-0219



- Fisher, J.L., Palmisano, S., Schwartzbaum, J.A., Svensson, T., & Lönn, S., 2014. Comorbid conditions associated with glioblastoma. *J. Neurooncol.* 116: 585–591. doi:10.1007/s11060-013-1341-x
- Fridman, W.H., Zitvogel, L., Sautès-Fridman, C., & Kroemer, G., 2017. The immune contexture in cancer prognosis and treatment. *Nat. Rev. Clin. Oncol.* 14: 717–734. doi:10.1038/nrclinonc.2017.101
- Fujii, T., Tokuda, S., Nakazawa, Y., Kurozumi, S., Obayashi, S., Yajima, R., *et al.*, 2020. Implications of low serum albumin as a prognostic factor of long-term outcomes in patients with breast cancer. *In Vivo (Brooklyn)*. 34: 2033–2036. doi:10.21873/invivo.12003
- Galdiero, M.R., Marone, G., & Mantovani, A., 2018. Cancer inflammation and cytokines. *Cold Spring Harb. Perspect. Biol.* 10: 1–17. doi:10.1101/cshperspect.a028662
- Garcia-Martinez, R., Caraceni, P., Bernardi, M., Gines, P., Arroyo, V., & Jalan, R., 2013. Albumin: pathophysiologic basis of its role in the treatment of cirrhosis and its complications. *Hepatology* 58: 1836–1846. doi:10.1002/hep.26338
- Gittleman, H., Ostrom, Q.T., Stetson, L.C., Waite, K., Hodges, T.R., Wright, C.H., *et al.*, 2019. Sex is an important prognostic factor for glioblastoma but not for nonglioblastoma. *Neuro-oncology Pract.* 6: 451–462. doi:10.1093/nop/npz019
- Gomez-Marcos, M.A., Recio-Rodriguez, J.I., Patino-Alonso, M.C., Martinez-Vizcaino, V., Martin-Borras, C., De-la-Cal-de-la-Fuente, A., *et al.*, 2014. Relationship between physical activity and plasma fibrinogen concentrations in adults without chronic diseases. *PLoS One* 9: 1–7. doi:10.1371/journal.pone.0087954
- Gomi, I., Fukushima, H., Shiraki, M., Miwa, Y., Ando, T., Takai, K., *et al.*, 2007. Relationship between serum albumin level and aging in community-dwelling self-supported elderly population. *J. Nutr. Sci. Vitaminol. (Tokyo)*. 53: 37–42. doi:10.3177/jnsv.53.37
- Grivennikov, S.I., Greten, F.R., & Karin, M., 2010. Immunity, inflammation, and cancer. *Cell* 140: 883–899. doi:10.1016/j.cell.2010.01.025
- Gulen, S.T., Karadag, F., Karul, A.B., Kilicarslan, N., Ceylan, E., Kuman, N.K., *et al.*, 2012. Adipokines and systemic inflammation in weight-losing lung Cancer patients. *Lung* 190: 327–332. doi:10.1007/s00408-011-9364-6
- Hayat, M. A. 2010. "Tumors of the Central Nervous System". *Gliomas: Glioblastoma (Part1), Neuromethods*.3.
- Han, S., Huang, Y., Li, Z., Hou, H., & Wu, A., 2015. The prognostic role of preoperative serum albumin levels in glioblastoma patients. *BMC Cancer* 15: 1–9. doi:10.1186/s12885-015-1125-0
- Hanif, F., Muzaffar, K., Perveen, K., Malhi, S.M., & Simjee, S.U., 2017. Glioblastoma multiforme: A review of its epidemiology and pathogenesis through clinical presentation and treatment. *Asian Pacific J. Cancer Prev.* 18: 3–9. doi:10.22034/APJCP.2017.18.1.3
- Hartanto, R.A., Dwianingsih, E.K., Panggabean, A.S., Wicaksono, A.S., Dananjoyo, K., Asmedi, A., *et al.*, 2021. Seizure in Indonesian Glioma Patients: Associated Risk Factors and Impact on Survival. *Asian Pacific J. Cancer Prev.* 22: 691–697. doi:10.31557/APJCP.2021.22.3.691
- He, Z.Q., Duan, H., Ke, C., Zhang, X.H., Guo, C.C., Al-Nahari, F., *et al.*, 2017.





- Evaluation of cumulative prognostic score based on pretreatment plasma fibrinogen and serum albumin levels in patients with newly diagnosed high-grade gliomas. *Oncotarget* 8: 49605–49614. doi:10.18632/oncotarget.17849
- Ho, V.K.Y., Reijneveld, J.C., Enting, R.H., Bienfait, H.P., Robe, P., Baumert, B.G., *et al.*, 2014. Changing incidence and improved survival of gliomas. *Eur. J. Cancer* 50: 2309–2318. doi:10.1016/j.ejca.2014.05.019
- Hryciw, N., Joannidis, M., Hiremath, S., Callum, J., & Clark, E.G., 2021. Intravenous albumin for mitigating hypotension and augmenting ultrafiltration during kidney replacement therapy. *Clin. J. Am. Soc. Nephrol.* 16: 820–828. doi:10.2215/CJN.09670620
- Iuchi, T., Hasegawa, Y., Kawasaki, K., & Sakaida, T., 2015. Epilepsy in patients with gliomas: incidence and control of seizures. *J. Clin. Neurosci. Off. J. Neurosurg. Soc. Australas.* 22: 87–91. doi:10.1016/j.jocn.2014.05.036
- Jia, T., Zhang, R., Kong, F., Zhang, Q., & Xi, Z., 2021. The prognostic role and nomogram establishment of a novel prognostic score combining with fibrinogen and albumin levels in patients with who grade ii/iii gliomas. *Int. J. Gen. Med.* 14: 2137–2145. doi:10.2147/IJGM.S303733
- Karakoyun, I., Colak, A., Turken, M., Altin, Z., Arslan, F.D., Iyilikeci, V., *et al.*, 2021. Diagnostic utility of C-reactive protein to albumin ratio as an early warning sign in hospitalized severe COVID-19 patients. *Int. Immunopharmacol.* 91: 107285. doi:10.1016/j.intimp.2020.107285
- Kattula, S., Byrnes, J.R., & Wolberg, A.S., 2017. Fibrinogen and Fibrin in Hemostasis and Thrombosis. *Arterioscler. Thromb. Vasc. Biol.* 37: e13–e21. doi:10.1161/ATVBAHA.117.308564
- Kerkhof, M., & Vecht, C.J., 2013. Seizure characteristics and prognostic factors of gliomas. *Epilepsia* 54: 12–17. doi:10.1111/epi.12437
- Khan, I., Waqas, M., & Shamim, M.S., 2017. Prognostic significance of IDH 1 mutation in patients with glioblastoma multiforme. *J. Pak. Med. Assoc.* 67: 816–817.
- Kilic, S.S., Yang, K., Kilic, S., Halima, A., Suh, J.H., Chan, T.A., *et al.*, 2021. Impact of Biological Sex on Survival Outcomes in Low-Grade Glioma. *Int. J. Radiat. Oncol.* 111: e591–e592. doi:https://doi.org/10.1016/j.ijrobp.2021.07.1584
- Kondo, Y., Katsushima, K., Ohka, F., Natsume, A., & Shinjo, K., 2014. Epigenetic dysregulation in glioma. *Cancer Sci.* 105: 363–369. doi:10.1111/cas.12379
- Kubben, P.L., ter Meulen, K.J., Schijns, O.E.M.G., ter Laak-Poort, M.P., van Overbeeke, J.J., & van Santbrink, H., 2011. Intraoperative MRI-guided resection of glioblastoma multiforme: A systematic review. *Lancet Oncol.* 12: 1062–1070. doi:10.1016/S1470-2045(11)70130-9
- Levi, M., 2018. Pathogenesis and diagnosis of disseminated intravascular coagulation. *Int. J. Lab. Hematol.* 40: 15–20. doi:10.1111/ijlh.12830
- Levy, J.H., & Goodnough, L.T., 2015. How I use fibrinogen replacement therapy in acquired bleeding. *Blood* 125: 1387–1393. doi:10.1182/blood-2014-08-552000
- Li, S.Q., You, X.H., Sun, F., Xia, Z.J., Fang, Z., Wang, W., *et al.*, 2019. Albumin to fibrinogen ratio and fibrinogen to pre-albumin ratio are economical, simple and promising prognostic factors for solid malignancy. *J. Thorac. Dis.* 11: S2036–S2038. doi:10.21037/jtd.2019.08.96



- Liang, J., Lv, X., Lu, C., Ye, X., Chen, X., Fu, J., *et al.*, 2020. Prognostic factors of patients with Gliomas- A n analysis on 335 patients with Glioblastoma and other forms of Gliomas. *BMC Cancer* 20: 1–7. doi:10.1186/s12885-019-6511-6
- Lin, Y., Liu, Z., Qiu, Y., Zhang, J., Wu, H., Liang, R., *et al.*, 2018. Clinical significance of plasma D-dimer and fibrinogen in digestive cancer: A systematic review and meta-analysis. *Eur. J. Surg. Oncol.* 44: 1494–1503. doi:10.1016/j.ejso.2018.07.052
- Lin, Z., Yang, R., Li, K., Yi, G., Li, Z., Guo, J., *et al.*, 2020. Establishment of age group classification for risk stratification in glioma patients. *BMC Neurol.* 20: 310. doi:10.1186/s12883-020-01888-w
- Liu, M., & Wang, L., 2020. Prognostic significance of preoperative serum albumin, albumin-to-globulin ratio, and prognostic nutritional index for patients with glioma: A meta-analysis. *Medicine (Baltimore).* 99: e20927. doi:10.1097/MD.00000000000020927
- Liu, W., Qdaisat, A., Yeung, J., Lopez, G., Weinberg, J., Zhou, S., *et al.*, 2019. The Association Between Common Clinical Characteristics and Postoperative Morbidity and Overall Survival in Patients with Glioblastoma. *Oncologist* 24: 529–536. doi:10.1634/theoncologist.2018-0056
- Loeffler, S., Fayard, B., Weis, J., & Weissenberger, J., 2005. Interleukin-6 induces transcriptional activation of vascular endothelial growth factor (VEGF) in astrocytes in vivo and regulates VEGF promoter activity in glioblastoma cells via direct interaction between STAT3 and Sp1. *Int. J. Cancer* 115: 202–213. doi:https://doi.org/10.1002/ijc.20871
- Louis, D.N., Perry, A., Wesseling, P., Brat, D.J., Cree, I.A., Figarella-Branger, D., *et al.*, 2021. The 2021 WHO classification of tumors of the central nervous system: A summary. *Neuro. Oncol.* 23: 1231–1251. doi:10.1093/neuonc/noab106
- Luyendyk, J.P., Schoenecker, J.G., & Flick, M.J., 2019. The multifaceted role of fibrinogen in tissue injury and inflammation. *Blood* 133: 511–520. doi:10.1182/blood-2018-07-818211
- Magnus, N., Meehan, B., Garnier, D., Hashemi, M., Montermini, L., Lee, T.H., *et al.*, 2014. The contribution of tumor and host tissue factor expression to oncogene-driven gliomagenesis. *Biochem. Biophys. Res. Commun.* 454: 262–268. doi:10.1016/j.bbrc.2014.10.041
- Mandel, J.J., Cachia, D., Liu, D., Wilson, C., Aldape, K., Fuller, G., *et al.*, 2016. Impact of IDH1 mutation status on outcome in clinical trials for recurrent glioblastoma. *J. Neurooncol.* 129: 147–154. doi:10.1007/s11060-016-2157-2
- Marinari, E., Allard, M., Gustave, R., Widmer, V., Philippin, G., Merkler, D., *et al.*, 2020. Inflammation and lymphocyte infiltration are associated with shorter survival in patients with high-grade glioma. *Oncoimmunology* 9: 1779990. doi:10.1080/2162402X.2020.1779990
- Massara, M., Persico, P., Bonavita, O., Poeta, V.M., Locati, M., Simonelli, M., *et al.*, 2017. Neutrophils in gliomas. *Front. Immunol.* 8: 1–7. doi:10.3389/fimmu.2017.01349
- Matsuda, S., Takeuchi, H., Kawakubo, H., Fukuda, K., Nakamura, R., Takahashi, T., *et al.*, 2015. Cumulative Prognostic Scores Based on Plasma Fibrinogen and Serum Albumin Levels in Esophageal Cancer Patients Treated with



- Transthoracic Esophagectomy: Comparison with the Glasgow Prognostic Score. *Ann. Surg. Oncol.* 22: 302–310. doi:10.1245/s10434-014-3857-5
- Mesfin, F., & Al-Dhahir, M., 2022. Gliomas [WWW Document]. *StartPearls*. URL <https://www.ncbi.nlm.nih.gov/books/NBK441874/>
- Minniti, G., De Sanctis, V., Muni, R., Filippone, F., Bozzao, A., Valeriani, M., *et al.*, 2008. Radiotherapy plus concomitant and adjuvant temozolomide for glioblastoma in elderly patients. *J. Neurooncol.* 88: 97–103. doi:10.1007/s11060-008-9538-0
- Miura, K., Nakagawa, H., Ueshima, H., Okayama, A., Saitoh, S., Curb, J.D., *et al.*, 2006. Dietary Factors Related to Higher Plasma Fibrinogen Levels of Japanese-Americans in Hawaii Compared With Japanese in Japan. *Arterioscler. Thromb. Vasc. Biol.* 26: 1674–1679. doi:10.1161/01.ATV.0000225701.20965.b9
- Mori, K., Tsujita, Y., Yamane, T., & Eguchi, Y., 2022. Decreasing Plasma Fibrinogen Levels in the Intensive Care Unit Are Associated with High Mortality Rates In Patients With Sepsis-Induced Coagulopathy. *Clin. Appl. Thromb.* 28: 107602962211013. doi:10.1177/10760296221101386
- Mostofa, A.G.M., Punganuru, S.R., Madala, H.R., Al-Obaide, M., & Srivenugopal, K.S., 2017. The process and regulatory components of inflammation in brain oncogenesis. *Biomolecules* 7: 1–33. doi:10.3390/biom7020034
- Moujaess, E., Fakhoury, M., Assi, T., Elias, H., El Karak, F., Ghosn, M., *et al.*, 2017. The Therapeutic use of human albumin in cancer patients' management. *Crit. Rev. Oncol. Hematol.* 120: 203–209. doi:10.1016/j.critrevonc.2017.11.008
- Mukasa, A., Takayanagi, S., Saito, K., Shibara, J., Tabei, Y., Furuya, K., Ide, T., Narita, Y., Nishikawa, R., Ueki, K., Saito, N. 2012. "Significance of IDH Mutations Varies with Tumor Histology Grade and Genetics in Japanese Glioma Patients". *Cancer Science*. 103:587-92.
- Nakanishi, Y., Masuda, T., Yamaguchi, K., Sakamoto, S., Horimasu, Y., Mimae, T., *et al.*, 2020. Albumin–globulin ratio is a predictive biomarker of antitumor effect of anti-PD-1 antibody in patients with non-small cell lung cancer. *Int. J. Clin. Oncol.* 25: 74–81. doi:10.1007/s10147-019-01539-2
- National Cancer Institute, 2022. Glioma [WWW Document]. *Natl. Cancer Inst.* URL <https://www.cancer.gov/publications/dictionaries/cancer-terms/def/glioma> (accessed 9.10.22).
- Naugler, W.E., Sakurai, T., Kim, S., Maeda, S., Kim, K., Elsharkawy, A.M., *et al.*, 2007. Gender disparity in liver cancer due to sex differences in MyD88-dependent IL-6 production. *Science* 317: 121–124. doi:10.1126/science.1140485
- Nicholson, J.P., Wolmarans, M.R., & Park, G.R., 2000. The role of albumin in critical illness. *Br. J. Anaesth.* 85: 599–610. doi:10.1093/bja/85.4.599
- Niessen, F., Furlan-Freguia, C., Fernández, J.A., Mosnier, L.O., Castellino, F.J., Weiler, H., *et al.*, 2009. Endogenous EPCR/aPC-PARI signaling prevents inflammation-induced vascular leakage and lethality. *Blood* 113: 2859–2866. doi:10.1182/blood-2008-12-192385
- Niu, X., Wang, T., Zhou, X., Yang, Y., Wang, X., Zhang, H., *et al.*, 2020. Surgical treatment and survival outcome of patients with adult thalamic glioma: a single institution experience of 8 years. *J. Neurooncol.* 147: 377–386.



doi:10.1007/s11060-020-03430-x

- Noiphithak, R., & Veerasarn, K., 2017. Clinical predictors for survival and treatment outcome of high-grade glioma in Prasat Neurological Institute. *Asian J. Neurosurg.* 12: 28. doi:10.4103/1793-5482.148791
- O'Rourke, D.M., Nasrallah, M.P., Desai, A., Melenhorst, J.J., Mansfield, K., Morrisette, J.J.D., *et al.*, 2017. A single dose of peripherally infused EGFRvIII-directed CAR T cells mediates antigen loss and induces adaptive resistance in patients with recurrent glioblastoma. *Sci. Transl. Med.* 9. doi:10.1126/scitranslmed.aaa0984
- Oemiaty, R., Rahajeng, E., & Kristanto, A.Y., 2011. Prevalensi Tumor dan Beberapa Faktor Yang Mempengaruhinya Di Indonesia. *Bul. Penelit. Kesehat.* 39: 190–204.
- Ogura, R., Tsukamoto, Y., Natsumeda, M., Isogawa, M., Aoki, H., Kobayashi, T., *et al.*, 2015. Immunohistochemical profiles of IDH1, MGMT and P53: practical significance for prognostication of patients with diffuse gliomas. *Neuropathology* 35: 324–335. doi:10.1111/neup.12196
- Ostrom, Q.T., Patil, N., Cioffi, G., Waite, K., Kruchko, C., & Barnholtz-Sloan, J.S., 2020. CBTRUS Statistical Report: Primary Brain and Other Central Nervous System Tumors Diagnosed in the United States in 2013-2017. *Neuro. Oncol.* 22: iv1–iv96. doi:10.1093/neuonc/noaa200
- Padron-Monedero, A., Rodríguez-Artalejo, F., & Lopez-Garcia, E., 2021. Dietary micronutrients intake and plasma fibrinogen levels in the general adult population. *Sci. Rep.* 11: 1–9. doi:10.1038/s41598-021-83217-w
- Palpan Flores, A., Vivancos Sanchez, C., Roda, J.M., Cerdán, S., Barrios, A.J., Utrilla, C., *et al.*, 2020. Assessment of Pre-operative Measurements of Tumor Size by MRI Methods as Survival Predictors in Wild Type IDH Glioblastoma. *Front. Oncol.* 10: 1–12. doi:10.3389/fonc.2020.01662
- Palumbo, J.S., Talmage, K.E., Massari, J. V., La Jeunesse, C.M., Flick, M.J., Kombrinck, K.W., *et al.*, 2007. Tumor cell-associated tissue factor and circulating hemostatic factors cooperate to increase metastatic potential through natural killer cell-dependent and -independent mechanisms. *Blood* 110: 133–141. doi:10.1182/blood-2007-01-065995
- Palumbo, J.S., Talmage, K.E., Massari, J. V., La Jeunesse, C.M., Flick, M.J., Kombrinck, K.W., *et al.*, 2005. Platelets and fibrin(ogen) increase metastatic potential by impeding natural killer cell-mediated elimination of tumor cells. *Blood* 105: 178–185. doi:10.1182/blood-2004-06-2272
- Patsalos, O., Dalton, B., Leppanen, J., Ibrahim, M.A.A., & Himmerich, H., 2020. Impact of TNF- $\alpha$  inhibitors on body weight and BMI: A systematic review and meta-analysis. *Front. Pharmacol.* 11. doi:10.3389/fphar.2020.00481
- Perisanidis, C., Psyrris, A., Cohen, E.E., Engelmann, J., Heinze, G., Perisanidis, B., *et al.*, 2015. Prognostic role of pretreatment plasma fibrinogen in patients with solid tumors: A systematic review and meta-analysis. *Cancer Treat. Rev.* 41: 960–970. doi:10.1016/j.ctrv.2015.10.002
- Péus, D., Newcomb, N., & Hofer, S., 2013. Appraisal of the Karnofsky Performance Status and proposal of a simple algorithmic system for its evaluation. *BMC Med. Inform. Decis. Mak.* 13: 1. doi:10.1186/1472-6947-13-72
- Pieters, M., & Wolberg, A.S., 2019. Fibrinogen and fibrin: An illustrated review.

- Res. Pract. Thromb. Haemost.* 3: 161–172. doi:10.1002/rth2.12191
- Polivka, J., Polivka, J.J., Rohan, V., Pesta, M., Repik, T., Pitule, P., *et al.*, 2014. Isocitrate dehydrogenase-1 mutations as prognostic biomarker in glioblastoma multiforme patients in West Bohemia. *Biomed Res. Int.* 2014: 735659. doi:10.1155/2014/735659
- Prasad, S., Sung, B., & Aggarwal, B.B., 2012. Age-associated chronic diseases require age-old medicine: role of chronic inflammation. *Prev. Med. (Baltim)*. 54 Suppl: S29-37. doi:10.1016/j.ypmed.2011.11.011
- Rasmussen, B.K., Hansen, S., Laursen, R.J., Kosteljanetz, M., Schultz, H., Nørgård, B.M., *et al.*, 2017. Epidemiology of glioma: clinical characteristics, symptoms, and predictors of glioma patients grade I-IV in the the Danish Neuro-Oncology Registry. *J. Neurooncol.* 135: 571–579. doi:10.1007/s11060-017-2607-5
- Recht, L. D., van den Bent, M., Shih, H. A. 2022. "Treatment and Prognosis of IDH-Mutant Astrocytomas in Adults". *UpToDate*. [https://www.uptodate.com/contents/treatment-and-prognosis-of-idh-mutant-astrocytomas-in-adults?search=radiation+glioma&source=search\\_result&selectedTitle=10-150&usage\\_type=default&display\\_rank=10#H5486327](https://www.uptodate.com/contents/treatment-and-prognosis-of-idh-mutant-astrocytomas-in-adults?search=radiation+glioma&source=search_result&selectedTitle=10-150&usage_type=default&display_rank=10#H5486327). Diakses pada 5 Oktober 2022.
- Redman, C.M., & Xia, H., 2001. Fibrinogen biosynthesis. Assembly, intracellular degradation, and association with lipid synthesis and secretion. *Ann. N. Y. Acad. Sci.* 936: 480–495.
- Reynés, G., Vila, V., Martín, M., Parada, A., Fleitas, T., Reganon, E., *et al.*, 2011. Circulating markers of angiogenesis, inflammation, and coagulation in patients with glioblastoma. *J. Neurooncol.* 102: 35–41. doi:10.1007/s11060-010-0290-x
- Rozga, J., Piatek, T., & Małkowski, P., 2013. Human albumin: Old, new, and emerging applications. *Ann. Transplant.* 18: 205–217. doi:10.12659/AOT.889188
- Salmaggi, A., Milanesi, I., Silvani, A., Gaviani, P., Marchetti, M., Fariselli, L., *et al.*, 2013. Prospective study of carmustine wafers in combination with 6-month metronomic temozolomide and radiation therapy in newly diagnosed glioblastoma: preliminary results: Clinical article. *J. Neurosurg. JNS* 118: 821–829. doi:10.3171/2012.12.JNS111893
- Shih, H. A. 2021. "Radiation Therapy for High-Grade Gliomas". *UpToDate*. [https://www.uptodate.com/contents/radiation-therapy-for-high-grade-gliomas?search=glioma+treatment&topicRef=5207&source=see\\_link#H3](https://www.uptodate.com/contents/radiation-therapy-for-high-grade-gliomas?search=glioma+treatment&topicRef=5207&source=see_link#H3). Diakses pada 5 Oktober 2022.
- Siangprasertkij, C., & Navalitloha, Y., 2008. A multivariate analysis of patients with glioma: a treatment outcome and prognostic factor for survival. *J. Med. Assoc. Thai.* 91: 491–496.
- Siegel, R.L., Miller, K.D., Fuchs, H.E., & Jemal, A., 2022. Cancer statistics, 2022. *CA. Cancer J. Clin.* 72: 7–33. doi:10.3322/caac.21708
- Simpson-Haidiris, P.J., & Rybarczyk, B., 2001. Tumors and Fibrinogen. *Ann. N. Y. Acad. Sci.* 936: 406–425. doi:https://doi.org/10.1111/j.1749-6632.2001.tb03525.x
- Sleep, D., Cameron, J., & Evans, L.R., 2013. Albumin as a versatile platform for



- drug half-life extension. *Biochim. Biophys. Acta* 1830: 5526–5534. doi:10.1016/j.bbagen.2013.04.023
- Sledzinska, P., Bebyn, M. G., Furtak, J., Kowalewski, J., Leawandowska, M. A. 2021. "Prognostic and Predictive Biomarkers in Gliomas". *International Journal of Molecular Sciences*. 22: 10373.
- Smoll, N.R., Schaller, K., & Gautschi, O.P., 2013. Long-term survival of patients with glioblastoma multiforme (GBM). *J. Clin. Neurosci. Off. J. Neurosurg. Soc. Australas.* 20: 670–675. doi:10.1016/j.jocn.2012.05.040
- Smrdel, U., Popovic, M., Zwitter, M., Bostjancic, E., Zupan, A., Kovac, V., *et al.*, 2015. Long-term survival in glioblastoma: Methyl guanine methyl transferase (MGMT) promoter methylation as independent favourable prognostic factor. *Radiol. Oncol.* 2015: 394–401. doi:10.1515/raon-2015-0041
- Smrdel, U., Vidmar, M.S., & Smrdel, A., 2018. Glioblastoma in Patients over 70 Years of Age. *Radiol. Oncol.* 52: 167–172. doi:10.2478/raon-2018-0010
- Soeters, P.B., Wolfe, R.R., & Shenkin, A., 2019. Hypoalbuminemia: Pathogenesis and Clinical Significance. *J. Parenter. Enter. Nutr.* 43: 181–193. doi:10.1002/jpen.1451
- Sowers, J.L., Johnson, K.M., Conrad, C., Patterson, J.T., & Sowers, L.C., 2014. The Role of Inflammation in Brain Cancer BT - Inflammation and Cancer, in: Aggarwal, B.B., Sung, B., & Gupta, S.C. (Eds.), . Springer Basel, Basel, pp. 75–105. doi:10.1007/978-3-0348-0837-8\_4
- Stark, K., & Massberg, S., 2021. Interplay between inflammation and thrombosis in cardiovascular pathology. *Nat. Rev. Cardiol.* 18: 666–682. doi:10.1038/s41569-021-00552-1
- Steinbrecher, K.A., Horowitz, N.A., Blevins, E.A., Barney, K.A., Shaw, M.A., Harmel-Laws, E., *et al.*, 2010. Colitis-associated cancer is dependent on the interplay between the hemostatic and inflammatory systems and supported by integrin alpha(M)beta(2) engagement of fibrinogen. *Cancer Res.* 70: 2634–2643. doi:10.1158/0008-5472.CAN-09-3465
- Stupp, R., Mason, W.P., van den Bent, M.J., Weller, M., Fisher, B., Taphoorn, M.J.B., *et al.*, 2005. Radiotherapy plus concomitant and adjuvant temozolomide for glioblastoma. *N. Engl. J. Med.* 352: 987–996. doi:10.1056/NEJMoa043330
- Stupp, R., Taillibert, S., Kanner, A., Read, W., Steinberg, D., Lhermitte, B., *et al.*, 2017. Effect of Tumor-Treating Fields Plus Maintenance Temozolomide vs Maintenance Temozolomide Alone on Survival in Patients With Glioblastoma: A Randomized Clinical Trial. *JAMA* 318: 2306–2316. doi:10.1001/jama.2017.18718
- Stupp, R., Taillibert, S., Kanner, A.A., Kesari, S., Steinberg, D.M., Toms, S.A., *et al.*, 2015. Maintenance therapy with tumor-Treating fields plus temozolomide vs temozolomide alone for glioblastoma a randomized clinical trial. *JAMA - J. Am. Med. Assoc.* 314: 2535–2543. doi:10.1001/jama.2015.16669
- Sui, J., Noubouossie, D.F., Gandotra, S., & Cao, L., 2021. Elevated Plasma Fibrinogen Is Associated With Excessive Inflammation and Disease Severity in COVID-19 Patients. *Front. Cell. Infect. Microbiol.* 11: 734005. doi:10.3389/fcimb.2021.734005
- Swarowska, M., Polczak, A., Pera, J., Klimkowicz-Mrowiec, A., Slowik, A., & Dziedzic, T., 2014. Hyperfibrinogenemia predicts long-term risk of death after



- ischemic stroke. *J. Thromb. Thrombolysis* 38: 517–521. doi:10.1007/s11239-014-1122-1
- Szylberg, M., Sokal, P., Śledzińska, P., Bebyn, M., Krajewski, S., Szylberg, Ł., *et al.*, 2022. MGMT Promoter Methylation as a Prognostic Factor in Primary Glioblastoma: A Single-Institution Observational Study. *Biomedicines* 10: 1–14. doi:10.3390/biomedicines10082030
- Thakkar, J.P., Dolecek, T.A., Horbinski, C., Ostrom, Q.T., Lightner, D.D., Barnholtz-Sloan, J.S., *et al.*, 2014. Epidemiologic and molecular prognostic review of glioblastoma. *Cancer Epidemiol. Biomarkers Prev.* 23: 1985–1996. doi:10.1158/1055-9965.EPI-14-0275
- Toledo, M., Sarria-Estrada, S., Quintana, M., Maldonado, X., Martinez-Ricarte, F., Rodon, J., *et al.*, 2017. Epileptic features and survival in glioblastomas presenting with seizures. *Epilepsy Res.* 130: 1–6. doi:10.1016/j.epilepsyres.2016.12.013
- Villano, J.L., Seery, T.E., & Bressler, L.R., 2009. Temozolomide in malignant gliomas: current use and future targets. *Cancer Chemother. Pharmacol.* 64: 647–655. doi:10.1007/s00280-009-1050-5
- Voisin, M.R., Sasikumar, S., & Zadeh, G., 2021. Predictors of survival in elderly patients undergoing surgery for glioblastoma. *Neuro-Oncology Adv.* 3: 1–10. doi:10.1093/noajnl/vdab083
- Vora, P., Seyfrid, M., Venugopal, C., Qazi, M.A., Salim, S., Isserlin, R., *et al.*, 2019. Bmi1 regulates human glioblastoma stem cells through activation of differential gene networks in CD133+ brain tumor initiating cells. *J. Neurooncol.* 143: 417–428. doi:10.1007/s11060-019-03192-1
- Wach, J., Apallas, S., Schneider, M., Güresir, A., Schuss, P., Herrlinger, U., *et al.*, 2021. Baseline Serum C-Reactive Protein and Plasma Fibrinogen-Based Score in the Prediction of Survival in Glioblastoma. *Front. Oncol.* 11: 1–12. doi:10.3389/fonc.2021.653614
- Wang, P.F., Meng, Z., Song, H.W., Yao, K., Duan, Z.J., Li, S.W., *et al.*, 2018a. Higher plasma fibrinogen levels are associated with malignant phenotype and worse survival in patients with glioblastomas. *J. Cancer* 9: 2024–2029. doi:10.7150/jca.24714
- Wang, P.F., Meng, Z., Song, H.W., Yao, K., Duan, Z.J., Yu, C.J., *et al.*, 2018b. Preoperative changes in hematological markers and predictors of glioma grade and survival. *Front. Pharmacol.* 9: 1–7. doi:10.3389/fphar.2018.00886
- Weaving, G., Batstone, G.F., & Jones, R.G., 2016. Age and sex variation in serum albumin concentration: an observational study. *Ann. Clin. Biochem.* 53: 106–111. doi:10.1177/0004563215593561
- Weller, M., van den Bent, M., Preusser, M., Le Rhun, E., Tonn, J. C., Minniti, G., Bendszus, M., Balana, C., Chinot, O., Dirven, L., French, P., Hegi, M. E., Jakola, A. S., Platten, M., Roth, P., Ruda, R., Short, S., Smits, M., Taphoorn, M. J. B., von Deimling, A., Westphal, M., Soffietti, R., Reifenberger, G., Wick, W. 2021. "EANO Guidelines on the Diagnosis and Treatment of Diffuse Gliomas of Adulthood". *Nat Rev Clin Oncol.* 18(3): 170-186.
- Wen, Y., Yang, J., & Han, X., 2021. Fibrinogen-to-Albumin Ratio is Associated with All-Cause Mortality in Cancer Patients. *Int. J. Gen. Med.* Volume 14: 4867–4875. doi:10.2147/ijgm.s322735
- Whittier, W.L., & Lewis, E.J., 2013. Pathophysiology of chronic kidney disease.



- Natl. Kidney Found. Prim. Kidney Dis. Sixth Ed.* 20: 448–457.  
doi:10.1016/B978-1-4557-4617-0.00052-2
- Wong, E. T. and Wu, J. K. 2021. " Overview of the Clinical Features and Diagnosis of Brain Tumor in Adults". *UpToDate*. <https://www.uptodate.com/contents/overview-of-the-clinical-features-and-diagnosis-of-brain-tumors-in-adults/print#!>Diakses pada 30 September 2022.
- Yamashita, H., Kitayama, J., Kanno, N., Yatomi, Y., & Nagawa, H., 2006. Hyperfibrinogenemia is associated with lymphatic as well as hematogenous metastasis and worse clinical outcome in T2 gastric cancer. *BMC Cancer* 6: 4–11. doi:10.1186/1471-2407-6-147
- Yang, L., Huang, F., Zheng, K., Zhang, H., Zhou, X., Bao, X., *et al.*, 2010. Factors affecting prognosis of patients with intracranial anaplastic oligodendrogliomas: a single institutional review of 70 patients. *J. Neurooncol.* 100: 113–120. doi:10.1007/s11060-010-0146-4
- Zhang, C., Moore, L.M., Li, X., Yung, W.K.A., & Zhang, W., 2013. IDH1/2 mutations target a key hallmark of cancer by deregulating cellular metabolism in glioma. *Neuro. Oncol.* 15: 1114–1126. doi:10.1093/neuonc/not087
- Zhang, X., & Long, Q., 2017. Elevated serum plasma fibrinogen is associated with advanced tumor stage and poor survival in hepatocellular carcinoma patients. *Med. (United States)* 96. doi:10.1097/MD.00000000000006694