

## DAFTAR PUSTAKA

- Adiga, U.S., Preethika, A., Swathi, K. 2015. Sigma metrics in clinical chemistry laboratory-A guide to quality control. *Al Ameen J Med Sci*, 8(4):4–5.
- Anwar, H., Samad, I.A., Klinik, M.P. 2018. Analysis Of Platelet Count On Fibrosis Degree In Chronic Hepatitis B Patients Clinical Pathology And Medical Laboratory. *Indones. J. Med. Lab.* [Preprint]. Available at: [www.indonesianjournalofclinicalpathology.org](http://www.indonesianjournalofclinicalpathology.org).
- Ashworth, I., Thielemans, L., Chevassut, T. 2022. Thrombocytopenia: the good, the bad and the ugly. *Clin Med (Lond) CLIN MED*, 22(3):214–217.
- Attallah, A.M., Shiha, G.E., Omran, M.M., Zalata, K.R. 2006. A discriminant score based on four routine laboratory blood tests for accurate diagnosis of severe fibrosis and/or liver cirrhosis in Egyptian patients with chronic hepatitis C. *Hepatol. Res.*, 34(3):163–169.
- Bakarey, A.S., Olaniyan, O.D. 2018. Hepatitis B virus infection among asymptomatic residents of low income community in Ibadan, Southwest, Nigeria. *J Immunoassay Immunochem*, 39(4):377–389.
- Baranova, A., Lal, P., Biredinc, A., Younossi, Z.M. 2011. Non-Invasive markers for hepatic fibrosis. *BMC Gastroenterol.*
- Barr, R.G., Wilson, S.R., Rubens, D., Garcia-Tsao, G., Ferraioli, G. 2020. Update to the Society of Radiologists in Ultrasound Liver Elastography Consensus Statement. *Radiology*. Radiological Society of North America Inc., 263–274.
- Bernardi, M., Angeli, P., Claria, J., Moreau, R., Gines, P., Jalan, R., Caraceni, P., Fernandez, J., Gerbes, A.L., O'Brien, A.J., Trebicka, J., Thevenot, T., Arroyo, V. 2020. Albumin in decompensated cirrhosis: New concepts and perspectives. *Gut*. BMJ Publishing Group, 1127–1138.
- Bertoletti, A., Lucifora, J., Fabien, Z. 2018. *Virology and Pathogenesis of Hepatitis B*.
- Berumen, J., Baglieri, J., Kisseleva, T., Mekeel, K. 2021. Liver fibrosis: Pathophysiology and clinical implications. *WIREs Mechanisms of Disease*.
- Berzigotti, A., Tsochatzis, E., Boursier, J., Castera, L., Cazzagon, N., Friedrich-Rust, M., Petta, S., Thiele, M. 2021. 1 EASL Clinical Practice Guidelines on non-invasive tests for evaluation of liver disease severity and prognosis – 2021 update. *J Hepatol*, 75(3):659–689.

- Blanco-Grau, A., Gabriel-Medina, P., Rodriguez-Algarra, F., Villena, Y., Lopez-Martínez, R., Agustín, S., Pons, M., Cruz, L.M., Rando-Segura, A., Enfedaque, B., Riveiro, M., Casis, E., Ferrer-Costa, R., Buti, M., Rodriguez-Frias, F. 2021. Assessing liver fibrosis using the fib4 index in the community setting. *Diagnostics*, 11(12).
- Böttcher, K., Pinzani, M. 2017. Pathophysiology of liver fibrosis and the methodological barriers to the development of anti-fibrogenic agents. *Adv Drug Deliv Rev.* Elsevier B.V., 3–8.
- Bousali, M., Papatheodoridis, G., Paraskevis, D., Karamitros, T. 2021. Hepatitis b virus dna integration, chronic infections and hepatocellular carcinoma. *Microorganisms.* MDPI AG.
- Castro-Narro, G., Moctezuma-Velázquez, C., Male-Velázquez, R., Trejo-Estrada, R., Bosques, F.J., Moreno-Alcántar, R., Rodríguez-Hernández, H., Bautista-Santos, A., Córtez-Hernández, C., Cerda-Reyes, E., Pérez-Escobar, J., Aldana-Ledesma, J.M., Aguirre-Valadez, J., Ruiz-Velasco, J.A.V., Contreras-Omaña, R., Miranda-Zazueta, G., Reyes-Bastidas, M. del R., Meza-Cardona, J.M., Chávez-Tapia, N., et al. 2022. Position statement on the use of albumin in liver cirrhosis. *Ann Hepatol*, 27(4).
- Chang, K.M., Liu, M. 2016. Chronic hepatitis B: Immune pathogenesis and emerging immunotherapeutics. *Curr Opin Pharmacol*, 30:93–105.
- Chen, H., Chen, X., Wang, G. 2020. Platelets: A review of their function and effects in liver diseases. *Liver Res.* KeAi Communications Co., 129–135.
- Chien, R.N., Liaw, Y.F. 2022. Current Trend in Antiviral Therapy for Chronic Hepatitis B. *Viruses*, 14(2).
- Chuang, Y.C., Tsai, K.N., Ou, J.H.J. 2022. Pathogenicity and virulence of Hepatitis B virus. *Virulence.* Taylor and Francis Ltd., 258–296.
- Collier, M.G., Schillie, S. 2018. Hepatitis B and Hepatitis D Viruses. *In: Principles and Practice of Pediatric Infectious Diseases.* fifth edition. Elsevier, 1107–1114.
- Croagh, C.M.N., Lubel, J.S. 2014. Natural history of chronic hepatitis B: Phases in a complex relationship. *World J Gastroenterol*, 20(30):10395–10404.
- European Association for the Study of the Liver. 2017. EASL 2017 Clinical Practice Guidelines on the management of hepatitis B virus infection. *J Hepatol*, 67(2):370–398.
- Fang, C., Sidhu, P.S. 2020. Ultrasound-based liver elastography: current results and future perspectives. *Abdom. Radiol.*, 45(11):3463–3472.

- Gharibvand, M., Asare, M., Motamedfar, A., Alavinejad, P., Momeni, M. 2020. Ultrasound shear wave elastography and liver biopsy to determine liver fibrosis in adult patients. *J Family Med Prim Care*, 9(2):943.
- Gish, R.G., Given, B.D., Lai, C.L., Locarnini, S.A., Lau, J.Y.N., Lewis, D.L., Schlupe, T. 2015. Chronic hepatitis B: Virology, natural history, current management and a glimpse at future opportunities. *Antiviral Res.* Elsevier B.V., 47–58.
- Göbel, T., Erhardt, A., Herwig, M., Poremba, C., Baldus, S.E., Sagir, A., Heinzel-Pleines, U., Häussinger, D. 2011. High prevalence of significant liver fibrosis and cirrhosis in chronic hepatitis B patients with normal ALT in central Europe. *J Med Virol*, 83(6):968–973.
- Goodman, Z.D. 2007. Grading and staging systems for inflammation and fibrosis in chronic liver diseases. *J Hepatol*, 598–607.
- Gounden, V., Vashisht, R., Jialal, I. 2023. *Hypoalbuminemia. StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing.*
- Guibal, A., Renosi, G., Rode, A., Scoazec, J.Y., Guillaud, O., Chardon, L., Munteanu, M., Dumortier, J., Collin, F., Lefort, T. 2016. Shear wave elastography: An accurate technique to stage liver fibrosis in chronic liver diseases. *Diagn Interv Imaging*, 97(1):91–99.
- Guyenir, M., Arikan, A. 2020. Hepatitis b virus: From diagnosis to treatment. *Pol J Microbiol*, 69(4):391–399.
- Harkisoen, S., Arends, J.E., Van Erpecum, K.J., Van Den Hoek, A., Hoepelman, A.I.M. 2012. Hepatitis B viral load and risk of HBV-related liver disease: from East to West? *Ann. Hepatol.*, 11(2):164–171.
- Heath, R.D., Tahan, V. 2018. Natural history of hepatitis b virus. *In: Viral Hepatitis: Chronic Hepatitis B.* Springer International Publishing, 1–10.
- Hernandez-Gea, V., Friedman, S.L. 2011. Pathogenesis of liver fibrosis. *Annu. Rev. Pathol.*, 6:425–456.
- Ho, G.Y., Leonhard, M., Volk, G.F., Foerster, G., Pototschnig, C., Klinge, K., Granitzka, T., Zienau, A.K., Schneider-Stickler, B. 2019. Inter-rater reliability of seven neurolaryngologists in laryngeal EMG signal interpretation. *Eur. Arch. Oto-Rhino-L.*, 276(10):2849–2856.
- Hu, J., Zhang, Xiaoli, Gu, J., Yang, M., Zhang, Xuan, Zhao, H., Li, L. 2019. Serum alkaline phosphatase levels as a simple and useful test in screening for significant fibrosis in treatment-naïve patients with hepatitis B e-antigen negative chronic hepatitis B. *Eur J Gastroenterol Hepatol*, 31(7):817–823.

- Jain, D., Torres, R., Celli, R., Koelmel, J., Charkoftaki, G., Vasiliou, V. 2021. Evolution of the liver biopsy and its future. *Transl Gastroenterol Hepatol*. AME Publishing Company.
- Jeong, W.K., Lim, H.K., Lee, H.K., Jo, J.M., Kim, Y. 2014. Principles and clinical application of ultrasound elastography for diffuse liver disease. *Ultrasonography*. Korean Society of Ultrasound in Medicine, 149–160.
- Karayiannis, P. 2017. Hepatitis B virus: virology, molecular biology, life cycle and intrahepatic spread. *Hepatol Int*. Springer, 500–508.
- Karayiannis, P. 2021. Hepatitis B Virus (Hepadnaviridae). In: Bamford, D.H. and Zuckerman, M., editors, *Encyclopedia of Virology*. Forth Edition. Elsevier.
- Kim, W.R., Flamm, S.L., Di Bisceglie, A.M., Bodenheimer, H.C. 2008. Serum activity of alanine aminotransferase (ALT) as an indicator of health and disease. *Hepatology*, 1363–1370.
- Köse, Ş., Dal, T. 2018. Laboratory Diagnosis of HBV. In: *Viral Hepatitis: Chronic Hepatitis B*. Cham: Springer International Publishing, 51–64.
- Kumar, B.V., Mohan, T. 2018. Sigma metrics as a tool for evaluating the performance of internal quality control in a clinical chemistry laboratory. *J Lab Physicians*, 10(02):194–199.
- Lazarevic, I., Banko, A., Miljanovic, D., Cupic, M. 2019. Immune-escape hepatitis B virus mutations associated with viral reactivation upon immunosuppression. *Viruses*. MDPI AG.
- Lee, J., Kang, H.J., Yoon, J.H., Lee, J.M. 2021. Ultrasound-guided transient elastography and two-dimensional shear wave elastography for assessment of liver fibrosis: Emphasis on technical success and reliable measurements. *Ultrasonography*, 40(2):217–227.
- Li, J., Gordon, S.C., Rupp, L.B., Zhang, T., Trudeau, S., Holmberg, S.D., Moorman, A.C., Spradling, P.R., Teshale, E.H., Boscarino, J.A., Daida, Y.G., Schmidt, M.A., Lu, M., Xing, J., Zhong, Y., Nerenz, D.R., Lamerato, L., Akkerman, N., Oja-Tebbe, N., et al. 2017. Long-term progression of viral load and serum markers of fibrosis among treated and untreated patients with chronic hepatitis B. *J. Gastroenterol. Hepatol.*, 32(6):1250–1257.
- Liaw, Y.F., Chu, C.M. 2009. Hepatitis B virus infection. *The Lancet*. Elsevier B.V., 582–592.
- Lu, X., Block, T. 2004. Study of the early steps of the Hepatitis B Virus life cycle. *Int. J. Med. Sci*, 1(1):27–31. Available at: [www.medsci.org](http://www.medsci.org).

- Lumongga, F., Anggraeni, R.N. 2017. *Correlation Between Aspartate Aminotransferase/ Alanine Transferase Ratio (AST/ALT Ratio) and Stage of Liver Fibrosis in Patients with Chronic Hepatitis.*
- Mărginean, C.O., Meliț, L.E., Ghiga, D.V., Săsăran, M.O. 2020. Reference values of normal liver stiffness in healthy children by two methods: 2D shear wave and transient elastography. *Sci Rep*, 10(1).
- McHugh, M.L. 2012. Interrater reliability: the kappa statistic. *Biochem Med (Zagreb)*, 22(3):276–282.
- Metwally, K., Elsabaawy, M., Abdel-Samiee, M., Morad, W., Ehsan, N., Abdelsameea, E. 2021. FIB-5 versus FIB-4 index for assessment of hepatic fibrosis in chronic hepatitis B affected patients. *Clin Exp Hepatol*, 6(4):335–338.
- Muangpaisarn, P., Orprayoon, T., Chanyaswad, J. 2022. Prevalence and Predicting Factors of Significant Liver Fibrosis Evaluated by Transient Elastography in Patients with Chronic Hepatitis B Aged 40 Years or More. *J Prapokklao Hosp Clin Med Educat Center*, 39(1).
- Musafili, N., Hadisaputro, S., Achsan, M., Sofro, U., Sutningsih, D. 2022. Influence of Epidemiological Risk Factors for Occurrence of Hepatitis B Virus (HBV) Co-Infection in HIV/AIDS Patients: (Study in dr. Kariadi Hospital, Semarang, Indonesia). *JEKK*, 7(2):545–552.
- Nallagangula, K.S., Nagaraj, S.K., Venkataswamy, L., Chandrappa, M. 2018. Liver fibrosis: A compilation on the biomarkers status and their significance during disease progression. *Future Sci OA*. Future Medicine Ltd.
- Nguyen, M.H., Wong, G., Gane, E., Kao, J.-H., Dusheiko, G. 2020. Hepatitis B Virus: Advances in Prevention, Diagnosis, and Therapy. *Clin Microbiol Rev.*, 33(2).
- Noordeen, F. 2015. Hepatitis B virus infection: An insight into infection outcomes and recent treatment options. *Virusdisease*, 26(1–2).
- Oh, I.S., Park, S.-H. 2015. Immune-mediated Liver Injury in Hepatitis B Virus Infection. *Immune Netw*, 15(4):191.
- De Oliveira, V.O.B., Oliveira, J.P.R., De França, E.V.C., Brito, H.L.D.F., Nascimento, T.V., França, A. 2016. Advanced liver injury in patients with chronic hepatitis b and viral load below 2,000 IU/ml. *Rev Inst Med Trop Sao Paulo*, 58.
- Ormeci, A., Aydın, Y., Sumnu, A., Baran, B., Soyer, O.M., Pınarbasi, B., Gokturk, S., Gulluoglu, M., Onel, D., Badur, S., Akyuz, F., Karaca, C., Demir, K., Besisik, F., Kaymakoglu, S. 2016. Predictors of treatment requirement in

- HBeAg-negative chronic hepatitis B patients with persistently normal alanine aminotransferase and high serum HBV DNA levels. *Int. J. Infect. Dis.*, 52:68–73.
- Osman, A.M., El Shimy, A., Abd El Aziz, M.M. 2020. 2D shear wave elastography (SWE) performance versus vibration-controlled transient elastography (VCTE/fibroscan) in the assessment of liver stiffness in chronic hepatitis. *Insights Imaging*, 11(1).
- Parikh, P., Ryan, J.D., Tsochatzis, E.A. 2017. Fibrosis assessment in patients with chronic hepatitis B virus (HBV) infection. *Ann Transl Med*, 5(3).
- Peeridogaheh, H., Meshkat, Z., Habibzadeh, S., Arzanlou, M., Shahi, J.M., Rostami, S., Gerayli, S., Teimourpour, R. 2018. Current concepts on immunopathogenesis of hepatitis B virus infection. *Virus Res.* Elsevier B.V., 29–43.
- Petersen, J. 2020. Hepatitis B: diagnostic tests. *In: Hepatology - A Clinical Textbook*. 10th edn. Available at: [www.hepatologytextbook.com](http://www.hepatologytextbook.com).
- Pshenichnaya, N., Chulanov, V., Leblebicioglu, H. 2018. Epidemiology of hepatitis b. *In: Viral Hepatitis: Chronic Hepatitis B*. Springer International Publishing, 25–39.
- Pugliese, N., Franchellucci, G., Viganò, M. 2023. Letter: should we abandon FIB-4 to characterise non-invasively patients with NAFLD? *Aliment Pharmacol Ther.* John Wiley and Sons Inc, 920–921.
- Ramadori, P., Klag, T., Malek, N.P., Heikenwalder, M. 2019. Platelets in chronic liver disease, from bench to bedside. *JHEP Reports.* Elsevier B.V., 448–459.
- Ricos C, A. V. 2014. *Desirable Biological Variation Database specifications*. *westgard.com*. Available at: <https://www.westgard.com/biodatabase1.htm> (Accessed: 7 July 2023).
- Rockey, D.C. 2016. Liver Fibrosis Reversion After Suppression of Hepatitis B Virus. *Clin Liver Dis*, 20(4):667–679.
- Rossi, E., Adams, L.A., Bulsara, M., Jeffrey, G.P. 2007. *Assessing Liver Fibrosis with Serum Marker Models*.
- Samir, A.E., Dhyani, M., Vij, A., Bhan, A.K., Halpern, E.F., Méndez-Navarro, J., Corey, K.E., Chung, R.T. 2015a. Shear-Wave elastography for the estimation of liver fibrosis in chronic liver disease: Determining accuracy and ideal site for measurement. *Radiology*, 274(3):888–896.
- Samir, A.E., Dhyani, M., Vij, A., Bhan, A.K., Halpern, E.F., Méndez-Navarro, J., Corey, K.E., Chung, R.T. 2015b. Shear-Wave elastography for the estimation

of liver fibrosis in chronic liver disease: Determining accuracy and ideal site for measurement. *Radiology*, 274(3):888–896.

Sapmaz, F.P., Büyükturan, G., Sakin, Y.S., Kalkan, İ.H., Atasoy, P. 2022. How effective are APRI, FIB-4, FIB-5 scores in predicting liver fibrosis in chronic hepatitis B patients? *Medicine (United States)*, 101(36):E30488.

Seto, W.K., Lo, Y.R., Pawlotsky, J.M., Yuen, M.F. 2018. Chronic hepatitis B virus infection. *The Lancet*, 392(10161):2313–2324.

Sheena, B.S., Hiebert, L., Han, H., Ippolito, H., Abbasi-Kangevari, M., Abbasi-Kangevari, Z., Abbastabar, H., Abdoli, A., Abubaker Ali, H., Adane, M.M., Adegbeye, O.A., Adnani, Q.E.S., Advani, S.M., Afzal, M.S., Afzal, S., Aghaie Meybodi, M., Ahadinezhad, B., Ahinkorah, B.O., Ahmad, S., et al. 2022. Global, regional, and national burden of hepatitis B, 1990–2019: a systematic analysis for the Global Burden of Disease Study 2019. *Lancet Gastroenterol Hepatol*, 7(9):796–829.

Sheng, G., Peng, N., Hu, C., Zhong, L., Zhong, M., Zou, Y. 2021. The albumin-to-alkaline phosphatase ratio as an independent predictor of future non-alcoholic fatty liver disease in a 5-year longitudinal cohort study of a non-obese Chinese population. *Lipids Health Dis*, 20(1).

Shiha, G., Seif, S., Eldesoky, A., Elbasiony, M., Soliman, R., Metwally, A., Zalata, K., Mikhail, N. 2017. A simple bedside blood test (Fibrofast; FIB-5) is superior to FIB-4 index for the differentiation between non-significant and significant fibrosis in patients with chronic hepatitis C. *Hepatol Int*, 11(3):286–291.

Shiha, G., Zalata, K. 2011. Ishak versus METAVIR: Terminology, Convertibility and Correlation with Laboratory Changes in Chronic Hepatitis C. *In: Liver Biopsy*. InTech.

Spinella, R., Sawhney, R., Jalan, R. 2016. Albumin in chronic liver disease: structure, functions and therapeutic implications. *Hepatol Int*. Springer India, 124–132.

Suk, K.T., Kim, D.J. 2015. Staging of liver fibrosis or cirrhosis: The role of hepatic venous pressure gradient measurement. *World J Hepatol*, 7(3):607–615.

Sun, L., Yin, H., Liu, M., Xu, G., Zhou, X., Ge, P., Yang, H., Mao, Y. 2019. Impaired albumin function: a novel potential indicator for liver function damage? *Ann Med*. Taylor and Francis Ltd, 333–344.

Tang, L.S.Y., Covert, E., Wilson, E., Kottlilil, S. 2018. Chronic Hepatitis B infection a review. *JAMA - Journal of the American Medical Association*, 319(17):1802–1813.

- Tsai, K.N., Kuo, C.F., Ou, J.H.J. 2018. Mechanisms of Hepatitis B Virus Persistence. *Trends Microbiol*, 26(1):33–42.
- Tsukuda, S., Watashi, K. 2020. Hepatitis B virus biology and life cycle. *Antiviral Res.* Elsevier B.V.
- Verma, M., Dahiya, K., Ghalaut, V.S., Dhupper, V. 2018. Assessment of quality control system by sigma metrics and quality goal index ratio: A roadmap towards preparation for NABL. *World J Methodol*, 8(3):44–50.
- Wang, H., Xue, L., Yan, R., Zhou, Y., Wang, M.S., Cheng, M.J., Huang, H.J. 2013. Comparison of FIB-4 and APRI in Chinese HBV-infected patients with persistently normal ALT and mildly elevated ALT. *J Viral Hepat*, 20(4).
- Westgard, S., Bayat, H., Westgard, J.O. 2018. Analytical sigma metrics: A review of six sigma implementation tools for medical laboratories. *Biochem Med (Zagreb)*. Biochemia Medica, Editorial Office.
- World Health Organisation. 2015. Guideline For The Prevention, Care And Treatment Of Persons With Chronic Hepatitis B Infection, (April):124.
- World Health Organization. 2015. Analysis Of Platelet Count On Fibrosis Degree In Chronic Hepatitis B Patients Clinical Pathology And Medical Laboratory.
- Wu, J.F., Chang, M.H. 2015. Natural history of chronic hepatitis B virus infection from infancy to adult life - The mechanism of inflammation triggering and long-term impacts. *J Biomed Sci*. BioMed Central Ltd.
- Yang, G., Wan, P., Zhang, Y., Tan, Q., Qudus, M.S., Yue, Z., Luo, W., Zhang, W., Ouyang, J., Li, Y., Wu, J. 2022. Innate Immunity, Inflammation, and Intervention in HBV Infection. *Viruses*, 14(10).
- Yano, Y., Utsumi, T., Lusida, M.I., Hayashi, Y. 2015. Hepatitis B virus infection in Indonesia. *World J Gastroenterol*, 21(38):10714–10720.
- Yin, Z., Zou, J., Li, Q., Chen, L. 2017. Diagnostic value of FIB-4 for liver fibrosis in patients with hepatitis B: a meta-analysis of diagnostic test. *Oncotarget*, 8(14):22944–22953. Available at: [www.impactjournals.com/oncotarget](http://www.impactjournals.com/oncotarget).
- You, C.R., Lee, S.W., Jang, J.W., Yoon, S.K. 2014. Update on hepatitis B virus infection. *World J Gastroenterol*. WJG Press, 13293–13305.
- Yuen, M.F., Chen, D.S., Dusheiko, G.M., Janssen, H.L.A., Lau, D.T.Y., Locarnini, S.A., Peters, M.G., Lai, C.L. 2018a. Hepatitis B virus infection. *Nat Rev Dis Primers*. Nature Publishing Group.
- Yuen, M.F., Chen, D.S., Dusheiko, G.M., Janssen, H.L.A., Lau, D.T.Y., Locarnini, S.A., Peters, M.G., Lai, C.L. 2018b. Hepatitis B virus infection. *Nat Rev Dis Primers*, 4:1–21.

- Zeng, D.W., Dong, J., Liu, Y.R., Jiang, J.J., Zhu, Y.Y. 2016. Noninvasive models for assessment of liver fibrosis in patients with chronic hepatitis B virus infection. *World J Gastroenterol*. Baishideng Publishing Group Co, 6663–6672.
- Zhong, L.K., Zhang, G., Luo, S.Y., Yin, W., Song, H.Y. 2020. The value of platelet count in evaluating the degree of liver fibrosis in patients with chronic hepatitis B. *J Clin Lab Anal*, 34(7).
- Zhou, X., Rao, J., Wu, X., Deng, R., Ma, Y. 2021. Comparison of 2-D Shear Wave Elastography and Point Shear Wave Elastography for Assessing Liver Fibrosis. *Ultrasound Med Biol*, 47(3):408–427.