

## DAFTAR PUSTAKA

- [1] Shereen MA, Khan S, Kazmi A, Bashir N, Siddique R. COVID-19 infection: Origin, transmission, and characteristics of human coronaviruses. *J Adv Res.* 2020;24(April):91–8.
- [2] Burhan E, Susanto agus dwi, Nasution sally a, Ginanjar E, Pitoyo ceva wicaksono, Susilo A, et al. Protokol Tatalaksana COVID-19. edisi 1. jakarta: Perhimpunan Dokter Paru Indonesia (PDPI) Perhimpunan Dokter Spesialis Kardiovaskuler Indonesia (PERKI) Perhimpunan Dokter Spesialis Penyakit Dalam Indonesia (PAPDI) Perhimpunan Dokter Anestesiologi dan Terapi Intensif Indonesia (PERDATIN) Ikatan Dokter An; 2020.
- [3] Wu YC, Chen CS, Chan YJ. The outbreak of COVID-19: An overview. *J Chinese Med Assoc.* 2020;83(3):217–20.
- [4] Organization world health. coronavirus disease (COVID-19) dashboard. 2020. <https://covid19.who.int/>
- [5] Wang M, Cao R, Zhang L, Yang X, Liu J, Xu M, et al. Remdesivir and chloroquine effectively inhibit the recently emerged novel coronavirus (2019-nCoV) in vitro. *Cell Res.* 2020;30(3):269–71.
- [6] Liu J, Cao R, Xu M, Wang X, Zhang H, Hu H, et al. Hydroxychloroquine , a less toxic derivative of chloroquine , is effective in inhibiting SARS-CoV-2 infection in vitro. *Cell Discov.* 2020;6(16).
- [7] Kaptein SJ, Jacobs S, Langendries L, Al E. Antiviral treatment of SARS-CoV-2-infected hamsters reveals a weak effect of favipiravir and a complete lack of effect for hydroxychloroquine. 2020;
- [8] Yuan S, Chan JFW, Chik KKH, Chan CCY, Tsang JOL, Liang R, et al. Discovery of the FDA-approved drugs bexarotene , cetilistat , diiodohydroxyquinoline , and abiraterone as potential COVID-19 treatments with a robust two-tier screening system. *Pharmacol Res.* 2020;159(April):104960.
- [9] Cao B. Chinese Guideline of Diagnosis and treatment of COVID-19 (7th version). 2020.
- [10] Huang B, Ling R, Cheng Y, Wen J, Dai Y, Huang W, et al. Characteristics of the Coronavirus Disease 2019 and related Therapeutic Options. *Mol Ther - Methods Clin Dev.* 2020;18(September):367–75.

- [11] Perveen S, Orfali R, Azam MS ul, Aati HY, Bukhari K, Bukhari SI, et al. Coronavirus nCOVID-19: A pandemic disease and the Saudi precautions. *Saudi Pharm J.* 2020;28(7):888–97.
- [12] Al-Rohaimi AH, Al Otaibi F. Novel SARS-CoV-2 outbreak and COVID19 disease; a systemic review on the global pandemic. *Genes Dis.* 2020;
- [13] Amirfakhryan H, Safari F. Outbreak of SARS-CoV2: Pathogenesis of infection and cardiovascular involvement. *Hell J Cardiol.* 2020;
- [14] Decaro N, Lorusso A. Novel human coronavirus (SARS-CoV-2): A lesson from animal coronaviruses. *Vet Microbiol.* 2020;244(March):108693.
- [15] Zhang L, Guo H. Biomarkers of COVID-19 and technologies to combat SARS-CoV-2. *Adv Biomark Sci Technol.* 2020;2:1–23.
- [16] De Wit E, Van Doremalen N, Falzarano D, Munster VJ. SARS and MERS: Recent insights into emerging coronaviruses. *Nat Rev Microbiol.* 2016;14(8):523–34.
- [17] Calder PC. Nutrition, immunity and COVID-19. *BMJ Nutr Prev Heal.* 2020;
- [18] Acharya D, Liu GQ, Gack MU. Dysregulation of type I interferon responses in COVID-19. *Nat Rev Immunol.* 2020;20(7):397–8.
- [19] Lin S hui, Zhao Y si, Zhou D xing, Zhou F chun, Xu F. Coronavirus disease 2019 (COVID-19): cytokine storms, hyper-inflammatory phenotypes, and acute respiratory distress syndrome. *Genes Dis.* 2020;
- [20] WHO. Clinical management of severe acute respiratory infection (SARI) when COVID-19 disease is suspected. 2020;
- [21] Zheng Z, Peng F, Xu B, Zhao J, Liu H, Peng J, et al. Risk factors of critical & mortal COVID-19 cases: A systematic literature review and meta-analysis. *J Infect.* 2020;81:e16–25.
- [22] Sujaritha J, Deepa N, Mathivathani K, Aravindh G, Gnanasekaran G. An overview of some drugs : Lopinavir , Ritonavir , Chloroquine , Hydroxychloroquine and Interferon as e effective treatment against COVID-19. *Int J Res Phytochem Pharmacol.* 2020;10(1):20–4.
- [23] Singh TU, Parida S, Lingaraju MC, Kesavan M, Kumar D, Singh RK. Drug repurposing approach to fight COVID-19. *Pharmacol Reports.* 2020;
- [24] Delvecchio R, Higa LM, Pezzuto P, Valadão AL, Garcez PP, Monteiro FL, et al. Chloroquine, an endocytosis blocking agent, inhibits zika virus infection in different cell models. *Viruses.* 2016;8(12):1–15.
- [25] Devaux CA, Rolain J, Colson P, Raoult D. International Journal of Antimicrobial Agents New insights on the antiviral effects of chloroquine against coronavirus : what to expect for COVID-19 ? 2020;55.

- [26] Gabriela M, Borba S, Fonseca F, Val A, Sampaio VS, Almeida M, et al. Effect of High vs Low Doses of Chloroquine Diphosphate as Adjunctive Therapy for Patients Hospitalized With Severe Acute Respiratory Syndrome Coronavirus 2 ( SARS-CoV-2 ) Infection A Randomized Clinical Trial. 2020;2:1–14.
- [27] Xue J, Moyer A, Peng B, Wu J, Hannafon BN, Ding WQ. Chloroquine is a zinc ionophore. PLoS One. 2014;9(10):1–6.
- [28] te Velhuis AJW, van den Worml SHE, Sims AC, Baric RS, Snijder EJ, van Hemert MJ. Zn<sup>2+</sup> inhibits coronavirus and arterivirus RNA polymerase activity in vitro and zinc ionophores block the replication of these viruses in cell culture. PLoS Pathog. 2010;6(11):1–10.
- [29] Bolcato G, Bissaro M, Pavan M, Sturlese M, Moro S. Targeting the Coronavirus SARS-CoV-2: computational insights into the mechanism of action of the protease inhibitors Lopinavir, Ritonavir, and Nelfinavir. Nat Res. 2020;1–19.
- [30] Amirian ES, Levy JK. Current knowledge about the antivirals remdesivir (GS-5734) and GS-441524 as therapeutic options for coronaviruses. One Heal. 2020;9(100128).
- [31] Agostini ML, Andres EL, Sims AC, Graham RL, Sheahan TP, Lu X, et al. Coronavirus susceptibility to the antiviral remdesivir (GS-5734) is mediated by the viral polymerase and the proofreading exonuclease. MBio. 2018;9(2):1–15.
- [32] Finberg RW, Dierberg K, Tapson V, Hsieh L, Patterson TF, Paredes R. Remdesivir for the Treatment of COVID-19 — Preliminary Report. N Engl J Med. 2020;1–12.
- [33] Furuta, Y., Komeno, T., & Nakamuba T. Favipiravir (T-705), a broad spectrum inhibitor of viral RNA polymerase. Proc Jpn Acad Ser B Phys Biol Sci. 2017;93(7):449–63.
- [34] Chandwani A, Shuter J. Lopinavir / ritonavir in the treatment of HIV-1 infection : a review. Ther Clin Risk Manag. 2008;4(5):1023–33.
- [35] Yao TT, Qian JD, Zhu WY, Wang Y, Wang GQ. A systematic review of lopinavir therapy for SARS coronavirus and MERS coronavirus—A possible reference for coronavirus disease-19 treatment option. J Med Virol. 2020;92(6):556–63.
- [36] Padhi A, Seal A, Tripathi T. How Does Arbidol Inhibit the Novel Coronavirus SARS-CoV-2? Atomistic Insights from Molecular Dynamics Simulations. 2020;(2).
- [37] Zhang C, Wu Z, Li JW, Zhao H, Wang GQ. The cytokine release syndrome (CRS) of severe COVID-19 and Interleukin-6 receptor (IL-6R) antagonist

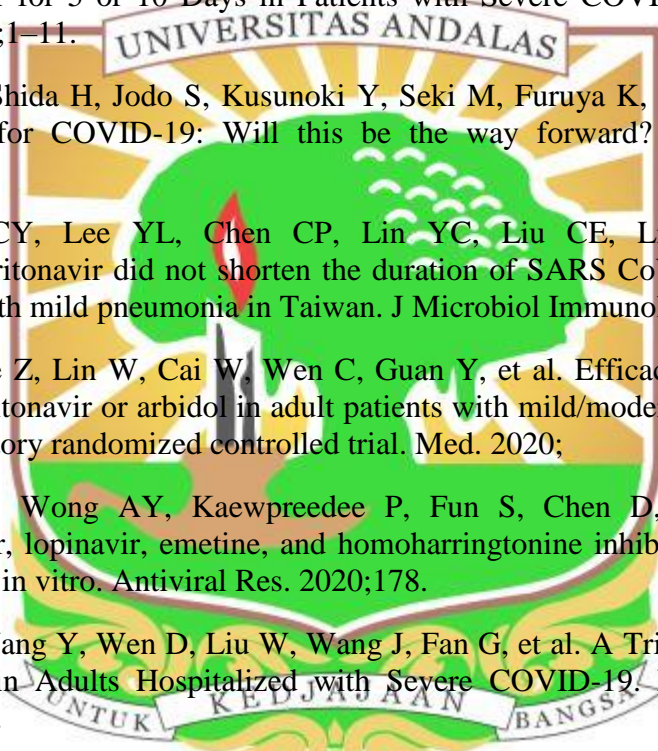
Tocilizumab may be the key to reduce the mortality. *Int J Antimicrob Agents*. 2020;

- [38] Saha A, Sharma R, Bhattacharya M, Sharma G, Lee S. Tocilizumab : A Therapeutic Option for the Treatment of Cytokine Storm Syndrome in COVID-19. *Arch Med Res*. 2020;9–11.
- [39] Meager A. *The Interferons: Characterization and Application*. Weinheim: WILEY-VCH Verlag GmbH & Co. KGaA; 2006. 1–410 p.
- [40] Zhao M. Cytokine storm and immunomodulatory therapy in COVID-19: Role of chloroquine and anti-IL-6 monoclonal antibodies. *Int J Antimicrob Agents*. 2020;
- [41] Singh AK, Singh A, Shaikh A, Singh R, Misra A. Chloroquine and hydroxychloroquine in the treatment of COVID-19 with or without diabetes: A systematic search and a narrative review with a special reference to India and other developing countries. *Diabetes Metab Syndr Clin Res Rev*. 2020;14(3):241–6.
- [42] Grein J, Ohmagari N, Shin D, Diaz G, Asperges E, Castagna A, et al. Compassionate Use of Remdesivir for Patients with Severe COVID-19. *N Engl J Med*. 2020;1–10.
- [43] Gautret P, Lagier J-C, Parola P, Hoang VT, Meddeb L, Mailhe M, et al. Hydroxychloroquine and azithromycin as a treatment of COVID-19: results of an open-label non-randomized clinical trial. *Int J Antimicrob Agents*. 2020;
- [44] Choudhary R, Sharma AK. Potential use of hydroxychloroquine , ivermectin and azithromycin drugs in fi ghting COVID-19 : trends , scope and relevance. *New Microbes New Infect*. 2020;35.
- [45] Zhu Z, Lu Z, Xu T, Chen C, Yang G, Zha T, et al. Arbidol monotherapy is superior to lopinavir/ritonavir in treating COVID-19. *J Infect*. 2020;
- [46] Wang X, Cao R, Zhang H, Liu J, Xu M, Hu H, et al. The anti-influenza virus drug, arbidol is an efficient inhibitor of SARS-CoV-2 in vitro. *Cell Discov*. 2020;6(28):1–5.
- [47] Cai Q, Yang M, Liu D, Chen J, Shu D, Xia J, et al. Experimental Treatment with Favipiravir for COVID-19: An Open-Label Control Study q. *Engineering*. 2020;
- [48] Klopfenstein T, Zayet S, Lohse A, Balblanc J, Badie J, Royer P, et al. Tocilizumab therapy reduced intensive care unit admissions and/or mortality in COVID-19 patients. *Med Mal Infect*. 2020;1–4.
- [49] Morena V, Milazzo L, Oreni L, Bestetti G, Fossali T, Bassoli C, et al. European Journal of Internal Medicine Off-label use of tocilizumab for the treatment of SARS-CoV-2 pneumonia in. *Eur J Intern Med*. 2020;76(April):36–42.

- [50] Mantlo E, Bukreyeva N, Maruyama J, Paessler S. Antiviral activities of type I interferons to SARS-CoV-2 infection. *Antiviral Res.* 2020;(April).
- [51] Dong L, Hu S, Gao J. Discovering drugs to treat coronavirus disease 2019 (COVID-19). *Drug Discov Ther.* 2020;14(1):58–60.
- [52] Gao J, Hu S. Update on use of chloroquine/hydroxychloroquine to treat coronavirus disease 2019 (COVID-19). *Biosci Trends.* 2020;1–3.
- [53] Gao J, Tian Z, Yang X. Breakthrough : Chloroquine phosphate has shown apparent efficacy in treatment of COVID-19 associated pneumonia in clinical studies. *Biosci Trends.* 2020;1–2.
- [54] Huang M, Tang T, Pang P, Li M, Ma R, Lu J, et al. Treating COVID-19 with Chloroquine. *J Mol Cell Biol.* 2020;00(00):1–4.
- [55] Cheng MP, Labar D, Lother SA, Mackenzie LJ, Drobot G, Marten N, et al. A Randomized Trial of Hydroxychloroquine as Postexposure Prophylaxis for COVID-19. *N Engl J Med.* 2020;1–9.
- [56] Baldwin M, Hripcsak G, Labella A, Manson DK, Kubin C, Pharm D, et al. Observational Study of Hydroxychloroquine in Hospitalized Patients with COVID-19. *N Engl J Med.* 2020;382:2411–8.
- [57] Lagier J, Million M, Gautret P, Colson P, Cortaredona S, Giraud-gatineau A, et al. Outcomes of 3,737 COVID-19 patients treated with hydroxychloroquine/azithromycin and other regimens in Marseille, France: A retrospective analysis. *Travel Med Infect Dis.* 2020;
- [58] Magagnoli J, Pereira F, Cummings TH, James W, Sutton SS, Magagnoli J, et al. Outcomes of Hydroxychloroquine Usage in United States Veterans Hospitalized with Outcomes of Hydroxychloroquine Usage in United States Veterans Hospitalized with COVID-19. *Med.* 2020;1–14.
- [59] Gautret P, Lagier JC, Parola P, Hoang VT, Meddeb L, Sevestre J, et al. Clinical and microbiological effect of a combination of hydroxychloroquine and azithromycin in 80 COVID-19 patients with at least a six-day follow up: A pilot observational study. *Travel Med Infect Dis.* 2020;(April):101663.
- [60] Voisin O, Mahé A, Azria P, Borie M, Hubert S, Ménage E, et al. Acute Qt Interval Modifications During Hydroxychloroquine-Azithromycin Treatment In The Context Of COVID-19 Infection. *Mayo Clin Proc.* 2020;
- [61] Sridhar AR, Chatterjee NA, Saour B, Starnes E, Johnston C, Margaret L, et al. QT Interval and Arrhythmic Safety of Hydroxychloroquine Monotherapy in Coronavirus Disease 2019. *Hear Rhythm O2.* 2020;
- [62] Administration F and D. FDA cautions against use of hydroxychloroquine or chloroquine for COVID-19 outside of the hospital setting or a clinical trial due to risk of heart rhythm problems. 2020. <https://www.fda.gov/drugs/drug->

safety-and-availability/fda-cautions-against-use-hydroxychloroquine-or-chloroquine-COVID-19-outside-hospital-setting-or

- [63] Wang Y, Zhang D, Du G, Du R, Zhao J, Jin Y, et al. remdesivir in adult with severe COVID-19: a randomised, double-blind, placebo-controlled, multicentre trial. *Lancet*. 2020;395:1569–78.
- [64] Antinori S, Vitoria M, Lisa A, Rech R, Bonazzetti C, Pagani G, et al. Compassionate remdesivir treatment of severe COVID-19 pneumonia in intensive care unit ( ICU ) and Non-ICU patients: Clinical outcome and differences in post-treatment hospitalisation status. *Pharmacol Res*. 2020;158(May):104899.
- [65] Marks KM, Bruno R, Montejano R, Spinner CD, Galli M, Ahn MY, et al. Remdesivir for 5 or 10 Days in Patients with Severe COVID-19. *N Engl J Med*. 2020;1–11.
- [66] Ohe M, Shida H, Jodo S, Kusunoki Y, Seki M, Furuya K, et al. Macrolide treatment for COVID-19: Will this be the way forward? *Biosci Trends*. 2020;1–3.
- [67] Cheng CY, Lee YL, Chen CP, Lin YC, Liu CE, Liao CH, et al. Lopinavir/ritonavir did not shorten the duration of SARS CoV-2 shedding in patients with mild pneumonia in Taiwan. *J Microbiol Immunol Infect*. 2020;
- [68] Li Y, Xie Z, Lin W, Cai W, Wen C, Guan Y, et al. Efficacy and safety of lopinavir/ritonavir or arbidol in adult patients with mild/moderate COVID-19: an exploratory randomized controlled trial. *Med*. 2020;
- [69] Choy K, Wong AY, Kaewpreedee P, Fun S, Chen D, Pui K, et al. Remdesivir, lopinavir, emetine, and homoharringtonine inhibit SARS-CoV-2 replication in vitro. *Antiviral Res*. 2020;178.
- [70] Cao B, Wang Y, Wen D, Liu W, Wang J, Fan G, et al. A Trial of Lopinavir-Ritonavir in Adults Hospitalized with Severe COVID-19. *N Engl J Med*. 2020;1–13.
- [71] Deng L, Li C, Zeng Q, Liu X, Li X, Zhang H, et al. Arbidol combined with LPV / r versus LPV / r alone against Corona Virus Disease 2019: A retrospective cohort study. *J Infect*. 2020;81(1):e1–5.
- [72] Hung IF, Lung K, Tso EY, Liu R, Chung TW, Chu M, et al. Triple combination of interferon beta-1b, lopinavir–ritonavir, and ribavirin in the treatment of patients admitted to hospital with COVID-19: an open-label, randomised, phase 2 trial. *Lancet*. 2020;395:1695–704.
- [73] Lian N, Xie H, Lin S, Huang J, Zhao J, Lin Q. Umifenovir treatment is not associated with improved outcomes in patients with coronavirus disease 2019: a retrospective study. *Clin Microbiol Infect*. 2020;26(7):917–21.



- [74] Xu P, Huang J, Fan Z, Huang W, Qi M, Lin X, et al. Arbidol / IFN- a 2b therapy for patients with corona virus disease 2019: a retrospective multicenter cohort study. 2020;22:200–5.
- [75] Kewan T, Covut F, Al MJ, Jaghbeer A, Rose L, Gopalakrishna K V, et al. Tocilizumab for treatment of patients with severe COVID A 19: A retrospective cohort study. EClinicalMedicine. 2020;000:100418.

