# Список литературы/References

1 Morell-Garcia D, Ramos-Chavarino D, Bauça JM, Argente Del Castillo P, Ballesteros-Vizoso MA, García de Guadiana-Romualdo L, Gómez-Cobo C, Pou JA, Amezaga-Menéndez R, Alonso-Fernández A, Llompart I, García-Raja A. Urine biomarkers for the prediction of mortality in COVID-19 hospitalized patients. *Scientific Reports.* 2021;11(1):11134. DOI: 10.1038/s41598-021-90610-y

2 Robbins-Juarez SY, Qian L, King KL, Stevens JS, Husain SA, Radhakrishnan J, Mohan S. Outcomes for patients with COVID-19 and acute kidney injury: a systematic review and meta-analysis. *Kidney International Reports.* 2020;5(8):1149-1160. DOI: 10.1016/j.ekir.2020.06.013

3 He L, Zhang Q, Li Z, Shen L, Zhang J, Wang P, Wu S, Zhou T, Xu Q, Chen X, Fan X, Fan Y, Wang N. Incorporation of urinary neutrophil gelatinase-associated lipocalin and computed tomography quantification to predict acute kidney injury and in-hospital death in COVID-19 patients. *Kidney Diseases (Basel).* 2021;7(2):120-130. DOI: 10.1159/000511403

4 Li Z, Wu M, Yao J, Guo J, Liao X, Song S, Li J, Duan G, Zhou Y, Wu X, Zhou Z, Wang T, Hu M, Chen X, Y, Lei C, Dong H, Xu C, Hu Y, Han M, Zhou Y, Jia H, Chen X, Yan J. *Caution on kidney dysfunctions of COVID-19 patients (3/19/2020).* Accessed 2023 Feb 03. DOI: [10.1101/2020.02.08.20021212](https://doi.org/10.1101/2020.02.08.20021212) <https://ssrn.com/abstract=3559601>

5 Su H, Yang M, Wan C, Yi LX, Tang F, Zhu HY, Yi F, Yang HC, Fogo AB, Nie X, Zhang C. Renal histopathological analysis of 26 postmortem findings of patients with COVID-19 in China. *Kidney International.* 2020;98(1):219-227. DOI: 10.1016/j.kint.2020.04.003

6 Шамхалова М.С., Мокрышева Н.Г., Шестакова М.В. COVID-19 и почки. *Сахарный диабет.* 2020;23(3):235-241. [Shamkhalova MS, Mokrysheva NG, Shestakova MV. COVID-19 and kidneys. *Diabetes Mellitus.* 2020;23(3):235-241. (In Russ.).] DOI: 10.14341/DM12506

7 Golmai P, Larsen CP, DeVita MV, Wahl SJ, Weins A, Rennke HG, Bijol V, Rosenstock JL. Histopathologic and ultrastructural findings in postmortem kidney biopsy material in 12 patients with AKI and COVID-19. *Journal of the American Society of Nephrology.* 2020;31(9):1944-1947. DOI: 10.1681/ASN.2020050683

8 Kellum JA, van Till JWO, Mulligan G. Targeting acute kidney injury in COVID-19. *Nephrology, Dialysis, Transplantation.* 2020;35(10):1652-1662. DOI: 10.1093/ndt/gfaa231

9 Siew ED, Birkelo BC. COVID-19-associated acute kidney injury: an evolving picture. *Clinical Journal of the American Society of Nephrology.* 2020;15(10):1383-1385. DOI: 10.2215/CJN.13600820

10 Santoriello D, Khairallah P, Bomback AS, Xu K, Kudose S, Batal I, Barasch J, Radhakrishnan J, D’Agati V, Markowitz G. Postmortem kidney pathology findings in patients with COVID-19. *Journal of the American Society of Nephrology.* 2020;31(9):2158-2167. DOI: 10.1681/ASN.2020050744

11 Asgharpour M, Zare E, Mubarak M, Alirezaei A. COVID-19 and kidney disease: update on epidemiology, clinical manifestations, pathophysiology and management. *Journal of the College of Physicians and Surgeons – Pakistan.* 2020;30(6):19-25. DOI: 10.29271/jcpsp.2020.Supp1.S19

12 Gabarre P, Dumas G, Dupont T, Darmon M, Azoulay E, Zafrani L. Acute kidney injury in critically ill patients with COVID-19. *Intensive Care Medicine.* 2020;46(7):1339-1348. DOI: 10.1007/s00134-020-06153-9

13 Выхристенко Л.Р., Счастливенко А.И., Бондарева Л.И., Сидоренко А.В., Mузыка О.Г. Поражение почек при инфекции COVID-19. *Вестник Витебского государственного медицинского университета.* 2021;20(1):7-23. [Vykhrystenko LR, Schastlivenko AI, Bondareva LI, Sidarenko AV, Muzyka OG. Kidney damage in COVID-19 infection. *Vitebsk State University Medical Journal.* 2021;20(1):7-23. (In Russ.).] DOI: 10.22263/2312-4156.2021.1.7

14 Nadim MK, Forni LG, Mehta RL, Connor MJ Jr, Liu KD, Ostermann M, Rimmelé T, Zarbock A, Bell S, Bihorac A, Cantaluppi V, Hoste E, Husain-Syed F, Germain MJ, Goldstein SL, Gupta S, Joannidis M, Kashani K, Koyner JL, Legrand M, Lumlertgul N, Mohan S, Pannu N, Peng Z, Perez-Fernandez XL, Pickkers P, Prowle J, Reis T, Srisawat N, Tolwani A, Vijayan A, Villa G, Yang L, Ronco C, Kellum JA. COVID-19-associated acute kidney injury: consensus report of the 25th Acute Disease Quality Initiative (ADQI) Workgroup. *Nature Reviews. Nephrology.* 2020;16(12):747-764. DOI: 10.1038/s41581-020-00356-5

15 Ronco C, Reis T. Kidney involvement in COVID-19 and rationale for extracorporeal therapies. *Nature Reviews. Nephrology.* 2020;16(6):308-310. DOI: 10.1038/s41581-020-0284-7

16 Ahmadian E, Hosseiniyan Khatibi SM, Razi Soofiyani S, Abediazar S, Shoja MM, Ardalan M, Zununi Vahed S. Covid-19 and kidney injury: pathophysiology and molecular mechanisms. *Reviews in Medical Virology.* 2021;31(3):e2176. DOI: 10.1002/rmv.2176

17 Magro CM, Mulvey J, Kubiak J, Mikhail S, Suster D, Crowson AN, Laurence J, Nuovo G. Severe COVID-19: a multifaceted viral vasculopathy syndrome. *Annals of Diagnostic Pathology.* 2021;50:151645. DOI: 10.1016/j.anndiagpath.2020.151645

18 Diao B, Wang C, Wang R, Feng Z, Zhang J, Yang H, Tan Y, Wang H, Wang C, Liu L, Liu Y, Liu Y, Wang G, Yuan Z, Hou X, Ren L, Wu Y, Chen Y. Human kidney is a target for novel severe acute respiratory syndrome coronavirus 2 infection. *Nature Communications.* 2021;12(1):2506. DOI: 10.1038/s41467-021-22781-1

19 Santiesteban-Lores LE, Amamura TA, da Silva TF, Midon LM, Carneiro MC, Isaac L, Bavia L. A double edged-sword – the complement system during SARS-CoV-2 infection. *Life Sciences.* 2021;272:119245. DOI: 10.1016/j.lfs.2021.119245

20 De Vriese AS, Sethi S, Van Praet J, Nath KA, Fervenza FC. Kidney disease caused by dysregulation of the complement alternative pathway: an etiologic approach. *Journal of the American Society of Nephrology.* 2015;26(12):2917-2929. DOI: 10.1681/ASN.2015020184

21 Kurts C, Panzer U, Anders HJ, Rees AJ. The immune system and kidney disease: basic concepts and clinical implications. *Nature Reviews. Immunology.* 2013;13(10):738-753. DOI: 10.1038/nri3523

22 Noris M, Remuzzi G. Overview of complement activation and regulation. *Seminars in Nephrology.* 2013;33(6):479-492. DOI: 10.1016/j.semnephrol.2013.08.001

23 Connors JM, Levy JH. Thromboinflammation and the hypercoagulability of COVID-19. *Journal of Thrombosis and Haemostasis.* 2020;18(7):1559-1561. DOI: 10.1111/jth.14849

24 Jhaveri KD, Meir LR, Flores Chang BS, Parikh R, Wanchoo R, Barilla-LaBarca ML, Bijol V, Hajizadeh N. Thrombotic microangiopathy in a patient with COVID-19. *Kidney International.* 2020;98(2):509-512. DOI: 10.1016/j.kint.2020.05.025

25 Laurence J, Mulvey JJ, Seshadri M, Racanelli A, Harp J, Schenck EJ, Zappetti D, Horn EM, Magro CM. Anti-complement C5 therapy with eculizumab in three cases of critical COVID-19. *Clinical Immunology (Orlando, Fla).* 2020;219:108555. DOI: 10.1016/j.clim.2020.108555

26 Peerapornratana S, Manrique-Caballero CL, Gómez H, Kellum JA. Acute kidney injury from sepsis: current concepts, epidemiology, pathophysiology, prevention and treatment. *Kidney International.* 2019 Nov;96(5):1083-1099. DOI: 10.1016/j.kint.2019.05.026

27 Cao X. COVID-19: immunopathology and its implications for therapy. *Nature Reviews. Immunology.* 2020;20(5):269-270. DOI: 10.1038/s41577-020-0308-3

28 Ramlall V, Thangaraj PM, Meydan C, Foox J, Butler D, Kim J, May B, De Freitas JK, Glicksberg BS, Mason CE, Tatonetti NP, Shapira SD. Immune complement and coagulation dysfunction in adverse outcomes of SARS-CoV-2 infection. *Nature Medicine.* 2020;26(10):1609-1615. DOI: 10.1038/s41591-020-1021-2

29 Tang S, Sheerin NS, Zhou W, Brown Z, Sacks SH. Apical proteins stimulate complement synthesis by cultured human proximal tubular epithelial cells. *Journal of the American Society of Nephrology.* 1999;10(1):69-76. DOI: 10.1681/ASN.V10169

30 Столяревич Е.С., Фролова Н.Ф., Артюхина Л.Ю., Варясин В.В. Поражение почек при COVID-19: клинические и морфологические проявления почечной патологии у 220 пациентов, умерших от COVID-19. *Нефрология и диализ.* 2020;22(S):46-55. [Stolyarevich ES, Frolova NF, Artyukhina LYu, Varyasin VV. Kidney damage in COVID-19: clinical and morphological manifestations of renal pathology in 220 patients died from COVID-19. *Nephrology and Dialysis.* 2020;22 (Suppl.):46-55. (In Russ.).] DOI: 10.28996/2618-9801-2020-Special\_Issue-46-55

31 Hirsch JS, Ng JH, Ross DW, Sharma P, Shah HH, Barnett RL, Hazzan AD, Fishbane S, Jhaveri KD; Northwell COVID-19 Research Consortium; Northwell Nephrology COVID-19 Research Consortium. Acute kidney injury in patients hospitalized with COVID-19. *Kidney International.* 2020;98(1):209-218. DOI: 10.1016/j.kint.2020.05.006

32 Martinez-Rojas MA, Vega-Vega O, Bobadilla NA. Is the kidney a target of SARS-CoV-2? *American Journal of Physiology. Renal Physiology.* 2020;318(6):F1454-F1462. DOI: 10.1152/ajprenal.00160.2020

33 Kidney Disease: Improving Global Outcomes (KDIGO). Acute Kidney Injury Work Group. KDIGO clinical practice guideline for acute kidney injury. *Kidney International. Supplements.* 2012;2(1):1-138.

34 Бобков А.П., Стоянова С.С., Французевич Л.Я., Алешина А.Н., Мершина Е.А., Самоходская Л.М., Краснова Т.Н., Синицын В.Е., Павликова Е.П., Камалов А.А. Роль системы комплемента в поражении почек у пациентов с COVID-19. *Лечебное дело.* 2021;4:62-68. [Bobkov AP, Stoyanova SS, Frantsuzevich LYa, Alyoshina AN, Mershina EA, Samokhodskaya LM, Krasnova TN, Sinitsyn VE, Pavlikova EP, Kamalov A.A. The role of the complement system in kidney injury in COVID-19 patients. *Lechebnoye Delo.* 2021;4:62-68. (In Russ.).] DOI 10.24412/2071-5315-2021-12394

35 Logitom. *Логистическая регрессия и ROC-анализ – математический аппарат.* 20 января 2020. Ссылка активна на 03.02.2023. [Logitom. *Logistic regression and ROC curve – mathematical apparatus.* 2020 Jan 20. (In Russ.).] <https://loginom.ru/blog/logistic-regression-roc-auc>

36 Министерство здравоохранения РФ. *Временные методические рекомендации. Профилактика, диагностика и лечение новой коронавирусной инфекции (COVID-19). Версия 15 (22.02.2022).* М., 2022. 245 с. Ссылка активна на 03.02.2023. [Ministry of Health of the Russian Federation. *Temporary methodological recommendations. Prevention, diagnosis and treatment of new coronavirus infection (COVID-19). Version 15 (02/22/2022).* Moscow, 2022. 245 p. (In Russ.).] <https://static-0.minzdrav.gov.ru/system/attachments/attaches/000/059/392/original/ВМР_COVID-19_V15.pdf>

37 Yu J, Yuan X, Chen H, Chaturvedi S, Braunstein EM, Brodsky RA. Direct activation of the alternative complement pathway by SARS-CoV-2 spike proteins is blocked by factor D inhibition. *Blood.* 2020;136(18):2080-2089. DOI: 10.1182/blood.2020008248

38 Kozma GT, Mészáros T, Bakos T, Hennies M, Bencze D, Uzonyi B, Győrffy B, Cedrone E, Dobrovolskaia MA, Józsi M, Szebeni J. Mini-factor H modulates complement-dependent IL-6 and IL-10 release in an immune cell culture (PBMC) model: potential benefits against cytokine storm. *Frontiers in Immunology.* 2021;12:642860. DOI: 10.3389/fimmu.2021.642860