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Supplementary table 1: PRISMA checklist

Section and Topic	Item #	Checklist item	Location where item is reported
TITLE			
Title	1	Identify the report as a systematic review.	Title
ABSTRACT			
Abstract	2	See the PRISMA 2020 for Abstracts checklist.	Abstract
INTRODUCTION			
Rationale	3	Describe the rationale for the review in the context of existing knowledge.	Throughout introduction
Objectives	4	Provide an explicit statement of the objective(s) or question(s) the review addresses.	Introduction, last paragraph
METHODS			
Eligibility criteria	5	Specify the inclusion and exclusion criteria for the review and how studies were grouped for the syntheses.	Par. 2.2, 2.3 and 2.5
Information sources	6	Specify all databases, registers, websites, organisations, reference lists and other sources searched or consulted to identify studies. Specify the date when each source was last searched or consulted.	Par. 2.1
Search strategy	7	Present the full search strategies for all databases, registers and websites, including any filters and limits used.	Par. 2.1
Selection process	8	Specify the methods used to decide whether a study met the inclusion criteria of the review, including how many reviewers screened each record and each report retrieved, whether they worked independently, and if applicable, details of automation tools used in the process.	Par. 2.2
Data collection process	9	Specify the methods used to collect data from reports, including how many reviewers collected data from each report, whether they worked independently, any processes for obtaining or confirming data from study investigators, and if applicable, details of automation tools used in the process.	Par. 2.2 and 2.3
Data items	10a	List and define all outcomes for which data were sought. Specify whether all results that were compatible with each outcome domain in each study were sought (e.g. for all measures, time points, analyses), and if not, the methods used to decide which results to collect.	Par 2.3
	10b	List and define all other variables for which data were sought (e.g. participant and intervention characteristics, funding sources). Describe any assumptions made about any missing or unclear information.	Par 2.3
Study risk of bias assessment	11	Specify the methods used to assess risk of bias in the included studies, including details of the tool(s) used, how many reviewers assessed each study and whether they worked independently, and if applicable, details of automation tools used in the process.	Par 2.4
Effect measures	12	Specify for each outcome the effect measure(s) (e.g. risk ratio, mean difference) used in the synthesis or presentation of results.	Par 2.5
Synthesis methods	13a	Describe the processes used to decide which studies were eligible for each synthesis (e.g. tabulating the study intervention characteristics and comparing against the planned groups for each synthesis (item #5)).	Par 2.5
	13b	Describe any methods required to prepare the data for presentation or synthesis, such as handling of missing summary statistics, or data conversions.	Par 2.5, Suppl table 2
	13c	Describe any methods used to tabulate or visually display results of individual studies and syntheses.	Par 2.5, Suppl table 3
	13d	Describe any methods used to synthesize results and provide a rationale for the choice(s). If meta-analysis was performed, describe the model(s), method(s) to identify the presence and extent of statistical heterogeneity, and software package(s) used.	Par 2.5
	13e	Describe any methods used to explore possible causes of heterogeneity among study results (e.g. subgroup analysis, meta-regression).	Par 2.5
	13f	Describe any sensitivity analyses conducted to assess robustness of the synthesized results.	Par 2.6

Section and Topic	Item #	Checklist item	Location where item is reported
Reporting bias assessment	14	Describe any methods used to assess risk of bias due to missing results in a synthesis (arising from reporting biases).	Par 2.4
Certainty assessment	15	Describe any methods used to assess certainty (or confidence) in the body of evidence for an outcome.	Par 2.5, Par 2.6
RESULTS			
Study selection	16a	Describe the results of the search and selection process, from the number of records identified in the search to the number of studies included in the review, ideally using a flow diagram.	Results first paragraph, Figure 1
	16b	Cite studies that might appear to meet the inclusion criteria, but which were excluded, and explain why they were excluded.	Suppl table 2
Study characteristics	17	Cite each included study and present its characteristics.	Suppl table 3
Risk of bias in studies	18	Present assessments of risk of bias for each included study.	Par 3.2.10, Suppl table 4
Results of individual studies	19	For all outcomes, present, for each study: (a) summary statistics for each group (where appropriate) and (b) an effect estimate and its precision (e.g. confidence/credible interval), ideally using structured tables or plots.	Throughout results
Results of syntheses	20a	For each synthesis, briefly summarise the characteristics and risk of bias among contributing studies.	Throughout results
	20b	Present results of all statistical syntheses conducted. If meta-analysis was done, present for each the summary estimate and its precision (e.g. confidence/credible interval) and measures of statistical heterogeneity. If comparing groups, describe the direction of the effect.	Throughout results
	20c	Present results of all investigations of possible causes of heterogeneity among study results.	Throughout results
	20d	Present results of all sensitivity analyses conducted to assess the robustness of the synthesized results.	Par 3.2.9
Reporting biases	21	Present assessments of risk of bias due to missing results (arising from reporting biases) for each synthesis assessed.	Throughout results
Certainty of evidence	22	Present assessments of certainty (or confidence) in the body of evidence for each outcome assessed.	Throughout results
DISCUSSION			
Discussion	23a	Provide a general interpretation of the results in the context of other evidence.	Throughout discussion
	23b	Discuss any limitations of the evidence included in the review.	Strenghts and limitation section
	23c	Discuss any limitations of the review processes used.	Strenghts and limitation section
	23d	Discuss implications of the results for practice, policy, and future research.	Throughout discussion
OTHER INFORMATION			
Registration and protocol	24a	Provide registration information for the review, including register name and registration number, or state that the review was not registered.	Methods, first paragraph
	24b	Indicate where the review protocol can be accessed, or state that a protocol was not prepared.	Methods, first paragraph
	24c	Describe and explain any amendments to information provided at registration or in the protocol.	Strengths and limitation section
Support	25	Describe sources of financial or non-financial support for the review, and the role of the funders or sponsors in the review.	N.A.
Competing interests	26	Declare any competing interests of review authors.	N.A.

Section and Topic	Item #	Checklist item	Location where item is reported
Availability of data, code and other materials	27	Report which of the following are publicly available and where they can be found: template data collection forms; data extracted from included studies; data used for all analyses; analytic code; any other materials used in the review.	Title page

Supplementary table 2: Excluded studies

Reference	Reason for exclusion
Analysis of covid-19 in patients with immunosuppression and kidney transplantation in mexico. Atencion Familiar. 2020;27:25-8.	Foreign language
The impact of comorbidities on clinical course and outcome, in kidney transplant recipients with COVID-19: A systematic review and analysis. Indian Journal of Transplantation. 2020;14(4):275-82.	Wrong study design
Early experience with COVID-19 and solid organ transplantation at a US high-volume transplant center. Transplantation. 2020;104(11):2208-14.	No data for KTR
First Reported Case in Romania of a Successfully Treated Severe COVID-19 in a Kidney Transplant Recipient: A Focus on Acute Kidney Injury. Case Reports in Nephrology and Dialysis. 2020:174-9.	<5 patients included
COVID-19 outcomes among solid organ transplant recipients: A matched case-control study. Hepatology. 2020;72(1):269A-70A.	No data for KTR
Characteristics and outcomes of solid organ transplant patients with COVID-19 at a north texas community based transplant center. Hepatology. 2020;72(1):261A-A.	<5 patients included
Le rôle du registre national REIN en France dans la veille sanitaire des patients en insuffisance rénale chronique terminale infectés par le SARS-CoV-2: organisation et premières données. Néphrologie & Thérapeutique. 2021.	Foreign language
Abu Jawdeh BG. COVID-19 in Kidney Transplantation: Outcomes, Immunosuppression Management, and Operational Challenges. Adv Chronic Kidney Dis. 2020;27(5):383-9.	No outcomes of interest
Ajai C, Mehmet KS, Joaquin M-L, Gordon C, Noa B, Kwee Y, et al. Clinical Features Associated with COVID-19 Outcome in MM: First Results from International Myeloma Society COVID-19 Dataset. 2020.	No data for KTR
Akdur A, Karakaya E, Ayvazoglu Soy EH, Alshalabi O, Kirnap M, Arslan H, et al. Coronavirus Disease (COVID-19) in Kidney and Liver Transplant Patients: A Single-Center Experience. Exp Clin Transplant. 2020;18(3):270-4.	<5 patients included
Akilesh S, Nast CC, Yamashita M, Henriksen K, Charu V, Troxell ML, et al. Multicenter Clinicopathologic Correlation of Kidney Biopsies Performed in COVID-19 Patients Presenting With Acute Kidney Injury or Proteinuria. Am J Kidney Dis. 2021;77(1):82-93.e1.	<5 patients included
Al Azzi Y, Ajaimy M, Liriano-Ward LE, Py dath CT, Campos PL, igam PB, et al. Clinical outcomes of hospitalized kidney transplant recipients with COVID-19 in a predomintly minority population. Jour l of the American Society of Nephrology. 2020;31:277-8.	Duplicate
Alberici F, Delbarba E, Manenti C, Econimo L, Valerio F, Pola A, et al. Management Of Patients On Dialysis And With Kidney Transplant During SARS-COV-2 (COVID-19) Pandemic In Brescia, Italy. 2020.	Duplicate

Alfishawy M, Elbendary A, Mohamed M, Nassar M. COVID-19 Mortality in Transplant Recipients. International Journal of Organ Transplantation Medicine. 2020;11(4):145-62.	Wrong study design
Anft M, Blazquez-Navarro A, Stervbo U, Witzke O, Wirth R, Choi M, et al. PRE-EXISTING SARS-COV-2 REACTIVE T CELLS IN RENAL TRANSPLANT PATIENTS. Transplant International. 2020;33:11-2.	Wrong study design
Angeletti A, Trivelli A, Magnasco A, Drov, i S, Sanguineri F, et al. Risk of COVID-19 in young kidney transplant recipients. Results from a single-center observational study. Clin Transplant. 2020;34(7):e13889-e.	<5 patients included
Antony SJ, Singh J, de Jesus M, Lance J. Early use of tocilizumab in respiratory failure associated with acute COVID -19 pneumonia in recipients with solid organ transplantation. IDCases. 2020(21).	<5 patients included
Aziz F, elbrot D, Singh T, Parajuli S, esh, Garg N, et al. Early Report on Published Outcomes in Kidney Transplant Recipients Compared to Nontransplant Patients Infected With Coronavirus Disease 2019. Transplant Proc. 2020;52(9):2659-62.	Wrong study design
Aziz F, Muth B, Parajuli S, esh, Garg N, Mohamed M, et al. Unusually high rates of acute rejection during the COVID-19 pandemic: cause for concern? Kidney Int. 2020;98(2):513-4.	Wrong study design
Aziz H, Lashkari N, Yoon YC, Kim J, Sher LS, Genyk Y, et al. Effects of Coronavirus Disease 2019 on Solid Organ Transplantation. Transplant Proc. 2020;52(9):2642-53.	No data for KTR
Azzi Y, Bartash R, Scalea J, Loarte-Campos P, Akalin E. COVID-19 and Solid Organ Transplantation: A Review Article. Transplantation. 2021;105(1):37-55.	Wrong study design
Azzi Y, Parides M, Alani O, Loarte-Campos P, Bartash R, Forest S, et al. COVID-19 infection in kidney transplant recipients at the epicenter of pandemics. Kidney Int. 2020;98(6):1559-67.	Duplicate
Bae S, McAdams-DeMarco MA, Massie AB, Ahn JB, Werbel WA, Brennan DC, et al. Early Changes in Kidney Transplant Immunosuppression Regimens During the COVID-19 Pandemic. Transplantation. 2021;105(1):170-6.	Wrong study design
Bell S, Campbell J, McDo ld J, Neill M, Watters C, Buck K, et al. COVID-19 in patients undergoing chronic kidney replacement therapy and kidney transplant recipients in Scotland: findings and experience from the Scottish re l registry. BMC Nephrol. 2020;21(1):419-.	No outcomes of interest
Benotmane I, Gautier-Vargas G, Wendling M-J, Perrin P, Velay A, Bass, et al. In-depth virological assessment of kidney transplant recipients with COVID-19. Am J Transplant. 2020;20(11):3162-72.	Duplicate
Benotmane I, Gautier Vargas G, Velay A, Wendling M-J, Perrin P, Fafi-Kremer S, et al. Persistence of SARS-CoV-2 antibodies in kidney transplant recipients. Am j transplant. 2020.	No outcomes of interest
Binda B, Picchi G, Carucci AC, Sinatti G, Di Norcia M, Grimaldi A, et al. Follow-up and Management of Kidney Transplant Recipients During the COVID-19 Lockdown: The Experience of an Italian Transplant Center, Including Two Cases of COVID-19 Pneumonia. Transplant Proc. 2020;52(9):2614-9.	No outcomes of interest

Bösch F, Börner N, Kemmner S, Lampert C, Jacob S, Koliogiannis D, et al. Attenuated early inflammatory response in solid organ recipients with COVID-19. Clin Transplant. 2020;34(10):e14027-e.	<5 patients included
Boyarsky BJ, Massie AB, Love AD, Werbel WA, Dur, M. C, et al. Early Experiences With COVID-19 Testing in Transplantation. Transplant Direct. 2020;6(7):e572-e.	Wrong study design
Braun G, Villa L, Krueger T, Rauen T, Floege J, Muehlfeld A. OUTCOMES OF COVID-2019 IN RENAL TRANSPLANT RECIPIENTS VERSUS CHRONIC HEMODIALYSIS PATIENTS: ANALYSIS OF A REGIONAL COHORT. Transplant International. 2020;33:12-.	No outcomes of interest
Caillard S, Anglicheau D, Matignon M, Durrbach A, Greze C, Frimat L, et al. An initial report from the French SOT COVID Registry suggests high mortality due to COVID-19 in recipients of kidney transplants. Kidney Int. 2020;98(6):1549-58.	Wrong study design
Caillard S, Anglicheau D, Matignon M, Durrbach A, Greze C, Frimat L, et al. An initial report from the French SOT COVID Registry suggests high mortality due to COVID-19 in recipients of kidney transplants. Kidney Int. 2020;98(6):1549-58.	Duplicate
Chang TS, Ding Y, Freund MK, Johnson R, Schwarz T, Yabu JM, et al. Prior diagnoses and medications as risk factors for COVID-19 in a Los Angeles Health System. 2020.	No data for KTR
Choi M, Bachmann F, Naik MG, Duettmann W, Duerr M, Zukunft B, et al. Low Seroprevalence of SARS-CoV-2 Antibodies during Systematic Antibody Screening and Serum Responses in Patients after COVID-19 in a German Transplant Center. J Clin Med. 2020;9(11).	No outcomes of interest
Christensen J, Kumar D, Moinuddin I, Bryson A, ra, Kashi Z, et al. Coro virus Disease 2019 Viremia, Serologies, and Clinical Course in a Case Series of Transplant Recipients. Transplant Proc. 2020;52(9):2637-41.	<5 patients included
Christensen J, Kumar D, Moinuddin I, Bryson A, Kashi Z, Kimball P, et al. Coronavirus Disease 2019 Viremia, Serologies, and Clinical Course in a Case Series of Transplant Recipients. Transplant Proc. 2020.	Duplicate
Coates PT, Wong G, Drueke T, Rovin B, Ronco P. Early experience with COVID-19 in kidney transplantation. Kidney Int. 2020;97(6):1074-5.	Wrong study design
Cravedi P, Mothi SS, Azzi Y, Haverly M, Farouk SS, Pérez-Sáez MJ, et al. COVID-19 and kidney transplantation: Results from the TANGO International Transplant Consortium. Am J Transplant. 2020;20(11):3140-8.	Duplicate
Cucchiari D, Guillén E, Cofan F, Torregrosa J-V, Esforzado N, Revuelta I, et al. Taking care of kidney transplant recipients during the COVID-19 pandemic: Experience from a medicalized hotel. Clin Transplant. 2020:e14132-e.	Wrong study design
Demir E, Uyar M, Parmaksiz E, Si ngil A, Yelken B, Dirim AB, et al. COVID-19 infection in kidney transplant recipients: A multicenter experience in Istanbul. Jour l of the American Society of Nephrology. 2020;31:284-.	No outcomes of interest
Fernández-Ruiz M, Aguado JM. Immunomodulatory Therapies for COVID-19 in Solid Organ Transplant Recipients. Curr Transplant Rep. 2020:1-11.	No data for KTR

Fava A, Montero N, Cucchiari D, Toapanta N, Centellas J, Vila-Santadreu A, et al. SARS-CoV-2 in Kidney Transplant Recipients: A Multicentric Prospective Cohort Study. 2020.	Duplicate
Gasparini M, Khan S, Patel JM, Parekh D, Bangash MN, Stümpfle R, et al. Renal impairment and its impact on clinical outcomes in patients who are critically ill with COVID-19: a multicentre observational study. Anaesthesia. 2020.	Wrong study design
Gautier SV, Shevchenko AO, Tsirulnikova OM, Khomyakov SM, Kotenko ON, Vinogradov VE, et al. COVID-19 in solid organ transplant recipients: Initial report from national multicenter observational study «rokkor-recipient». Vestnik Transplantologii i Iskusstvennykh Organov. 2020;22(3):8-17.	No data for KTR
Gisondi P, Zaza G, Del Giglio M, Rossi M, Iacono V, Girolomoni G. Risk of hospitalization and death from COVID-19 infection in patients with chronic plaque psoriasis receiving a biologic treatment and renal transplant recipients in maintenance immunosuppressive treatment. J Am Acad Dermatol. 2020;83(1):285-7.	<5 patients included
Gleeson S, Noori M, Lightstone L, Webster P. Lesson for the clinical nephrologist: Kidney transplant, COVID-19 and pregnancy. J nephrol. 2020.	<5 patients included
Golfini I, Delsante M, Fiaccadori E, Zaza G, Manenti L, Degli Antoni A, et al. COVID-19 in kidney transplant recipients. Am J Transplant. 2020;20(7):1941-3.	<5 patients included
González JCG. Early experience with COVID-19 in kidney transplantation recipients: update and review. Int braz j urol. 2020;46:145-55.	Wrong study design
González-Díaz A, Abad-López P, Peña-Vallejo E, Caro-González MP, Calzas-Montalvo C, Gil-Moradillo J, et al. Urological surgery during SARS-CoV-2 pandemic. Descriptive analysis of the experience in a Urology Department across the pandemic phases. Actas Urol Esp. 2020;44(10):665-73.	Wrong study design
Goss MB, Galván NTN, Ruan W, Munoz FM, Brewer ED, Mahony CA, et al. The Pediatric Solid Organ Transplant Experience with COVID-19: An Initial Multi-Center, Multi-Organ Case Series. Pediatr Transplant. 2020:e13868-e.	No data for KTR
Hartzell S, Bin S, Benedetti C, Haverly M, Gallon L, Zaza G, et al. Evidence of potent humoral immune activity in COVID-19-infected kidney transplant recipients. Am J Transplant. 2020;20(11):3149-61.	No outcomes of interest
Hasan I, Rashid T, Suliman S, Amer H, R MCMML, Jarmi T, et al. Predictors of disease severity and outcome of hospitalized renal transplant recipients with COVID-19 infection: A systematic review of a globally representative sample. Rom J Intern Med. 2020.	Wrong study design
Husain SA, Dube G, Morris H, Fern, ez H, Chang J-H, et al. Early Outcomes of Outpatient Ma gement of Kidney Transplant Recipients with Coro virus Disease 2019. Clin J Am Soc Nephrol. 2020;15(8):1174-8.	No data for KTR
Hu Q, Zhong Z, Xiong Y, Ye S, Wang Y, Ye Q. Management of immunosuppression in kidney transplant recipients with COVID-19 pneumonia: A summary of 41 confirmed cases reported worldwide. Transpl Infect Dis. 2020:e13425-e.	Wrong study design

Imam A, Abukhalaf SA, Imam R, Abu-Gazala S, Merhav H, Khalaileh A. Kidney Transplantation in the Times of COVID-19 - A Literature Review. Ann Transplant. 2020;25:e925755-e.	Wrong study design
Jager KJ, Kramer A, Chesnaye NC, Couchoud C, Sánchez-Álvarez JE, Garneata L, et al. Results from the ERA-EDTA Registry indicate a high mortality due to COVID-19 in dialysis patients and kidney transplant recipients across Europe. Kidney Int. 2020;98(6):1540-8.	Duplicate
Johnson KM, Belfer JJ, Peterson GR, Boelkins MR, Dumkow LE. Managing COVID-19 in Renal Transplant Recipients: A Review of Recent Literature and Case Supporting Corticosteroid-sparing Immunosuppression. Pharmacotherapy. 2020;40(6):517-24.	<5 patients included
Kates OS, Fisher CE, Stankiewicz-Karita HC, Shepherd A, a K, Church EC, et al. Earliest cases of coronavirus disease 2019 (COVID-19) identified in solid organ transplant recipients in the United States. Am J Transplant. 2020;20(7):1885-90.	<5 patients included
Katz-Greenberg G, Yadav A, Gulati R, Singh P. Outcomes of COVID-19-positive kidney transplant recipients. Journal of the American Society of Nephrology. 2020;31:281-.	Wrong study design
Katz-Greenberg GYAGMM-CMP, Gulati RALBKSP. Outcomes of COVID-19-positive kidney transplant recipients: A single-center experience. Clinical Nephrology. 2020;94(6):318-.	Duplicate
Kolonko A, Dudzicz S, Wiecek A, Król R. COVID-19 infection in solid organ transplant recipients: A single-center experience with patients immediately after transplantation. Transpl Infect Dis. 2020:e13381-e.	<5 patients included
Krome S. COVID-19: High Mortality after Kidney Transplantation. Transfusionsmedizin. 2020;10(4):193-.	Wrong study design
Mahalingasivam V, Craik A, Tomlinson LA, Ge L, Hou L, Wang Q, et al. COVID-19 and kidney transplantation: A systematic review. 2020.	Wrong study design
Marinaki S, Tsiakas S, Korogiannou M, Grigorakos K, Papalois V, Boletis I. A Systematic Review of COVID-19 Infection in Kidney Transplant Recipients: A Universal Effort to Preserve Patients' Lives and Allografts. Journal of Clinical Medicine. 2020;9(9):2986-.	Wrong study design
Marlais M, Wlodkowski T, Al-Akash S, Ananin P, i VK, Baudouin V, et al. COVID-19 in children treated with immunosuppressive medication for kidney diseases. Arch dis child. 2020.	No data for KTR
Marlais MWTSFTK. 1 COVID-19 in children treated with immunosuppressive medication for kidney diseases. Archives of Disease in Childhood. 2020;105:A1-A.	No data for KTR
Melgosa M, Madrid A, Alvárez O, Lumbreras J, Nieto F, Parada E, et al. SARS-CoV-2 infection in Spanish children with chronic kidney pathologies. Pediatr Nephrol. 2020;35(8):1521-4.	Wrong study design
Mette R, Kasper Bruun K, Anton P, Lars Christian L, Jesper H, Martin Thomsen E, et al. Characteristics and predictors of hospitalization and death in the first 9,519 cases with a positive RT-PCR test for SARS-CoV-2 in Denmark: A nationwide cohort. 2020.	No data for KTR

Molnar MZ, Bhalla A, Azhar A, Tsujita M, Talwar M, Balaraman V, et al. Outcomes of critically ill solid organ transplant patients with COVID-19 in the United States. Am J Transplant. 2020;20(11):3061-71.	No data for KTR
Monfared A, Dashti-Khavidaki S, Jafari R, Jafari A, Ramezanzade E, Lebadi M-K, et al. Clinical characteristics and outcome of COVID-19 pneumonia in kidney transplant recipients in Razi hospital, Rasht, Iran. Transpl Infect Dis. 2020;22(6):e13420-e.	No outcomes of interest
Montagud-Marrahi E, Cofan F, Torregrosa J-V, Cucchiari D, Ventura-Aguiar P, Revuelta I, et al. Preliminary data on outcomes of SARS-CoV-2 infection in a Spanish single center cohort of kidney recipients. Am J Transplant. 2020;20(10):2958-9.	Wrong study design
Moosavi SA, Mashhadiagha A, Motazedian N, Hashemazar A, Hoveidaei AH, Bolignano D. COVID-19 clinical manifestations and treatment strategies among solid-organ recipients: A systematic review of cases. Transpl Infect Dis. 2020;22(6):e13427-e.	Wrong study design
Moris D, Kesseli SJ, Barbas AS. Kidney transplant recipients infected by COVID-19: Review of the initial published experience. Transpl Infect Dis. 2020;22(6):e13426-e.	Wrong study design
Nacif LS, Zanini LY, Waisberg DR, Pinheiro RS, Galvão F, Andraus W, et al. COVID-19 in solid organ transplantation patients: A systematic review. Clinics (Sao Paulo). 2020;75:e1983-e.	Wrong study design
Nacif LSZLY, Waisberg DR, Pinheiro RS, Galvão FAWDLC. COVID-19 in solid organ transplantation patients: A systematic review. Clinics. 2020;75:e1983-e.	Duplicate
Nair V, ovitz N, Abate M, Bhaskaran MC, Nair GD, Molmenti EP. COVID-19 and kidney transplant outcomes. Journal of the American Society of Nephrology. 2020;31:285-.	Duplicate
Nair V, ovitz N, Abate M, Nair GD, Bhaskaran MC, Molmenti EP. Risk factors for mortality in kidney transplant recipients with COVID-19. Journal of the American Society of Nephrology. 2020;31:278-9.	Wrong study design
Oltean M, Søftel, Mackay J, Bagge J, Ekelund J, Felldin M, et al. Covid-19 in kidney transplant recipients: a systematic review of the case series available three months into the pandemic. Infect Dis (Lond). 2020;52(11):830-7.	Wrong study design
Ortiz AET, Walker JB, Velez JCQ, Garces JC. COVID-19 in kidney transplant recipients: Experience from a large health system in Louisiana. Journal of the American Society of Nephrology. 2020;31:754-.	Wrong study design
Pereira MR, Aversa MM, Farr MA, Miko BA, Aaron JG, Mohan S, et al. Tocilizumab for severe COVID-19 in solid organ transplant recipients: a matched cohort study. Am J Transplant. 2020;20(11):3198-205.	No data for KTR
Pereira MR, Mohan S, Cohen DJ, Husain SA, Dube GK, Ratner LE, et al. COVID-19 in solid organ transplant recipients: Initial report from the US epicenter. Am J Transplant. 2020;20(7):1800-8.	No data for KTR
Phanish M, Ster IC, Ghazanfar A, Cole N, Quan V, Hull R, et al. Systematic review and meta-analysis of COVID-19 and kidney transplant recipients, the South West London Kidney Transplant Network experience. 2020.	Wrong study design

Prendecki M, Clarke C, ice, Gleeson S, Greathead L, Santos E, et al. Detection of SARS-CoV-2 Antibodies in Kidney Transplant Recipients. J Am Soc Nephrol. 2020;31(12):2753-6.	No outcomes of interest
Raja MA, Mendoza MA, Villavicencio A, Anjan S, Reynolds JM, Kittipibul V, et al. COVID-19 in solid organ transplant recipients: A systematic review and meta-analysis of current literature. Transplant Rev (Orlando). 2020;35(1):100588-.	Wrong study design
Revuelta I, Santos-Arteaga FJ, Montagud-Marrahi E, Ventura-Aguiar P, Di Caprio D, Cucchiari D, et al. A machine learning-based predictive model for outcome of COVID-19 in kidney transplant recipients. Journal of the American Society of Nephrology. 2020;31:281-.	No outcomes of interest
Rinaldi M, Bartoletti M, Bussini L, Pancaldi L, Pascale R, Comai G, et al. COVID-19 in solid organ transplant recipients: No difference in survival compared to general population. Transpl Infect Dis. 2020:e13421-e.	No data for KTR
Ringer M, Azmy V, Kaman K, Tang D, Cheung H, Azar MM, et al. A retrospective matched cohort single-center study evaluating outcomes of COVID-19 and the impact of immunomodulation on COVID-19-related cytokine release syndrome in solid organ transplant recipients. Transpl Infect Dis. 2020:e13556-e.	No data for KTR
Samira B, Jacqueline C, Jackie M, Chrissie W, Katharine B, Zoe C, et al. COVID-19 in patients undergoing renal replacement therapy in Scotland: findings and experience from the Scottish Renal Registry. 2020.	Duplicate
Sánchez Cadena AD, Negreira Caamaño M, Pérez Serrano R, Porras Leal ML. Intravenous immunoglobulins: A therapeutic alternative to consider in kidney transplant patients with COVID-19. Nefrologia (Madrid). 2020.	Foreign language
Santeusanio AD, Zendel A, Fenig Y, Mahamid A, Bhansali A, De Boccardo G, et al. Kidney transplantation using lymphocyte depleting induction and standard maintenance immunosuppression at the height of the SARS-CoV-2 pandemic in New York City: A single-center experience. Clin Transplant. 2020;34(9):e14055-e.	<5 patients included
Sharma P, Chen V, Fung CM, Troost JP, Patel VN, Combs M, et al. COVID-19 Outcomes Among Solid Organ Transplant Recipients: A Case-control Study. Transplantation. 2021;105(1):128-37.	No data for KTR
Shetty AA, Tawhari I, Safar-Boueri L, Seif N, Alahmadi A, Gargiulo R, et al. COVID-19-Associated Glomerular Disease. J Am Soc Nephrol. 2021;32(1):33-40.	<5 patients included
Shingare A, Bahadur MM, Raina S. COVID-19 in recent kidney transplant recipients. Am J Transplant. 2020;20(11):3206-9.	<5 patients included
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Thaunat O, Legeai C, Anglicheau D, Couzi L, Blancho G, Hazzan M, et al. IMPact of the COVID-19 epidemic on the moRTAlity of kidney transplant recipients and candidates in a French Nationwide registry sTudy (IMPORTANT). Kidney Int. 2020;98(6):1568-77.	Duplicate
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Vinson A, a J, Chong AS, Clegg D, Falk C, Foster BJ, et al. SEX MATTERS - COVID-19 IN KIDNEY TRANSPLANTATION. Kidney int. 2021.	Wrong study design
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Supplementary table 4: risk of bias assessment

Included study reference	1) Representativeness of the exposed cohort	2) selection of the non-exposed cohort	3) ascertainment of exposure	4) demonstration that outcome of interest was not present at start of study	5) comparability of cohorts on the basis of the design or analysis	6) assessment of outcome	7) was follow-up long enough for outcomes to occur	8) Adequacy of follow up of cohorts
	a) truly representative of the avere KTR recipient in the community *; b) somewhat representative of the average KTR in the community *; c) selected group of users eg	a) drawn from the same community as the exposed cohort *; b) drawn from a different score; c) no description of the derivation of the non exposed cohort; d) not applicable	a) secure record (e.g. surgical records) *; b) structured interview *; c) written self report; d) no	a) yes*; b) no	a) study controls for age, gender, comorbidities confounders*; b) study does not control for confounders	a) independent blind assessment*; b) record linkage*; c) self report; d) no description	a) yes, at least 30 days*; b) no	a) complete follow up - all subjects accounted for *; b) subjects lost to follow up unlikely to introduce bias - small number lost - > 90% complete follow-up *; c) follow up rate <90% and no description of those lost;
1	a	d	a	a	b	d	b	a
2	b	d	a	a	b	d	a	a
3	b	d	d	a	a	d	b	a
4	a	d	a	a	a	d	b	d
5	a	d	a	a	a	d	b	a
6	a	d	a	a	a	d	b	a
7	a	d	a	a	b	d	b	c
8	a	d	a	a	b	d	b	d
9	b	d	a	a	b	d	b	a
10	a	d	a	a	b	d	b	c
11	a	d	d	a	b	d	b	c
12	b	d	a	a	a	d	b	c
13	a	d	a	a	b	d	b	a
14	b	d	a	a	a	d	b	c
15	a	d	a	a	a	d	b	a
16	b	d	a	a	b	d	b	b
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21	b	d	a	a	a	d	b	c
22	b	d	a	a	a	d	a	a
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46	b	d	a	a	b	d	b	a
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49	a	d	a	a	b	d	b	a
50	a	d	a	a	b	d	a	a
51	b	d	a	a	b	d	b	a
52	b	d	a	a	b	d	b	a
53	b	d	a	a	b	d	b	a
54	a	d	a	a	b	d	a	a
55	a	d	a	a	b	d	b	a
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57	b	d	a	a	b	d	b	a
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61	b	d	a	a	b	d	b	a
62	b	d	a	a	b	d	b	a
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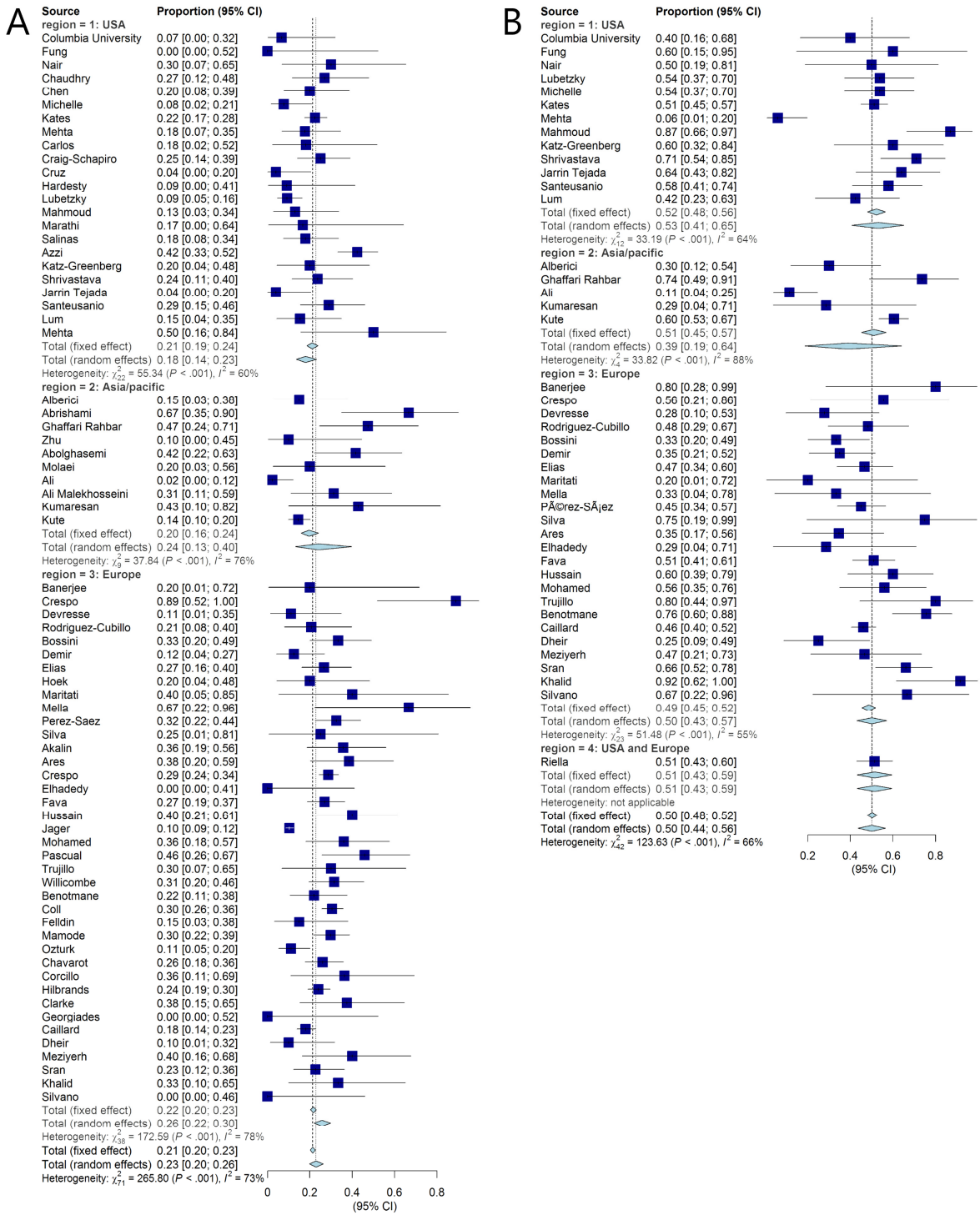
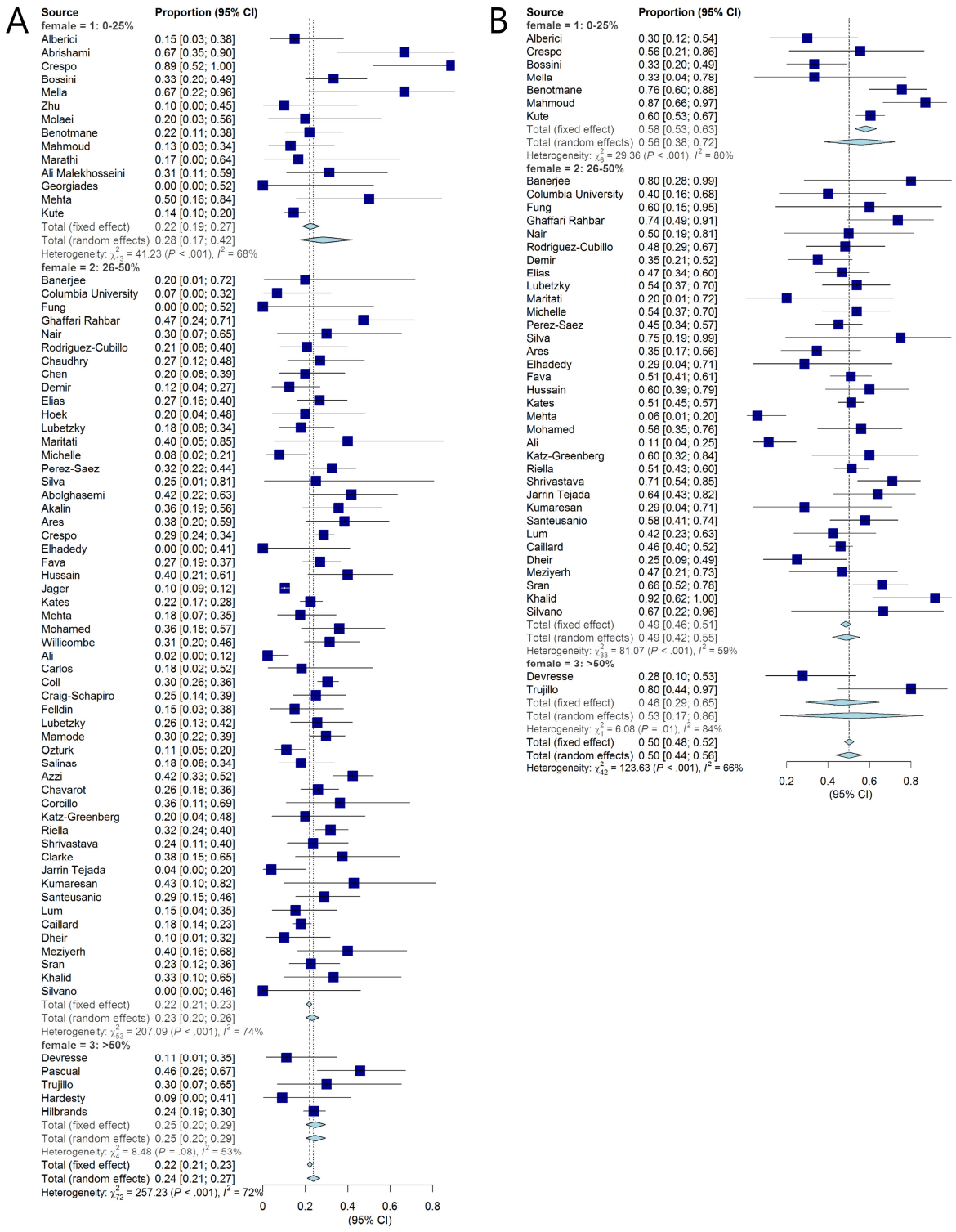
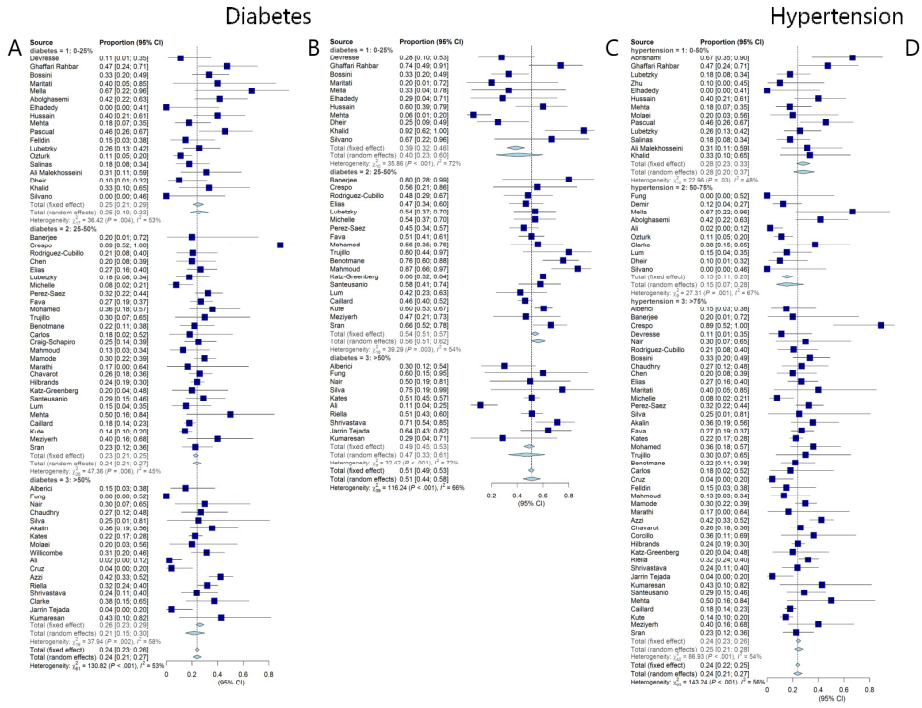


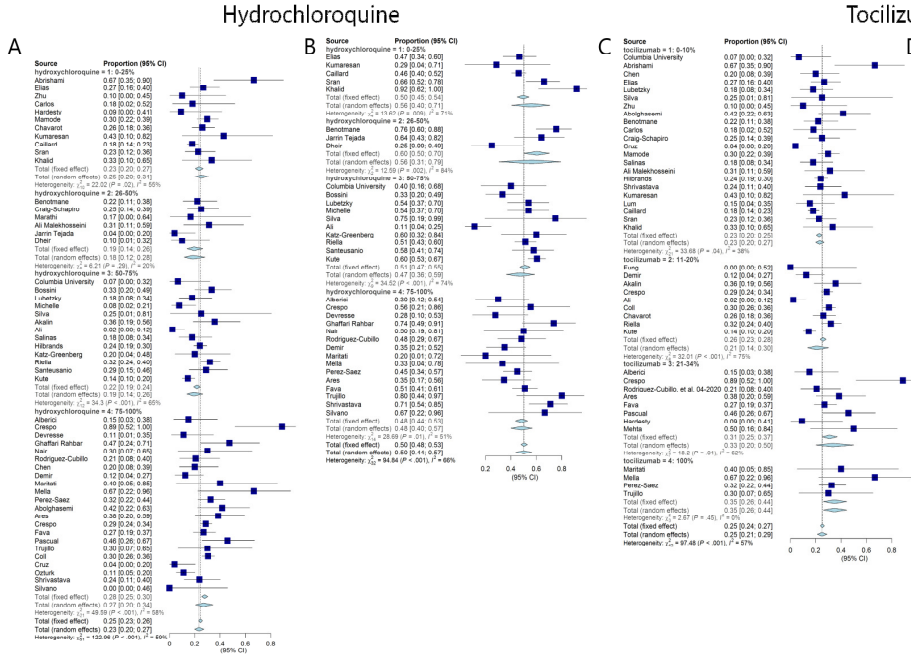
Supplementary figure 1: Outcome of COVID-19 in KTR per region. No significant differences between geographical regions were observed in both (A) mortality or (B) AKI after COVID-19.



Supplementary figure 2: Outcome of COVID-19 in KTR in females and males. No significant differences between groups with different proportions of females and males could be identified for both (A) mortality or (B) AKI after COVID-19.



Supplementary figure 3: Outcome of COVID-19 in KTR with reported comorbidities. Comorbidities do not appear to affect (A, C) mortality rate or (B, D) incidence of AKI in COVID-19 diagnosed KTR.



Supplementary figure 4: Effect of treatment on outcome of COVID-19 in KTR. (A, C) Mortality rates or (B, D) occurrence of AKI were both not significantly affected by hydroxychloroquine or tocilizumab treatment.