Covid-19 and kidney transplantation

Covid-19 is more common in kidney transplant patients or not?

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Review

The Management of Immunosuppression in Kidney Transplant Recipients with COVID-19 Disease: An Update and Systematic Review of the Literature

Roberta Angelico [1,†], Francesca Blasi [1,†], Tommaso Maria Manzia [1,*], Luca Toti [1], Giuseppe Tisone [1] and Roberto Cacciola [1,2]

The risk of developing COVID-19 in transplant patients is reported to be about 5%, being higher than in the general population (0.3%) .risk factors associated with COVID-19 disease in KT recipients are non-white ethnicity, obesity, asthma, chronic pulmonary disease, and diabetes, as in the general population, and in addition, the immunocompromised status and pre-existent kidney disease

Medicina 2021, 57, 435. https://doi.org/10.3390/medicina57050435

Do transplant patients have worsen outcome than general papulation???

KI REPORTS
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CLINICAL RESEARCH

A Systematic Review of COVID-19 and Kidney Transplantation

Viyaasan Mahalingasivam[1], Alison Craik[2], Laurie A. Tomlinson[2], Long Ge[3,4], Liangying Hou[3,4], Qi Wang[3], Kehu Yang[3,5], Damian G. Fogarty[6] and Ciara Keenan[7,8]

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This systematic review of the early literature up to August 11, 2020, suggests that kidney transplant recipients hospitalized with COVID-19 experience poor outcomes, especially in the early post-transplant period. This report highlights the early mortality excess in transplant recipients but medium- and longer-term outcomes remain uncertain and merit careful investigation.

Journal of *Clinical Medicine*

MDPI

Review

A Systematic Review of COVID-19 Infection in Kidney Transplant Recipients: A Universal Effort to Preserve Patients' Lives and Allografts

Smaragdi Marinaki [1], Stathis Tsiakas [1,*], Maria Korogiannou [1], Konstantinos Grigorakos [2], Vassilios Papalois [3,4] and Ioannis Boletis [1]

The main finding of this analysis was that the incidence of COVID-19 among kidney transplant patients is not particularly high, but when they do get infected, this is related to significant morbidity and mortality

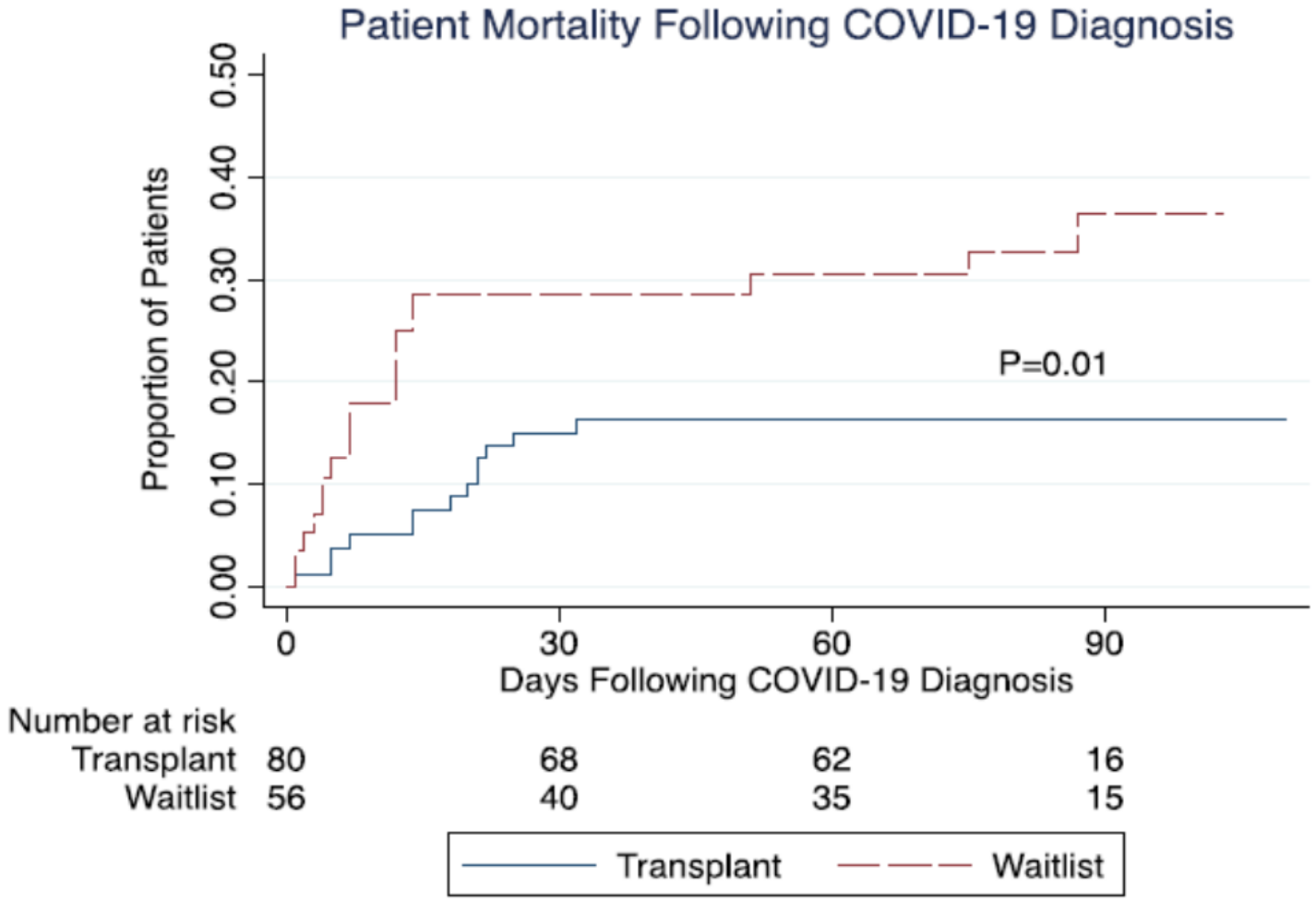
Clin. Med. 2020, 9, 2986; doi:10.3390/jcm9092986

Would be stopped transplantation program in pandemic time?

ORIGINAL ARTICLE

COVID-19 outcomes in patients waitlisted for kidney transplantation and kidney transplant recipients

Rebecca Craig-Schapiro[1] | Thalia Salinas[2] | Michelle Lubetzky[2,3] | Brittany T. Abel[1] | Samuel Sultan[1] | John R. Lee[2,3] | Sandip Kapur[1] | Meredith J. Aull[1,3] | Darshana M. Dadhania[2,3]



The overall case fatality rate was 34% for the waitlisted patients with COVID-19, compared to 16% for the transplant patients

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DOI: 10.1111/ajt.16351

ORIGINAL ARTICLE

AJT

COVID-19 outcomes in patients waitlisted for kidney transplantation and kidney transplant recipients

COVID-19 has had a dramatic impact on patients waitlisted for kidney transplantation, decreasing their opportunities for transplantation and posing significant mortality risk. Understanding the impact of COVID-19 on waitlist patients in comparison to transplant recipients and to the general population can help inform the management of waitlisted patients and aid transplant centers in determining the appropriateness of resuming transplant activity

But

The renal TX program should not be terminated

there are currently no evidence-based guidelines for managing IS regimens in patients testing positive for SARS-CoV-2; there are only expert opinions.

The increased mortality seen in transplant recipients with COVID-19 corroborates the role of diminished T- and B-cell immunity as a predisposing factor for severe infection. To date though, we do not have a level 1 evidence-based strategy to inform immunosuppression management.

era edta

LEADING EUROPEAN NEPHROLOGY

Nephrol Dial Transplant (2020) 35: 899–904
doi: 10.1093/ndt/gfaa130
Advance Access publication 22 May 2020

ndt
Nephrology Dialysis Transplantation

How should I manage immunosuppression in a kidney transplant patient with COVID-19? An ERA-EDTA DESCARTES expert opinion

Asymptomatic patients

no knowledge of COVID-19 status (ambulatory, stable patients):

No change of immunosuppressive medications

Mild diseases:

Mild disease (the patient is alert, has only mild upper respiratory and/or gastrointestinal symptoms, temperature < 38°C, and does not refer symptoms suggestive of COVID-19 pneumonia such as dyspnea, persistent chest pain and intensive cough; if available, oxygen saturation in room air is >95%, respiratory rate < 25/min); no evidence of pneumonia on either chest X-ray or CT.

1- If patient is on triple therapy: STOP MPA /AZA/ mTOR, maintain on dual therapy CNI-steroids.

-

2- If patient is on dual therapy: continue dual therapy. If dual therapy is a steroid-free regimen: for CNI + MPA/ mTORi , consider replacing MPA / mTORi with low dose steroids. If on MPA+ mTORi, consider replacing MPA or mTORi with low-dose steroids.

3-Consider CNI dose reduction (to the lower bound of the therapeutic range according to the immunological risk) if there is no clear improvement over the first 3-5 days.

Patients with evidence of mild COVID-19 pneumonia

oxygen saturation 94-95% in room air, respiratory rate 25-29/min or suspect lesions on chest X-ray or CT scan:

- **If high risk patient(Comorbidities)**

age 70+, or risk factors (diabetes, cardiac or pulmonary disease, heavy smoking, BMI > 30 kg/m2, eGFR <30, lymphocyte depletion therapy within previous 3-6 months):

1 -Stop CNI /MPA/AZA/mTOR
2 -Increase steroid 15-25mg/day

-No high risk

1-STOP MPA/AZA/mTOR, maintain on dual therapy CNI-steroids.
2-reduced CNI (CsA: 50±15 ng/ml, TAC: 3±1 ng/ml).
3-continue steroid in maintenance dose

Severe covid-19 pneumonia

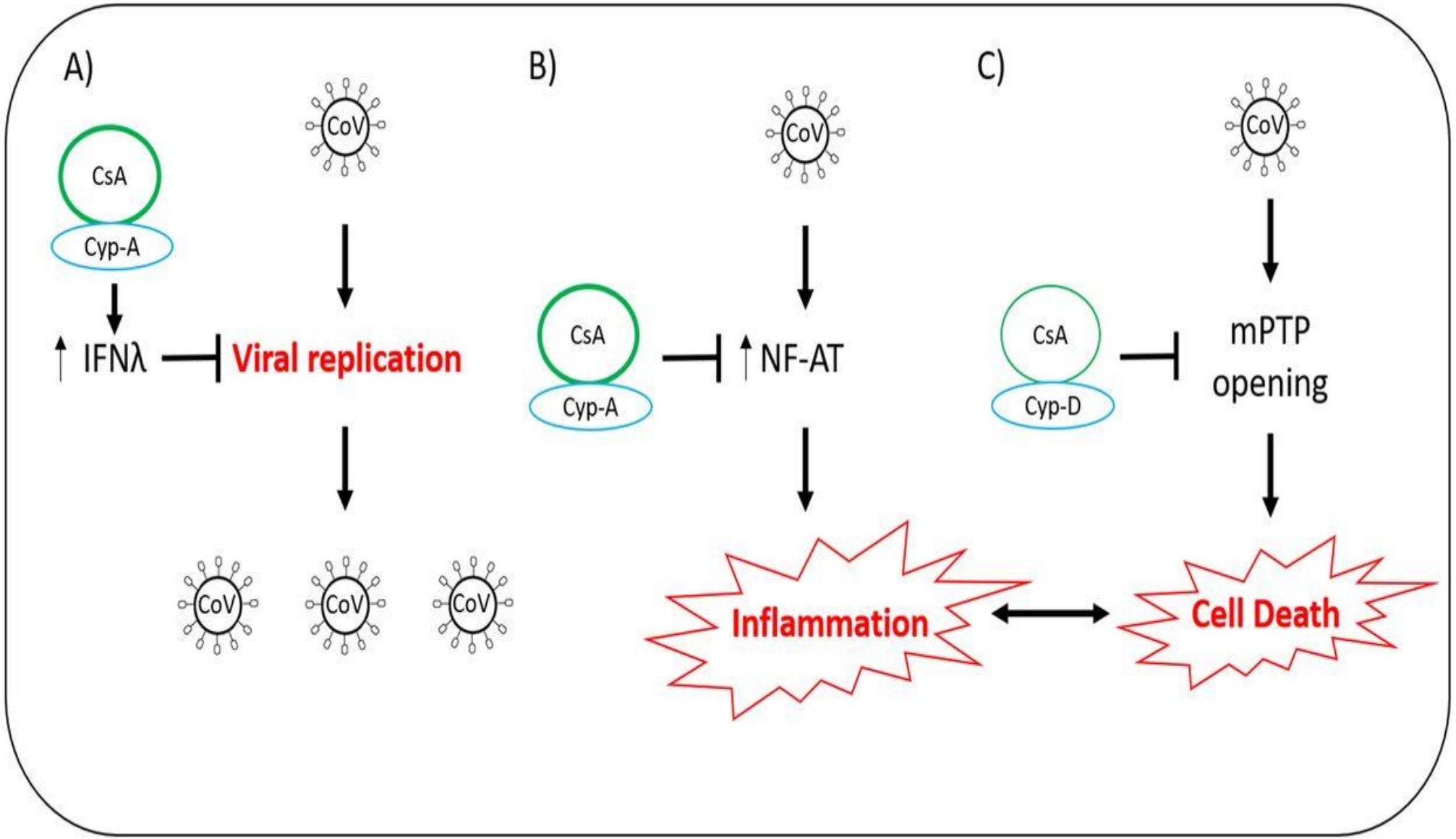
oxygen saturation <94% in room air, respiratory rate ≥30/min), unstable or deteriorating course or requiring non-invasive ventilation or transfer to the intensive care unit (with or without mechanical ventilation):

1-Discontinue all immunosuppressive drugs

2- Steroid at 15-25mg/d

Cyclosporine as a preferred calcineurin inhibitor in renal allograft recipients with COVID-19 infection

J Gen Virol. 2011;92:2542–2548


A)
CsA
Cyp-A
CoV
IFNλ
Viral replication
CoV
CoV
CoV
B)
CoV
CsA
Cyp-A
NF-AT
Inflammation
C)
CoV
CsA
Cyp-D
mPTP
opening
Cell Death

1-CsA binds to cyclophilin A (Cyp-A) and upregulates Interferon lambda (IFNλ) which blocks viral replication.

2- Coronaviruses activate nuclear factor of activated T cell (NF-AT), which triggers the release of inflammatory cytokines and causes inflammation. The CsA-Cyp-A complex prevents the activation NF-AT reducing inflammation.

3- Coronaviruses cause aberrant opening of the mitochondrial permeability transition pore (mPTP), which results in cell death. CsA in complex with cyclophilin-D (Cyp-D) prevents the opening of mPTP reducing cell damage and cell death.

Patients on maintenance belatacept may need to have their monthly dose held especially if they have moderate or severe disease. Therapy could generally be resumed on their previous monthly schedule once they are symptom free

lymphocyte- depleting agents were associated with decreases in rejections but with no significant difference in mortality in the pandemic era, casting doubt on whether the shift in induction immunosuppression was a safe and effective approach to address the novel infectious risk during the pandemic.