

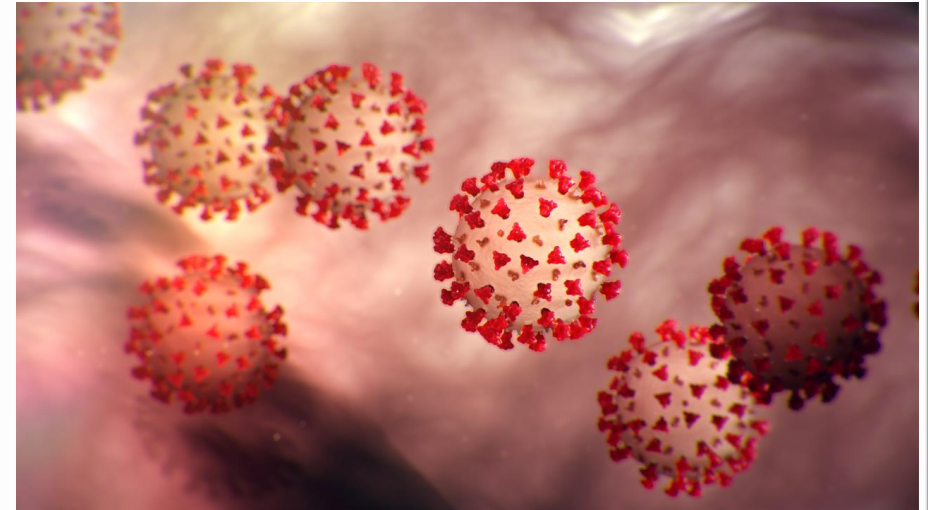
KIDNEY HEALTH FOR ALL
PREPARING FOR THE UNEXPECTED,
SUPPORTING THE VULNERABLE!

CKD and COVID-19

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1401/12/16 - 7/3/2023



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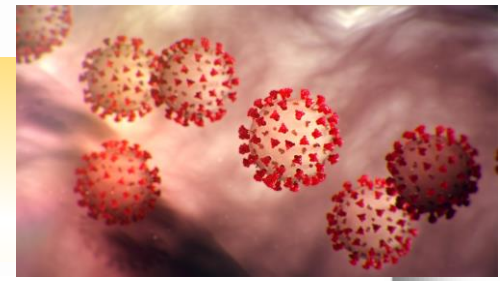
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ESKD and COVID-19



- At the end of 2019, coronavirus 2 (SARS-CoV-2): severe acute respiratory syndrome
- **End -stage kidney disease (ESKD): Severe COVID-19** due to older age and high frequency of comorbidity, such as **diabetes and hypertension,**
- **Mortality** among dialysis patients: **20 percent or greater.**
- **Dialysis at home (HD or PD): lower risk (one half)**
- **Hospitalizations: three- to four-fold greater in hemodialysis than peritoneal dialysis**



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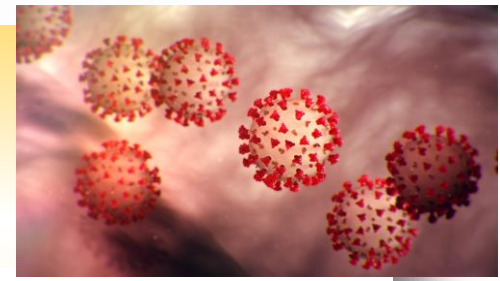


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ESKD and COVID-19

General Measures



- Permit ill health care **personnel to stay home.**
- **Identify patients** with fever, cough, **before they enter** the treatment area.
- Patients should **inform staff** (to call ahead or upon arrival)
- **Facemask** at check-in and should wear it until they leave the facility.
- Provide **instructions**
- Position **hygiene-related supplies** in **close proximity** to **dialysis chairs** and **nursing stations**
- **Separated** from other patients by at least **six feet.**

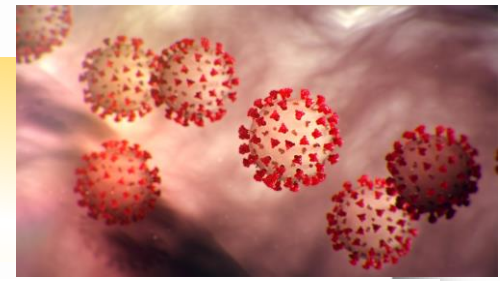


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ESKD and COVID-19



Additional measures for COVID-19

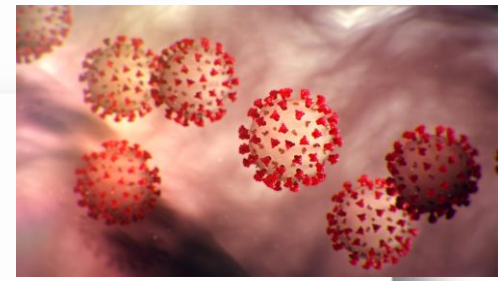
- Same section and/or on the same shift (last shift of the day).
- Influenza and COVID-19 **should not** be cohorted together;
- The health department should be notified about the patient
- Infection Prevention and Recommendations:
 - Personal protective equipment.
 - Routine cleaning and disinfection
 - Any surface, supplies, or equipment (eg, dialysis machine) located within six feet of symptomatic patients should be disinfected or discarded.



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ESKD and COVID-19



Testing for COVID-19:

- Who present with **symptoms** concerning for COVID-19 or at the **discretion of the nephrologist**

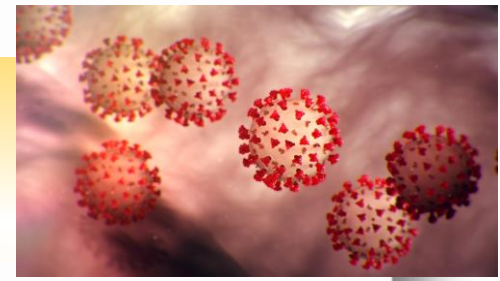


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ESKD and COVID-19



Patients receiving home hemodialysis or peritoneal dialysis

- Limit the number of patients seen in-person
- At least two weeks of dialysis supplies and sufficient medications.
- Patients occasionally may need to be seen in-person for various issues (eg, home hemodialysis training, suspected exit-site infection, suspected peritonitis).
- Cycler should be used for PD, if available.
- **No data** for peritoneal dialysis **effluent is infectious**



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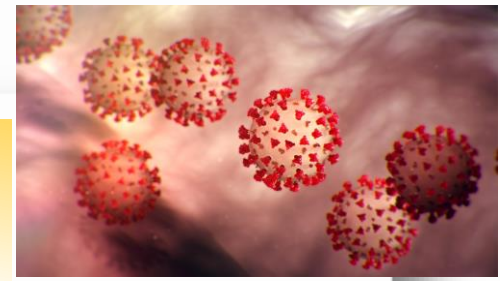
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ESKD and COVID-19



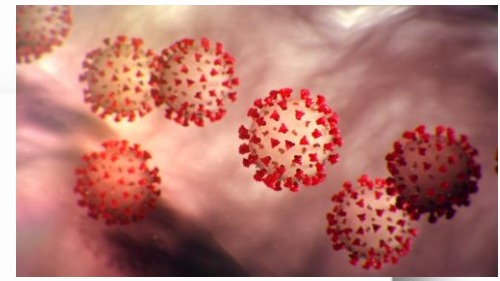
Minimize unnecessary procedures

Placement and maintenance of adequate **dialysis access** (eg, arteriovenous fistula procedures, placement of a peritoneal dialysis catheter) **are essential** and should **not be deferred**.



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ESKD and COVID-19



HOSPITALIZED PATIENTS- Where available:

- Co-localized on a floor.

One dialysis nurse simultaneously deliver dialysis.

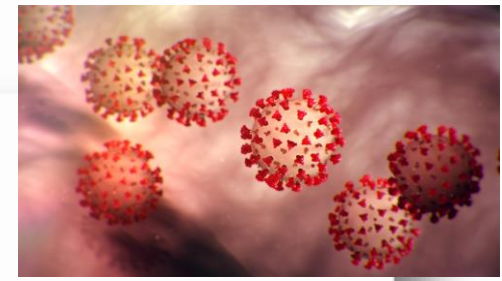
- Dialyzed in their own isolation room
- Telemedicine interfaces with a camera



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ESKD and COVID-19



Use of Erythropoiesis-stimulating Agents

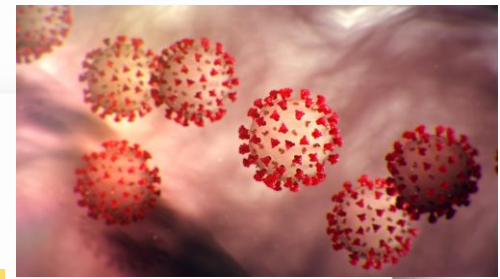
The indications and contraindications are the same as in patients without COVID-19.

ESAs may theoretically increase the prothrombotic risk posed by COVID-19.



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ESKD and COVID-19

Use of Erythropoiesis-Stimulating Agents

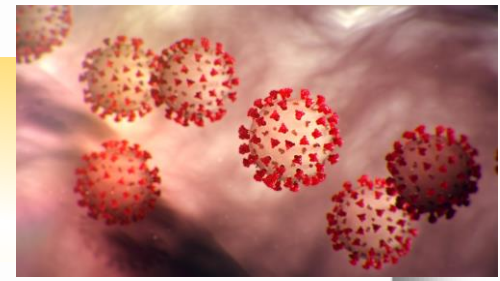
- **Hospitalized** patients: **Hb below 8** g/dL, and then target a hemoglobin of 8 to 9 g/dL.
- **Stable outpatients**: **Hb below 9** g/dL, and then target a hemoglobin of 9 to 10 g/dL.



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ESKD and COVID-19

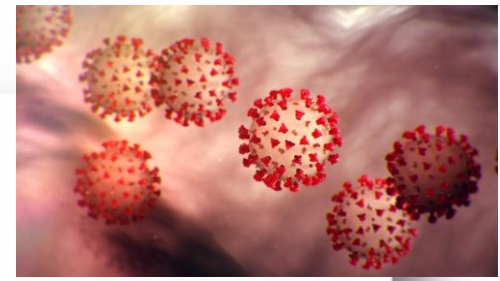


VACCINATION IN DIALYSIS PATIENTS AND PROVIDERS

- All health care staff in dialysis units.
- Lower risk of covid-19;
- Breakthrough infection: hospitalization and mortality rates lower.
- Seroconversion: in the majority of dialysis patients, but rate lower.
- Breakthrough infections more common among antibody titers declined
- Booster: lower risk of SARS-CoV-2 infection



CKD and hypertension in COVID-19



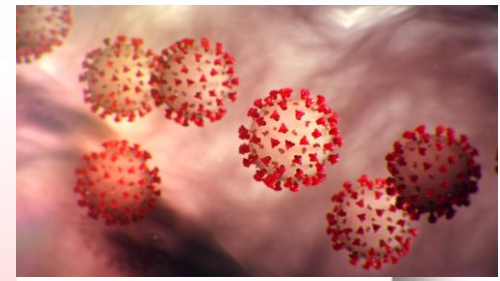
- **More severe COVID-19 disease:** CKD and hypertension
- CKD after AKI in about 16% of COVID-19 patients .

Renin angiotensin system inhibitors

- Patients taking ACE inhibitors or ARBs should continue unless there is a contraindication.



COVID-19 associated glomerular disease



AKI: ATN is the most common

AKI and nephrotic proteinuria:

1. Collapsing focal segmental glomerulosclerosis (**FSGS**), called COVID-associated nephropathy (COVAN), is **the most common GN**,
2. Thrombotic microangiopathy (**TMA**)
3. Antineutrophil cytoplasmic antibody (**ANCA**)-associated vasculitis, anti-glomerular basement membrane (**anti-GBM**) antibody disease, and **IgA** nephropathy



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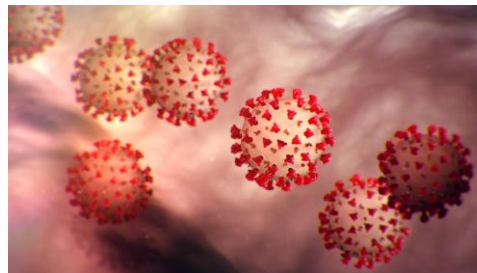


Management of preexisting glomerular disease

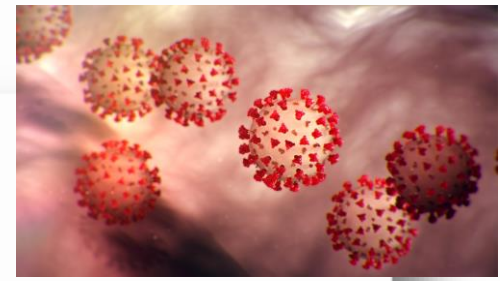
Low risk of acquiring COVID-19:

(limited community transmission and their ability to self-isolate)

- Continue with planned treatment for their glomerular disease.



Management of preexisting glomerular disease..



At risk of acquiring COVID-19:

- 1. Calcineurin inhibitors or hydroxychloroquine: no treatment modification** is necessary.
- 2. Postpone treatment :**
 - **Membranous nephropathy** (uncomplicated N.S. and preserved estimated glomerular filtration rate (eGFR)
 - **IgA nephropathy** without heavy proteinuria, impaired eGFR, or crescents on histopathology
 - **Glomerular diseases** that immunosuppressive therapy is not beneficial (eg, infection-related glomerular disease)



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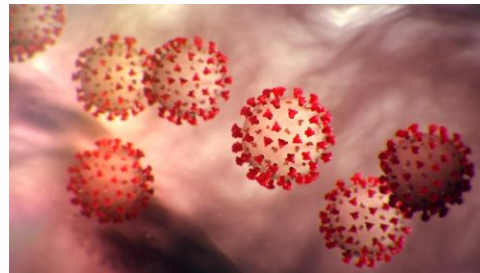


IFKF-WKA



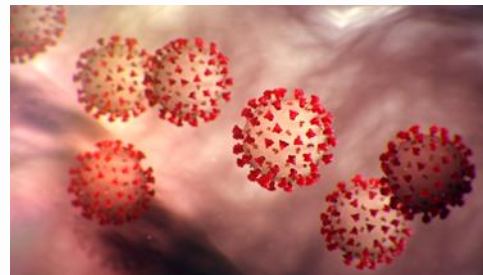
Management of preexisting glomerular disease..

3. **Immunosuppressive therapy** before the pandemic and not yet in remission, **a risk-benefit** assessment is needed.
- Administration of necessary intravenous (**IV**) **infusions at home**.
 - **IV infusions** should be **changed to** equivalent **oral** alternatives.



Management of preexisting glomerular disease..

4. Receiving **immunosuppressive therapy** (antimetabolites) and **suspected or confirmed COVID-19, discontinue antimetabolites for 7 to 10 days** after symptom onset.
5. **Long-term glucocorticoids** and hospitalization for moderate to severe covid-19: **stress-dose glucocorticoids.**

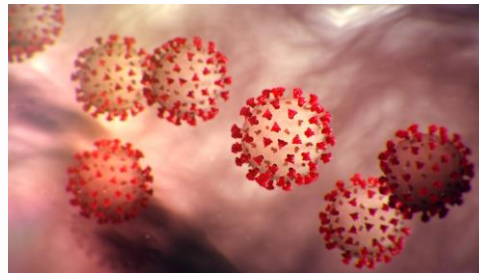


COVID-19 vaccine-associated glomerular disease

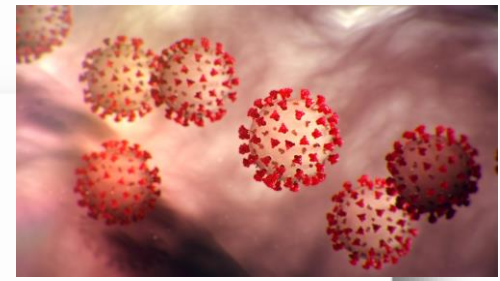
Both de novo glomerular disease and relapse of preexisting **glomerular disease** reported **shortly after** administration of COVID-19 mRNA **vaccines**.

Overall **rare** and a causal link is **not firmly established**.

Data delineating the risks of new onset or relapse of glomerular disease in the setting of COVID-19 vaccination **are sparse**.



COVID-19 vaccine-associated glomerular disease



De novo glomerular diseases:

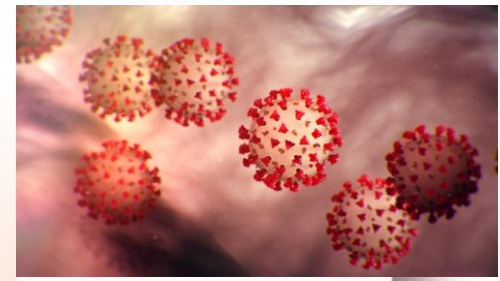
- **IgA** nephropathy
- Anti-neutrophilic cytoplasmic antibody (**ANCA**)-associated vasculitis
- Minimal change disease (**MCD**)
- Anti-glomerular basement membrane (**anti-GBM**) nephritis

Relapse of glomerular diseases:

- **IgA** nephropathy
- Minimal change disease (**MCD**)
- Primary membranous nephropathy (**MN**)
- Complement-mediated thrombotic microangiopathy (**C-TMA**)



COVID-19 vaccination in patients with glomerular disease

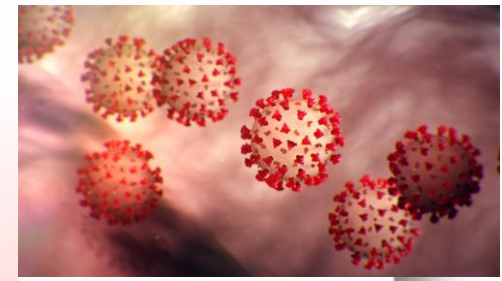


1. Glomerular disease NOT associated with vaccination

- Glomerular disease occurs **>30 days** after an administered vaccine, vaccinations as recommended for the general population.
- If immunosuppressive therapy consists of rituximab and or delaying therapy would be safe, **rituximab four to six weeks after COVID-19 vaccination.**



COVID-19 vaccination in patients with glomerular disease



2. Glomerular disease associated with vaccination

- Disease that **occurs ≤ 30 days** after an administered vaccine, it is possible that an additional dose of the vaccine will **adversely impact** their **kidney function**.

Additional vaccine doses based upon shared decision-making with the patient.

- **Minimal change disease in remission or self-limited IgA nephropathy** could receive an additional dose of vaccine.
- **ANCA-associated vasculitis, C-TMA, or anti-GBM disease** should likely **not receive** an additional dose.



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Take home messages

- ESKD patients are vulnerable to severe COVID-19 due to the older age and diabetes and hypertension.
- HD patients with covid-19 separated from other patients by at least six feet
- Initiate ESA in hospitalized pts.: Hb **below 8 g/dL**, and stable outpts.: Hb **below 9 g/dL**
- Glomerular disease occurs >30 days after an administered vaccine, vaccinations as recommended for the general population.
- Disease that occurs ≤ 30 days after vaccination, it is possible that an additional dose of the vaccine will adversely impact kidney function



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Take home messages

- If delaying therapy would be safe, rituximab four to six weeks after COVID-19 vaccination.
- FSGS is the most common form of COVID-associated nephropathy.
- Glomerular disease shortly after administration of COVID-19 mRNA vaccines is rare.
- Calcineurin inhibitors or hydroxychloroquine: no treatment modification is necessary.
- Receiving antimetabolites and suspected or confirmed COVID-19, discontinue antimetabolites for 7 to 10 days after symptom onset.



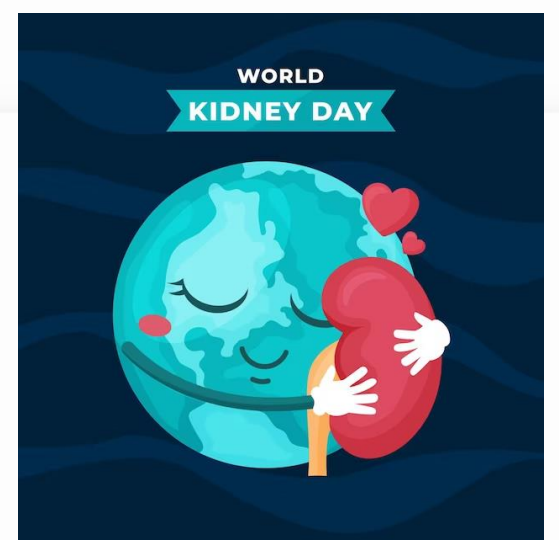
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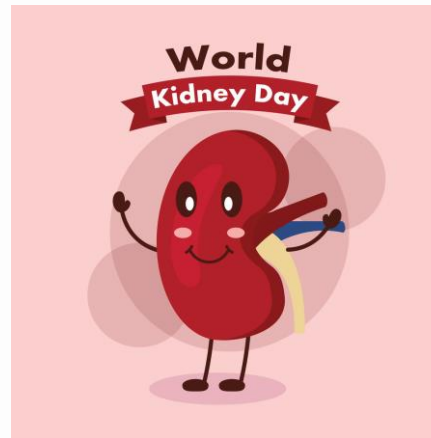
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9 march 2023

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اهمیت کلیه و بیماریهای آن روی بدن است



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