

## Kidney Transplantation

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25% capacity. As of the webinar, his center was operating at 50% volume, doing transplant operations in urgent cases only. For kidney transplantation, they have halted living donor procedures and are doing transplantations only for patients who are highly sensitized and are unlikely to get another offer soon.

“There’s a wide variety in the way people are approaching COVID-19, because no one really seems to know what the right answer is,” nephrologist Andrew Malone, MB, BCh, an assistant professor of medicine at Washington University School of Medicine in St. Louis, told *Kidney News*. “We’re still doing deceased donor transplants for now, but this is in discussion every day. People are thinking of what’s the next step in pulling back, although there’s an argument that there are a group of patients on the transplant waiting list whose risk–benefit would probably favor going ahead and getting a transplant, especially those who are highly sensitized or who have been waiting a long time.”

The University of Maryland School of Medicine in Baltimore, which follows up with about 4000 kidney patients, also has put most kidney transplants on hold, said Matthew Weir, MD, division head of nephrology. Deceased donor operations are proceeding but only in carefully selected cases with a very high likelihood that the kidney will work right away, he said. “We don’t want to keep people in the hospital too long,” he noted. Donors and recipients are tested for COVID-19 before the operation is performed. If patients still want to see Weir in person, he dons a gown, gloves, and mask for the visit. Other patients are seen by telehealth. One of his dialysis units is now a COVID-positive center.

He did recommend a transplantation for one of his re-

cent patients, a 38-year-old woman who had been on the waiting list for 6 years and had an offer of a 5% Kidney Donor Profile Index kidney.

“She might not get another offer like this for years, let alone any other kidney,” Weir said. “I told her with the current testing capabilities, I’d go for it. These are the kinds of questions that come up. It’s a very realistic concern and an issue we have to think about.”

The University of Alabama at Birmingham has gone to 90-plus percent telemedicine visits for kidney patients, said nephrologist Clifton Kew II, MD, a professor of medicine there. He and his colleagues used to see about 30 patients each morning in clinic—a number that has been slashed to four to six. Transplantations are limited there to deceased donor operations as well, and they’re no longer calling in backup patients in case the first intended recipient can’t be operated on. In addition, they’re trying to reduce hospital lengths of stay after surgery, discharging patients home or to a local hotel sooner.

“We’re now doing OK with people with COVID-19, but that could change in 24 hours,” Kew said, noting that the previous week the hospital had gone from four to 40 COVID-19–positive patients overnight. “We don’t know when a whole flotilla of patients may come in, and we may need that room that transplant patient is in. These are very difficult choices that need to be made, but fortunately for kidneys we do have a luxury, and it’s called dialysis.”

Physicians who see transplant patients in the office should consider masking them as soon as they arrive, even if they’re not sick, and rushing them into a room to avoid having them touch areas that may have been touched by other people, advised Marian Michaels, MD, MPH, a professor of pediatrics and surgery at the University of Pittsburgh School of Medicine

Some hospitals have seen transplant recipients among their COVID-19 patients. During the webinar, participants noted that University of Washington Medicine had

five transplant recipients, including one who had received a kidney 20 years prior. The 54-year-old man was an inpatient for 13 days before being discharged home, Limaye said. The ASST Papa Giovanni XXIII hospital in Bergamo, Italy, had six COVID-19 patients who had received heart transplants, said Attilio Iacovoni, MD, FESC, of the heart transplantation unit there. Of those, two were in the hospital, two were being treated on an outpatient basis, and two had died.

“The key message is COVID-19 is very aggressive in immunosuppressed patients, and they could get it easily,” Iacovoni said. “If you have an outbreak in your hospital, think twice before treating those with immunosuppression raging.”

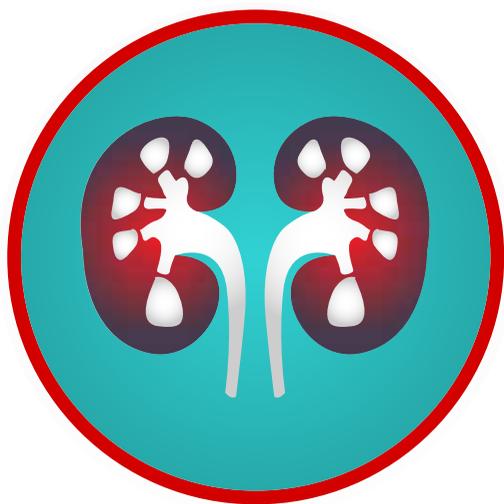
Unsurprisingly, kidney patients have been placing many calls to their physicians and transplantation centers, wondering what to do. Some have concerns about cold or virus symptoms like runny nose or fever, and others have asked to be prescribed antiviral medications, said Kew.

“Basically, the advice we give to patients is very similar to what is out there for the general population: Stay away from other people, especially if they’re sick. Wash your hands. Try to limit contact with others as much as possible,” he said. “That’s about the best we can do for them.”

The American Society of Transplantation has COVID-19 resources on its website, including frequently asked questions for transplantation professionals and for transplant recipients and candidates, and a link to the Town Hall webinar: see <https://www.myast.org/covid-19-information>. The ASN has compiled additional resources at <https://www.asn-online.org/ntds/>. ■

### Reference

1. Kumar D, et al. COVID-19: A global transplant perspective on successfully navigating a pandemic [published online ahead of print March 23, 2020]. *Am J Transplant* doi: 10.1111/ajt.15876.



## Managing AKI during a Pandemic

By Karen Blum

**R**enal replacement therapy (RRT) should be initiated for acute kidney injury (AKI) patients who have life-threatening complications and are not responding to medical management, said Anitha Vijayan, MD, FASN, including those with volume overload and respiratory failure, hyperkalemia, or metabolic acidosis. But be wary of aggressive fluid resuscitation, said Vijayan, a professor of medicine at Washington

University School of Medicine in St. Louis.

She noted there is no data yet to support early initiation of RRT in COVID patients.

Available RRT modalities that may be employed include continuous renal replacement therapy (CRRT), prolonged intermittent renal replacement therapy (PIRRT), or intermittent hemodialysis, she said. CRRT is the preferred modality in hemodynamically unstable patients, and it is recommended that nephrologists use the established CRRT modality at their home institutions. There is no need to buy a different machine than what your hospital has, but more machines may be needed, according to COVID projections for your city and hospital, Vijayan noted.

PIRRT may be performed either with intermittent hemodialysis or CRRT machines. It can last from six to 12 hours, does not need 1:1 hemodialysis nursing, and allows one machine to be used for two to three patients, Vijayan said. To dose PIRRT, use a 20 mL/kg/hour dose for 24 hours, divided by the number of hours you are planning to treat the patient. Treating 10 hours or fewer allows time for cleaning the machine and using it for additional patients, she said.

Anticoagulation during CRRT/PIRRT in COVID patients with AKI is essential, Vijayan added. If there are no contraindications, use heparin, either via machine circuit or systemically. Citrate may also be used, but its use is nursing-intensive and there is a risk for patient safety. If a center does not already use citrate, Vijayan suggested not starting a new protocol at this time. In addition, hemodialysis catheters normally placed by nephrologists and intensivists may need to be placed by other providers, given shifting workforce needs. She noted the importance of the correct length to ensure adequate blood flow and reduce clotting and suggested creating a cheat sheet to be used by others that includes appropriate lengths.

“This is a critical time everywhere—we’re all trying to figure out how to conserve resources,” Vijayan said.

Among the suggestions for conserving resources are the following:

1. For intermittent hemodialysis, consider the shortest duration that achieves metabolic and volume control and minimize 1:1 nurse time in the room.
2. Delay RRT if possible in patients whose COVID tests are pending, which can conserve PPE.
3. Use high-dose diuretics in AKI patients, with binders to lower potassium.
4. Decrease flow rates in CRRT after metabolic control has been achieved to save fluids.
5. Cross-train nephrologists and additional nurses if necessary to help set up or monitor patients undergoing dialysis.

If resources or capacity for acute dialysis and continuous venovenous hemodiafiltration has been exceeded, nephrologists can turn to peritoneal dialysis (PD), said Jeffrey Perl, MD, SM FRCPC, an associate professor of medicine at the University of Toronto and St. Michael’s Hospital. PD uses less nursing time with direct patient exposure. But there are some concerns to keep in mind, he said: PD has less predictable fluid removal rates, a critical care treatment team may be uncomfortable with the therapy, complications include peritonitis or catheter leaks, and there can be a deleterious impact on respiratory biomechanics in patients on a ventilator.

PD for AKI requires a team approach, buy-in from the care team and nursing expertise, as well as careful, and perhaps more restrictive, consideration of candidates, Perl said.

Vijayan and Perl spoke about their experiences during an ASN webinar about hospital care and treatment options for COVID-19–positive patients. ■