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How Was Kidney Care Reshaped by the COVID-19 Pandemic?

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Kidney Int Rep (2022) **7,** 2119–2121; https://doi.org/10.1016/j.ekir.2022.07.166

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Since the World Health Organization announced the emergence of several cases of pneumonia in Wuhan City, Hubei Province, China, a debate on the efficiency of health care systems has captured the attention of a broad audience worldwide. Early reports of the COVID-19 infection focused much attention on the immediate febrile respiratory symptoms. Further developments revealed a complex multisystem disease with a wide range of clinical manifestations. Therefore, initially, few could foresee the changes the pandemic would impose on kidney care globally.[1]

With numerous countries instituting nationwide lockdowns, many individuals became suddenly deprived of elective primary and specialized health care assistance, thus imposing a great burden on those with uncontrolled comorbidities. Patients with chronic kidney disease were particularly vulnerable presenting an increased risk for progression to later stages of chronic kidney disease, hospitalization, and mortality. Among hospitalized patients, several pathophysiology hypotheses were speculated trying to uncover the causes of the high incidence of acute kidney injury. In this context, one of the most impactful chapters would be written by patients in need of renal replacement therapy (RRT).[2,3]

Changes in major social and economic determinants of health led to a global shift in the causes of morbidity and mortality to chronic noncommunicable diseases. Though kidney diseases are currently believed to affect about 850 million people worldwide, most of these individuals lack access to proper prevention, detection, or treatment strategies.[4] Consequently, health care systems, which were already challenged by a global increase in the number of patients in need of RRT, were about to be further confronted by the effects of the COVID-19 pandemic. The additional increments of patients, either due to an increased rate of acute kidney injury in patients at intensive care units or to an increased number of patients with resulting chronic kidney disease, further exposed the worldwide fragilities at preventing, detecting, and treating kidney diseases.[5] To better understand how the COVID-19 pandemic shaped kidney care globally, the Dialysis Outcomes and Practice Patterns Study (DOPPS) and the International Society of Nephrology (ISN) collaborated on an unprecedented venture, which surveyed dialysis centers across the globe, Figure 1.

WHAT HAVE WE LEARNED?

Using a combination of sampling approaches, and guaranteeing anonymized reporting, the DOPPS ISN collaboration effort surveyed dialysis centers in 78 countries from all 10 ISN regions (Africa, Eastern and Central Europe, Western Europe, Middle East, Newly Independent States and Russia, Northeast Asia, South Asia, Southeast Asia and Oceania, North America and Caribbean, and Latin America).

The effect of the COVID-19 pandemic on hemodialysis (HD) centers was depicted by Aylward *et al*.[6] In most centers surveyed, especially in Africa (37%) and Latin America (33%), diagnostic testing was not widely available. Limited access to testing might explain why isolation policies were difficult to implement to reduce the spread of the SARS-CoV-2 infection. The availability of personal protective equipment and the rate of infection in the nephrology workforce were also of concern. Personal protective equipment shortages were commonly reported not only due to an increase in demand but also because of interruptions in supply chains. Some regions reported more than half of their staff being infected with SARS-CoV-2, which resulted in workforce overload,

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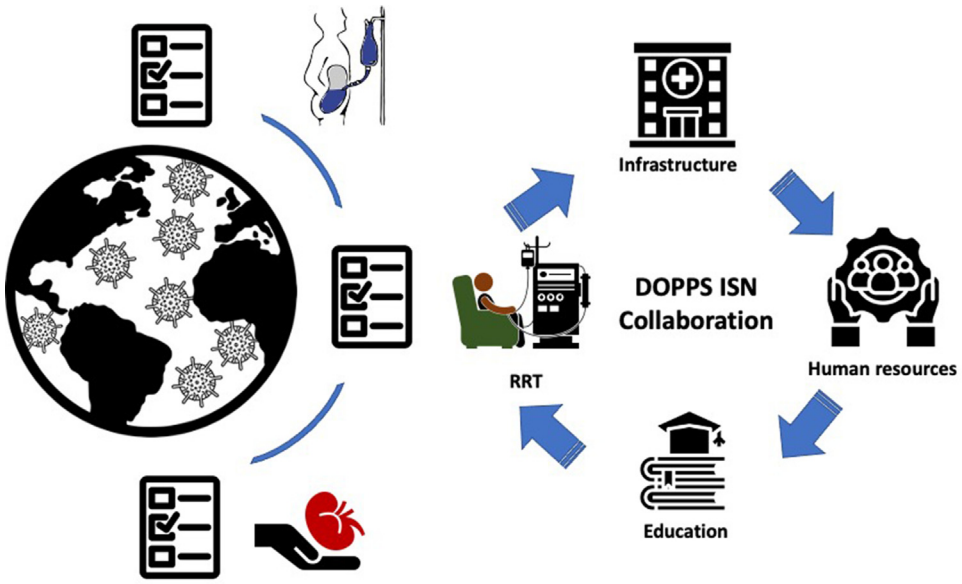

Figure 1. The effect of COVID-19 pandemic on global kidney care: DOPPS and the International Society of Nephrology collaboration effort surveyed dialysis centers across the globe to uncover how kidney care was reshaped during the COVID-19 pandemic. RRT, renal replacement therapy; DOPPS, dialysis outcomes and practice patterns study.

especially in places where the capacity to provide RRT was already at its limit. Globally, 29% of respondents reported redeployment of dialysis center staff to other clinical areas during the pandemic. Overall, mental health and well-being services were only made available to staff in 48% of HD centers. Because elective procedures were suspended in most locations, renal transplantation was seriously affected.

To uncover global inequities in HD care delivery during the COVID-19 pandemic, the results reported by Aylward *et al*.[6] were further developed by Tannor *et al*.[7] Access to effective and sustainable kidney care remains highly unbalanced across the globe, reflecting the fact that preventing, detecting, and treating kidney diseases is still a low priority in several countries. Socioeconomic factors were analyzed with an emphasis on the care provided to vulnerable chronic HD patients across regions, particularly in low-income countries (LICs) and lower-middle-income countries (LMICs). Data comparing LICs/LMICs to upper-middle-income countries and high-income countries suggested that the global imbalances in RRT have become even worse during the pandemic. The authors captured a higher incidence of missed HD treatment sessions among patients living in LICs and LMICs. Similarly, the availability of intensive care unit care and mechanical ventilation among hospitalized patients on chronic dialysis with COVID-19 were reportedly limited in LICs and LMICs. Access to testing and personal protective equipment were also identified as critical issues reported by the respondents from LICs and LMICs.

During the COVID-19 pandemic, peritoneal dialysis (PD) became an RRT method of renewed and special interest. Because it is conceptually a home-based therapy, patients with suspected or confirmed COVID-19 could be isolated at home without occupying an isolation ward for dialysis. In addition, compared to HD, patients' chances of getting into contact with other people or going to health care facilities could be reduced, thereby minimizing the risk of COVID-19 infection. These benefits were counterbalanced by an increased risk of supply shortages and the need for an effective monitoring strategy. In a paper published in this issue of KI Reports, Albakr *et al*.[8] describe how the pandemic introduced challenges related to PD on supply availability and routine patient care. In this study, the Peritoneal Dialysis Outcomes and Practice Patterns Study (PDOPPS) and ISN administered a web-based survey to 165 PD facilities in 51 countries. During the COVID-19 pandemic, disruptions in PD supply delivery were reported by PD facilities in Africa and South Asia. The use of masks, which occurred routinely during PD exchanges, was reinforced throughout the pandemic. Reductions in laparoscopic surgical procedures for PD catheters were reported by facilities in 9 of 10 regions, whereas nonsurgical percutaneous procedures increased in facilities in 6 regions. Surprisingly, training of new PD patients declined in each region. Increased use of remote technology by patients to communicate with clinics was observed in all regions compared to prepandemic levels.

Measuring, reporting, and comparing outcomes are one of the most important steps toward

rapidly improving outcomes and generating value in health care. In this regard, the publications resulting from the DOPPS ISN collaboration greatly contributed to a better understanding of how the COVID-19 pandemic shaped kidney care globally, providing evidence of worldwide deficiencies in resource allocation, infrastructure, and human resources. The collaboration was able to capture a wide global variation in SARS-CoV-2 infection rates among HD patients and health care staff who, under unprecedented pressure, lacked psychological support. Striking global inequities were identified in the care of chronic HD and PD patients disproportionally affecting LLMICs. This worldwide mismatch between supply and demand in medical resources echoed the current dominant health care model where ineffective supply chains and fragmented care are validated by the practice of measuring the wrong things the wrong way.[9]

In conclusion, the DOPPS ISN collaboration provided a benchmark, pointing out clear opportunities where governments and policymakers should focus efforts to improve kidney care. Reaching a sustainable, equitable and high-value kidney care environment must become the overarching goal in the health care ecosystem. To achieve this, investments in infrastructure, locally produced supplies and human resources are vital, particularly in LMICs. Telemedicine and other remote modes of patient communication on a larger scale should also be fostered to leverage improvements in the care of patients in need of RRT. Providing education should be seen as part of a strategic plan to offer integrated care to patients with kidney diseases. Taken together these factors constitute some of the key ingredients for building capacity and filling the gaps in kidney care globally.

DISCLOSURE

The author declared no conflicts of interest.

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