Covid-19: Why the Kidney Care is so much Affected?

In December 2019, a series of cases of pneumonia of unknown origin were reported in Wuhan, the capital city of Hubei province in China. The causative virus was isolated and characterized in January 2020.[1] On January 12, 2020, the World Health Organization (WHO) named the virus as the 2019 novel coronavirus (2019-nCoV). On January 30, 2020, the WHO issued a public health emergency of international concern (PHEIC) and on February 11, 2020, the WHO formally named the disease caused by the novel coronavirus as coronavirus disease 2019 (COVID-19). The International Committee on Taxonomy of Viruses classified and renamed 2019-nCoV as severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). On March 11, 2020, the WHO labelled the global spread of COVID-19 as a pandemic.

Though to start with the COVID-19 primarily had respiratory symptoms as presenting features, soon it was realized that it is a systemic disease involving other organs of the body also like heart, nervous system, liver, blood vessels and kidney. Later it became clear that some of the patients may present with non-respiratory symptoms. Host susceptibility, particularly elderly and peoples with underlying diseases, hypertension, cardiac diseases, bronchial asthma, diabetes, chronic kidney disease (CKD) etc., influence the risk of acquiring and progression of COVID-19.

There are three issues related to kidney diseases and COVID-19.

Firstly, pre-existing kidney diseases, including hypertension, CKD, a glomerular disease requiring immunosuppressive therapy, the patients on dialysis, and with kidney transplants are all immunocompromised patients and risk of getting COVID-19 is not only more but also clinical manifestation may be atypical. Also, the primary aetiology of CKD being diabetes and hypertension make these patients at further risk of severe COVID-19 and poorer outcome.

Secondly, SARS-CoV-2 can also affect the kidney. The mechanism of kidney injury by COVID-19 appears multifactorial, although precisely, remains unknown.[2] The direct viral cytopathic effect on kidney tissue is a postulated mechanism, which is supported by the finding of viral nucleic acid material of CoV in blood and urine in SARS-CoV as well as the patients with COVID-19.[3] The direct effector T-cell-mediated injury and the immune complex-mediated glomerular injury with viral antigen and specific antibody could be another plausible mechanism. The other mechanism could be by inducing sepsis and the cytokine storm theory.[4] The cytokines and other mediators are released after COVID-19 infection leading to sustained inflammatory response leading to hypotension, hypoxia, shock, and target organ injuries. The incidence of AKI with COVID infection reportedly varies from 3% to 9%. A larger prospective study reported the overall incidence of 5.1%.[5] Li *et al*.[6] found that 34% of the patients had albuminuria on the first day of admission, and 63% developed proteinuria during the hospital stay.

Thirdly, due to various measures taken by local government and policymakers regarding containment of COVID-19, providing kidney care to patients became a significant issue. Lockdown had resulted in difficulty in getting life-saving medicines for CKD, glomerular disease and kidney transplant. Elective surgeries, including elective living-related renal transplant and also elective CAPD catheter insertion, were practically cancelled across the country by the government policy to divert human resources and other facilities in COVID-19 care. Deceased donor transplant, though considered an emergency procedure had also come to halt. Providing haemodialysis became a challenge. Pre-dialysis testing for COVID-19, dialysing in the isolation room, preventing COVID-19 among dialysis patients and staff and non-availability of dialysis consumables, all became challenges and controversies. Panic resulting in the closing of some of the dialysis units temporarily had further increased the problems.

With such a scenario in the country, the Indian Society of Nephrology constituted a COVID-19 Task Force* to address these issues to guide the colleagues in the best way to handle the situation of patients of kidney disease while balancing the ground realities and government policies. Country's leading nephrologists were put on board to write on different issues related to caring of patients of various kidney diseases and those manuscripts have been put in the symposium in the current issue.

We hope that these documents will be useful to the colleagues for better management of the situation and patient care.

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Access this article online

Quick Response Code:

Website: www.indianjnephrol.org

DOI: 10.4103/ijn.IJN_228_20

How to cite this article: Agarwal SK, Prasad N. Covid-19: Why the kidney care is so much affected? Indian J Nephrol 2020;30:141-2.

Received: 20-05-2020; **Accepted:** 20-05-2020; **Published:** 10-06-2020.

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