



The impact of Covid-19 pandemic on the chronic kidney disease patients in Mumbai Maharashtra, A observational study

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Abstract

COVID-19 is first and foremost a human tragedy, Mumbai Maharashtra was the worst hit state due to COVID-19 Nursing homes, Government Hospitals soon became defunct. Chronic Kidney Failure (CKD) patients who were on dialysis were the most affected group during this pandemic. Sudden lockdown in Mumbai had disrupted 1.3 million people and limited the accessibility of CKD patients to the healthcare facility, patients started running from pillar to post to find a hospital for dialysis. Public transport local train service came to standstill. A observational cross-sectional study on a group of 68 participants who were diagnosed with CKD and were on dialysis registered with a tertiary care private- hospital in south Mumbai was conducted. Patient feedback was recorded in a semi structured format covering all the aspects of Individuals socio demographic logistic financial & clinical aspects. Out of 68 participants 38 (55.9%) were Male and 30 (44.1%) were female, aged between 25 to 72years. Results confirmed out of 68 cases, 59(86.8%) were married the mean age of the patients was 53.9 + 13.7 years, out of 68 (99.5%) almost every participant had complaints of on and off fever, cough, anxiety and weakness, Out of 68 participants 20 (29.4%) became COVID-19 positive. 19(27.9%) were taking dialysis 3 times per week and 49 (72.1%) were on twice a week dialysis. 01 participant discontinued dialysis because of non-availability of transport financial constraint and other went to his hometown. Study concluded that there is an urgent need to establish a regional contingency plan for the treatment and management of CKD patients in the context of a major public health emergency.

Keywords: Covid-19, lockdown impact, Mumbai Maharashtra, chronic kidney disease, dialysis, financial burden

Introduction

The prevalence of SARS - COV 2 and the disease it cause (COVID - 19) is increasing worldwide, with more than 107 million cases worldwide & 10 million cases in India, COVID - 19 is a pandemic declared by the World Health Organisation (WHO) with the first recorded case in Wuhan, China. Since then, it has spread rapidly to other areas of the world [1]. People who are infected Human-to-human transmission occurs most often via droplets produced by coughing, sneezing and talking and contaminated hand and surface [2]. The median incubation period is approximately 4-5 days and 97.5% of patients develop symptoms within 11-12 days [3]. Common symptoms include fever, cough, fatigue, shortness of breath and loss of smell and taste. While most are asymptomatic or have mild symptoms, only few develop acute respiratory distress syndrome, multi organ failure and septic shock, possibly precipitated by a cytokine storm [3]. The standard method of diagnosis is by real time reverse transcription polymerase chain reaction (RT- PCR) from a nasopharyngeal swab with a positivity rate of 71%. (2) Till date, there are many ongoing trials of antiviral therapy or vaccine for COVID - 19 in progress [4].

The disease results from infection with severe acute respiratory syndrome coronavirus-2 (SARS-CoV-2), and it results in multi-organ injury including the kidneys. The disease has unique implications for patients developing acute kidney injury (AKI), as well as patients with chronic kidney disease (CKD) or end stage kidney disease (ESKD) and kidney transplant recipients

(KTR). Children with Chronic kidney disease (CKD) are a high risk group highly susceptible to SARS -COV-2 due to underlying disease and poor immunity. [5, 6].

The purpose of this review is to analyze the impact of lockdown on the chronic kidney disease patients in Mumbai, Maharashtra.

Materials and Methods

An observational cross-sectional study was conducted among the adult population in a tertiary care private- hospital in south Mumbai. Permission was obtained from the ethics committee of the hospital and HOI. Participants feedback was recorded in a semi structured format covering all the aspects pertaining to the lockdown impact during COVID-19 participants socio demographic detail like age gender, marital status and location which was spread from south to north central and western suburbs of Mumbai was included. Feedback was obtained via face to face during dialysis and through one to one telephonic calls, informed consent was taken, aim of the study was shared, confidentiality of every participant was maintained, Participants experience pertaining to day today difficulty of getting transport, to reach to the dialysis Centre, cost and duration of dialysis, burden of COVID-19 testing was recorded.

Statistical Analysis

SPSS version 22.0. Continuous variables such as age of the participants and age were summarized as mean (standard

deviation [SD]) based on normality in distribution. Categorical variables such as gender, socioeconomic class, presenting complaints of fever, cough, anxiety and weakness, no. of dialysis in a week, no of missed dialysis, and reason of missing dialysis due to transport, non-availability of dialysis center, financial factor, cost of dialysis before & after lockdown, exposure to COVID-19, and cost of COVID-19 testing, and status of planned transplant surgery either it was performed or was cancelled.

Results

This observational study on COVID-19 lockdown impact on dialysis patients was done among the adult population of Mumbai covering all 4 zones central, western, harbor & suburb. There were 68 participants out of which 38 were Male and 30 were female, aged between 25 to 72years, participant feedback pertaining to lockdown impact on dialysis was recorded. Out of 68 cases, 59(86.8%) were married. The mean age of the patients was 53.9 + 13.7 years. Out of 68 registered participants (99.5%), almost every patient complained of on and off fever, cough anxiety and weakness all had fear of getting infected with COVID-19, study confirmed out of 68 participants 20 (29.4%) became positive for COVID - 19. Out of the total 68 participants 19 (27.9%) were taking dialysis 3 times per week and 49 (72.1%) were on twice a week dialysis. Out of 68 participants 01(1.4%) discontinued dialysis because of non-availability of transport financial constraint and another went to his hometown, 03 (4.4%) participants have prepared for Kidney Transplant surgery but it got cancelled because almost every hospital had suspended organ transplant and deceased donation programme during pandemic (Table 1 Figure 1&2).

Table 1: Summary of Study Description of Chronic Kidney disease patients.

Variables	Frequency	Percentage	
Gender	Male	38	55.9%
	Female	30	44.1%
Marital Status	Married	59	86.8%
	Unmarried	9	13.2%
Complaint of on and off Fever, Cough, Anxiety & weakness		68	99.5%
No. Of dialysis per week before lockdown	2 times	49	72.1%
	3 times	19	27.9%
No. of dialysis per week after lockdown	1 times	1	1.4%
	2 times	48	70.6%
	3 times	19	27.9%
COVID - 19	Exposed	20	29.4%
	Un exposed	47	69.1%
Burden of COVID - 19 Testing	Once a Month	68	99.5%
Planned Kidney Transplant Before Lockdown	Yes	3	4.4%
	No	64	94.1%

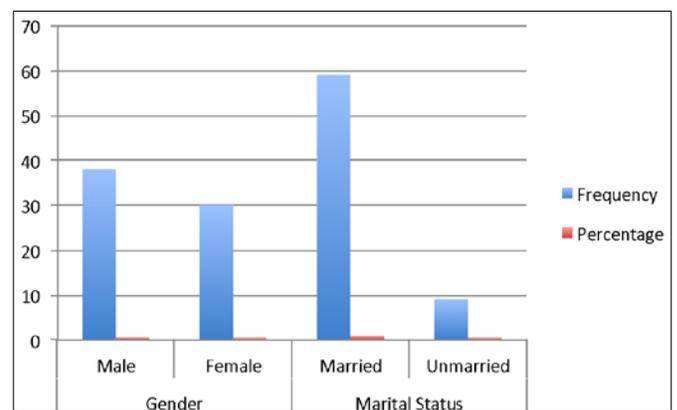


Fig 1: Demographic characteristics of Chronic Kidney disease patients.

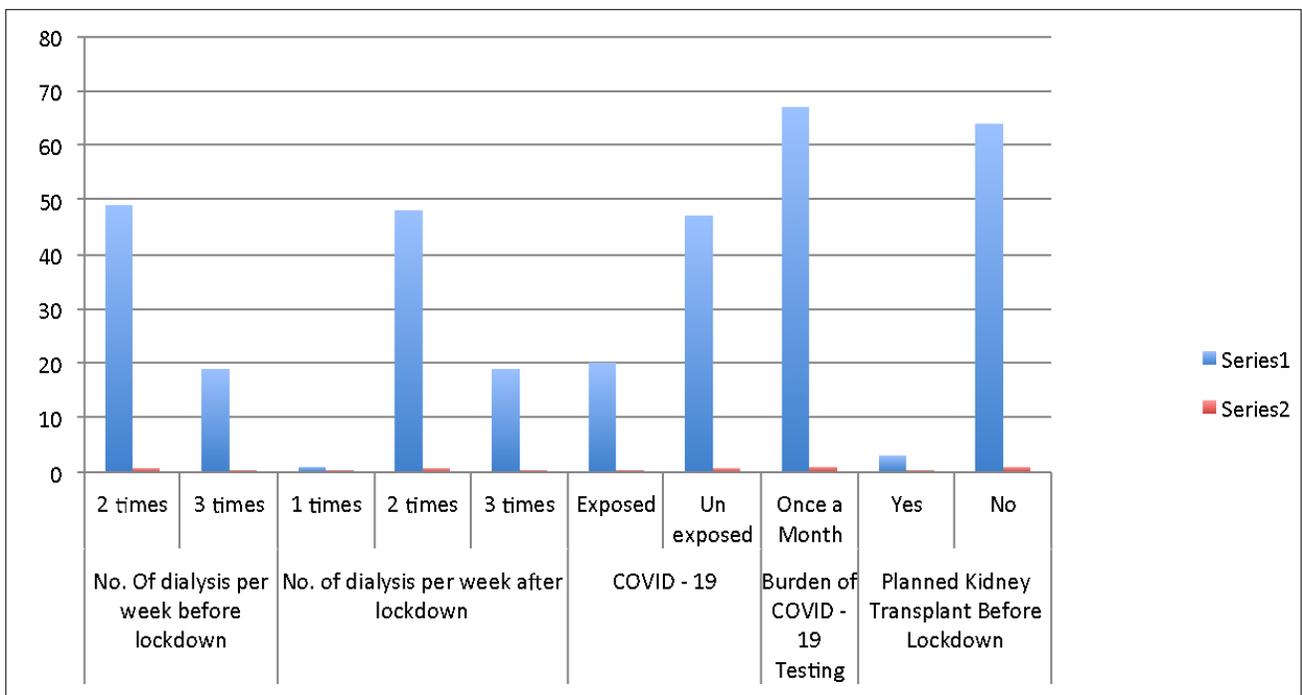


Fig 2: Study Description of Chronic Kidney disease patients.

Discussion

Due to COVID shift of healthcare staff was changed from 8 hours to 6 hours accordingly duration of dialysis was also changed from 4 hours to 3 hours 30 minutes. Every patient was charged for PPE accordingly cost of dialysis was increased from Rs 2010 to 2110. COVID-19 testing cost was a huge burden for every patient initially and the hospital demanded to check RT-PCR every week which was changed to once a month and in between if there are any symptoms of fever, cough or cold.

COVID-19 being the new disease not many data is available to highlight this issue especially of one state, In our study out of 68 almost every participant had complaints of on and off fever, cough, anxiety and weakness, Impact of COVID-19 on dialysis patients in Indian Scenario a small study on 37 kidney failure patients was done in Mumbai India, out of which 56.7% of patients were asymptomatic and 27% had severe symptoms of COVID-19 recovery rate was 63% those who had severe disease succumbed to the infection and 30% patients presented with extended dialysis break, social and logistic issues. Though the study was limited to a very few number of cases and only in one hospital the overall burden of disease on patients, care givers, health care and logistic issues were expected to get worse as the pandemic continued to spread. [7].

COVID-19 pandemic had affected healthcare services badly with conformity in reduction of numbers of organ donation and transplant activity across the world a comparative study over a 3 month period on organ donation and liver transplant cases between 3 states United States, United Kingdom & India was conducted between 17th February to 17th May 2020, this was compared with their previous year's activity study confirmed of reduction in 25% in United States and 80% reduction in United Kingdom and in India, study concluded anecdotal reduction in organ donation and liver transplantation cases in all 3 states for deceased and living donation between all 3 states. (Reddy *et al* 2020).

In our study out of 68 participants 39(56.9%) were in the age group of 55 years and above and were at high risk of COVID-19, Study shares detail of peer reviewed articles which was searched between January To April 2020, it was found that patient above age of 65 years with comorbidities are more prone to get infected from COVID-19 they have more risk of hospitalization & mortality rate, article also throws light on the behavior of virus which made its way all over the world had affected people of every country irrespective of their ethnicity & gender and is still at the rising trend, people who have underlying comorbidities are more at risk, virus causing severe respiratory distress condition, multi organ failure leading to death. [9].

Summary of Day today difficulties during Lockdown faced by CKD Patients

Addition to the above finding participants also shared his/her personal difficulties faced during lockdown important was,

- Transportation cost was a huge financial burden on every participant; services of local trains were shut patients were left with no choice except to travel by road accordingly cost varied for all participants from location to distance.
- Hassles from traffic department because of the lockdown only essential service staff was permitted to travel patients who were on dialysis were stopped at almost every signal, and were asked to produce travelling pass every time at some

occasion if they forgot to carry their passes they were not allowed to travel until the telephonic confirmation received between the police and the hospital staff all this use to result in a delay of dialysis cycle.

- In spite of the documented fact that kidney failure patients especially old age have pre and post dialysis complaints of breathlessness and weakness, and during COVID-19 almost all of them had complaints of on and off fever cough anxiety and weakness and they all needed an attendant to accompany during travelling but because of the lockdown they were forced to travel alone.
- Cost of COVID-19 testing was a huge burden on every patient, hospital policy kept changing initially they were asked to do it every week, later it changed to once a month and in between if any symptoms.

Conclusion

We are all aware of the fact that the COVID-19 disease management is still under scrutiny lack of theoretical approach and standard guidelines for the treatment of CKD patients during and after COVID-19 especially who are on dialysis needs to be worked upon. COVID - 19 has a unique challenge, many problems in the management of Chinese patients with CKD have been exposed, indicating the need to establish a regional contingency plan for CKD patients treatment and management. CKD patient being already immunocompromised needs to be dealt with lot of care, high time for the nephrology society to steps in and take the initiative to optimize safety of our patient and plan a treatment protocol based on the patient presentation, severity of disease usage of antiviral anticoagulants and immunosuppressant drugs, if healthcare systems which is already burdened by the pandemic, the nephrologists should come forward and formulate this much needed policy unfortunately despite the highest risk, CKD is not considered as a co morbidity that weighs down the patient's chances to access ICU care or a respirator.

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