



CLINICAL PROFILE OF THE CHRONIC KIDNEY DISEASES PATIENTS WITH COVID 19 PRESENTED IN DEDICATED COVID HEALTH CENTRE IN HIMACHAL PRADESH.

General Medicine

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ABSTRACT

BACKGROUND: We are facing one of the worst pandemic which originated from Hubei province in China known as COVID-19. The causative agent was a new enveloped beta-corona virus 2 known as Severe acute respiratory syndrome corona virus-2 (SARS-CoV 2). Clinical profile of COVID- 19 patients has been well described in other study but the data about clinical characteristics of patients of COVID-19 with CKD as co morbidity is sparse. **METHODS:** Retrospective Case series of CKD patients diagnosed with COVID-19. **RESULTS:** This series reports 12 patients of CKD of which 7 were on maintenance hemodialysis admitted in Covid ward between October 2020 through December 2020. 8 were male and 4 were female. Amongst 12 patients 3 were admitted with cough, 5 with fever and dyspnea and 4 with dyspnea. 11 of them were on oxygen therapy. 7 of these patients (58.3%) were discharged while 5 patients (41.7%) succumbed to their illness. **CONCLUSIONS:** CKD as co morbidity among COVID 19 patients need early detection and better supportive measures.

KEYWORDS

CKD, COVID 19, Clinical Profile, Kidney disease, SARS CoV-2

INTRODUCTION:

COVID 19 is caused by SARS-CoV2 was started in December 2019 in the Wuhan province of China. On 11th march, 2020 the WHO declared COVID-19 as a pandemic disease.¹ SARS-CoV2 mainly affects respiratory system. Patients can experience a range of clinical manifestation, from no symptoms to critical illness. The common symptoms of COVID-19 are fever, cough, fatigue, shortness of breath, sore throat and diarrhea.²

In SARS-CoV2 infection multi-organ involvement of heart, kidney, pancreas and liver are reported. COVID -19 has been reported severe in patients with underlying co morbidity. Chronic kidney disease patients have several conditions that make them target population for the virus that is old age, co morbidities and a frail immune system. In a descriptive study in Spain that have included more than 20,000 people, CKD in COVID-19 has been found to be directly related to mortality.³ Clinical profile of COVID- 19 patients has been well described in other study but the data about clinical characteristic of patients with CKD and COVID-19. The aim of this study was to describe clinical and lab characteristic of CKD patients admitted in our hospital.

MATERIALAND METHODS:

This was a retrospective case series conducted in zonal hospital Dharamshala (Dedicated Covid Health Centre in Himachal Pradesh) of patients admitted in Covid ward between October 2020 to December 2020. Confirmed COVID-19 cases were on basis of RT PCR and RAT in nasopharyngeal and oropharyngeal swab samples, admitted in dedicated COVID-19 wards, of zonal Hospital, Dharamshala during the study period were included (n=12). The chief complaints of patients were fever, shortness of breath and cough. The subjects were analyzed for biochemical and clinical profile and outcome. All the patients were treated as per set protocols for the disease. Patient's outcome included discharge from hospital which was good outcome and referral and death which was considered as bad outcome.

STATISTICALANALYSIS:

Data collected was transferred into MS Excel spreadsheet for analysis. Mean and standard deviation were calculated for continuous variable while categorical variables were expressed in term of frequencies and proportions using epi info 7. Independent student t test were used to compare means with p valueless than 0.05 being kept statistically significant.

RESULTS:

A total of 12 patients were included in this study out of which 8(66.7%) were male and 4 (33.3%) were female. The mean age of patients was 54.58±16.03, amongst which the patient with bad prognosis was more elder than of good prognosis as in table 1. 7 amongst 12 patients were on maintainance hemodialysis.

3 patients were admitted with cough, 5 with fever and dyspnea and 4 with dyspnea.

The mean Hb of patients with bad outcome was 7.15+/- 1.05 and with good outcome were 8.31 +/- 1.76. leucocytosis (>10,000) was found in patient with bad outcome. , as shown in table 1. lymphocytopenia (<20%) was seen in both groups but was more severe in patients with bad prognosis. Liver enzymes like SGOT and SGPT were also raised but were less than 3 times the upper limit. The patients with poor outcome had a mean creatinine and urea values higher than those of patients with good outcome as shown in table 2. The difference in urea value among the groups was statistically significant (p value 0.009). COVID is known to cause cytokine storm in the body and there is increase in the inflammatory markers of the body. The inflammatory markers which were studied were ferritin and d-dimer as shown table 2. The difference in ferritin amongst the group was statistically significant (p value was 0.049). 11 patients were on oxygen therapy and 1 patient was on room air Amongst 12 patients 7 were discharged, 4 died and 1 was referred to higher centre in view rapid fall in oxygen saturation in spite of best possible.

TABLE 1 Age and biochemical profile of CKD patients:

	Prognosis		Overall	p-value
	Recovered/ discharged	Referred/ Died		
Age	51.14±19.63	59.40 ± 8.87	54.58±16.03	0.40
Hb	8.31±1.76	07.15±1.05	7.83± 1.56	0.22
TLC	8914.2±3119.52	10880±1839.02	9733.3± 2749.9	0.23
NEUTROPHIL	82.70±8.40	89.58±1.50	85.56 ± 7.20	0.10
LYMPHOCYTE	11.32±8.31	6.44±1.30	9.29 ± 4.54	0.06
PLATELETS	161.14±84.60	179.40±100.50	168.75±87.5	0.74
SGOT	65±80.11	48.00±20.18	57.92±61.04	0.65
SGPT	42.29±42.1	49.80±20.8	45.42±33.83	0.72
UREA	161.86±69.85	296.60±71.84	218± 96.71	0.00
CREATININE	7.14±3.86	9.78±4.77	8.24± 4.27	0.31

TABLE 2 Blood Marker of the CKD patients

	Prognosis	Referred/ Died	Overall	p-value
	Recovered/discharged			
FERRITIN	833.15±342.99	1893.75±1194.84	1218.8±886.1	0.04
D-DIMER	1.08±0.53	2.49±2.31	1.59±1.51	0.14

DISCUSSION:

Patients with chronic kidney disease (CKD) are known to have a higher risk of upper respiratory tract infection and pneumonia due to their persistent pro-inflammatory state with functional defects in innate and adaptive immunity⁴. No study so far has found that chronic kidney disease is statistically correlated with severe COVID-19. However, a significant association of CKD with severe COVID-19 was observed when data of different studies were combined⁵.

This study included 12 Covid-19 affected patients with the median age being 54.58 years, which was closest to that reported by Wang et al⁶ (56.0 years), Chen et al⁷ (55.5 years). 11 patient were on oxygen therapy in our study similar to study by Chen et al where most of the patients requiring oxygen support were above 55 years of age, thus demonstrating that elder patients were more likely to have lung injury and require ventilator support.⁷

The male preponderance was more than female in our study which can be explained by more visit of male outside their home to society as compare to females.

Leucocytosis was seen more with people with bad prognosis. And it has been shown in various studies that leucocytosis may lead to poor prognosis.

Henry et al has found that an increased WBC count, decreased lymphocyte and raised IL-6 and ferritin were strongest indicator as associated with poor prognosis.⁸ We nearly observed the same trend in our study.

COVID-19 has been associated as a hypercoagulable state leading to thromboembolism in severe disease. The hypercoagulable state was measured by D-dimer which was raised in both group but more in patients with poor prognosis.

Amongst 12 patient 7 were on hemodialysis and the patients who were on dialysis four (57.1%) had poor prognosis whereas 3 were discharged. Among 5 patient who were not on mhd 1 (20%) had poor prognosis and 4(80%) were discharged. These parameters indicated that patient with ckd who were on hemodialysis had more severe disease and poor prognosis as compare to those who were not on mhd.

CONCLUSION:

We described 12 patients with CKD among which 7 were on maintenance hemodialysis who developed COVID-19. CKD has been considered as risk factor for COVID infections and subsequent mortality. However studies have shown that early detection and better supportive measures could improve the status of these patients. Our small series confirm that COVI 19 affect CKD patient, but the prognosis may be quite good if prompt supportive measures are applied. These findings should be confirmed in larger cohorts.

CONFLICT OF INTEREST: None

FINANCIAL SUPPORT AND SPONSORSHIP: None

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