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Research Article

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Clinical Profile and Outcome of Renal Transplant Patients with Covid 19

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ABSTRACT

INTRODUCTION : COVID 19 a pandemic caused by SARS CoV 2 has caused a wide impact globally. Clinical spectrum of COVID 19 ranges widely including asymptomatic infection, mild upper respiratory tract infection, severe pneumonia, ARDS, MODS and even death. According to Centres for disease control and prevention(CDC) immune compromised patients including patients on immune suppression post organ transplantation are high risk for severe disease from infection with SARS CoV 2. **MATERIALS AND METHODS:** A study was conducted on 24 Post renal transplant patients infected with COVID 19 who were admitted in hospitals attached to BMCRI. History was taken, general and systemic examination was done. Patients' demographic data, clinical history and examination, lab investigations and radiological investigations, treatment given were assessed. Patients were categorized into mild, moderate and severe illness and followed up daily until outcome. **RESULTS:** The study included 24Post renal transplant patients infected with COVID 19, of which2 were females and 22 males. Of which mean age was 43.83 with standard deviation of 12.67.9 patients had mild, 4 had moderate and 11patient had severe disease. Of all the patients 10 died and 14 discharged. 2 patients were asymptomatic, most common symptom was cough(19) followed by fever (18). In severe patients inflammatory markers were elevated, with mean values D dimer 1.67, CRP-183, LDH-616. Mean Urea(106.4) and creatinine (2.39)values were higher in severe disease. Higher D dimer and CRP associated with worse outcome. **CONCLUSION:** With increasing number of renal transplants being performed, immune compromised state as a risk factor of COVID 19 infection, understanding clinical profile of these patients is necessary. Our study reveals that higher inflammatory markers were significantly associated with severity of the COVID 19 disease and mortality.

Key Words: *COVID-19, renal transplantation, immunocompromised, severe disease, mortality rate*

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INTRODUCTION

The COVID-19 pandemic caused by SARS-CoV-2 has had a profound impact globally. The virus has affected individuals across all age groups and has resulted in a wide range of clinical presentations, including asymptomatic infection, mild upper respiratory tract infection, severe pneumonia, acute respiratory distress syndrome (ARDS), multi-organ dysfunction syndrome (MODS), and even death [1]. According to the Centers for Disease Control and Prevention (CDC), immune compromised patients, including those on immune suppression post-organ transplantation, are at high risk for severe disease from infection with SARS-CoV-2 [2]. This is due to the fact that individuals who have undergone organ transplantation are on chronic immunosuppressive therapy to prevent transplant rejection, which increases their susceptibility to infections [3].

The renal transplant population is particularly vulnerable to severe COVID-19 disease due to the chronic use of immunosuppressive drugs. The aim of this study was to evaluate the clinical profile and outcome of post-renal transplant patients infected with COVID-19.

Materials and Methods

This study was conducted on 24 post-renal transplant patients infected with COVID-19 who were admitted to hospitals attached to the Bangalore Medical College and Research Institute (BMCRI) between March and May 2020. The study included collecting patient demographic data, clinical history and examination, lab investigations, radiological investigations, and treatment given. Patients were categorized into mild, moderate, and severe illness based on the WHO criteria for COVID-19 [4]. The patients were followed up daily until outcome.

Patient demographic data included age, sex, and duration of transplantation. Clinical history and examination included symptoms, vital signs, and physical examination findings. Lab investigations included complete blood count, blood urea nitrogen, creatinine, electrolytes, liver function tests, coagulation profile, inflammatory markers (CRP, D-dimer, and LDH), and RT-PCR for COVID-19. Radiological investigations included chest X-ray and CT scan. The treatment given to the patients included oxygen therapy, antiviral therapy, and steroids in severe cases.

Statistical analysis was performed using SPSS software version 20.0. Continuous variables were expressed as mean ± standard deviation. Categorical variables were expressed as number (percentage). Univariate analysis was done using chi-square test for categorical variables. p-value <0.05 was considered statistically significant.

Results

The study included 24 post-renal transplant patients infected with COVID-19, 2 of which were females and 22 males. The mean age was 43.83 years with a standard deviation of 12.67. 9 patients had mild, 4 had moderate, and 11 patients had severe disease. Of all the patients, 10 died and 14 were discharged. 2 patients were asymptomatic, with the most common symptom being cough (19), followed by fever (18). In severe patients, inflammatory markers were elevated, with mean values of D-dimer 1.67 ng/ml, CRP 183 mg/L, and LDH 616 U/L. Mean urea (106.4 mg/dL) and creatinine (2.39 mg/dL) values were higher in severe disease. Higher D-dimer and CRP were associated with a worse outcome ($p<0.05$).

In terms of treatment, oxygen therapy was required in 18 patients (75%), antiviral therapy was given to 16 patients (66.6%), and steroids were given to 11 patients (45.8%). The mean duration of hospital stay for patients who died was 12.5 days, while for patients who were discharged it was 8.4 days.

DISCUSSION

The COVID-19 pandemic has presented a significant challenge to healthcare systems worldwide, and the renal transplant population is particularly vulnerable to severe disease due to the chronic use of immunosuppressive drugs. This study aimed to evaluate the clinical profile and outcome of post-renal transplant patients infected with COVID-19.

The study included 24 post-renal transplant patients infected with COVID-19, of which 2 were females and 22 were males. The mean age of the patients was 43.83 years, which is in line with other studies that have reported a similar age distribution for COVID-19 patients [5]. The majority of the patients had mild disease (9 patients, 37.5%), followed by moderate (4 patients, 16.6%) and severe disease (11 patients, 45.8%). This is similar to the findings of other studies that have reported a higher proportion of mild and moderate cases in the general population [6].

The most common symptom in our study was cough, which is consistent with other studies [7]. The presence of cough has been reported to be a predictor of severe disease in COVID-19 patients [8]. In our study, 2 patients were asymptomatic, which highlights the importance of early detection and isolation of COVID-19 patients in order to prevent further spread of the virus.

In terms of laboratory parameters, our study found that inflammatory markers (D-dimer, CRP, and LDH) were elevated in severe disease. Elevated D-dimer and CRP levels have been reported to be associated with a higher risk of death in COVID-19 patients [9]. This highlights the importance of monitoring these markers in post-renal transplant patients and taking appropriate measures to manage severe disease.

In terms of treatment, oxygen therapy was required in 75% of the patients, antiviral therapy was given to 66.6% of the patients, and steroids were given to 45.8% of the patients. These findings are consistent with the current management guidelines for COVID-19 patients [10].

The mortality rate in our study was 41.6%, which is higher than the overall mortality rate reported for COVID-19 patients [11]. This highlights the increased susceptibility of post-renal transplant patients to severe disease and death from COVID-19. The mean duration of hospital stay for patients who died was 12.5 days, while for patients who were discharged it was 8.4 days.

CONCLUSION

In conclusion, our study highlights the increased susceptibility of post-renal transplant patients to severe disease and death from COVID-19. It is important for healthcare providers to closely monitor post-renal transplant patients for COVID-19 and take necessary precautions to prevent severe disease and death. Elevated inflammatory markers (D-dimer, CRP, and LDH) were significantly associated with severity of the COVID-19 disease and mortality. Further researchis needed to understand the underlying mechanisms that contribute to severe disease and death in post-renal transplant patients with COVID-19.

In addition, our study highlights the importance of early detection and isolation of COVID-19 patients, as well as the use of appropriate management strategies such as oxygen therapy, antiviral therapy, and steroids in severe cases.

It is also important to note that this study had a small sample size and a single center design, which limits the generalizability of the findings. Further studies with larger sample sizes and multi-center designs are needed to confirm these findings and to provide a more comprehensive understanding of the clinical profile and outcome of post-renal transplant patients with COVID-19.

In conclusion, the COVID-19 pandemic has presented a significant challenge to healthcare systems worldwide, and post-renal transplant patients are particularly vulnerable to severe disease. Our study highlights the importance of closely monitoring post-renal transplant patients for COVID-19 and taking necessary precautions to prevent severe disease and death. Further research is needed to understand the underlying mechanisms that contribute to severe disease and death in post-renal transplant patients with COVID-19.

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