

Outcome of Covid-19 Pandemic in Pakistan

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ABSTRACT

Introduction: Covid-19 infection was first isolated from china. It is caused by corona virus. It mainly effects the human respiratory system and cause upper and lower respiratory tract symptoms. Our study is single centered study with largest number of covid-19 patients. We assessed the study population in view of their hospital stay, days of ventilation, mortality and recovery.

Methods: This was a cross-sectional observational study with prospectively collected data of 100 patients with documented Covid-19 infection who were tested positive for Covid-19 PCR, presented to the Department of Medicine, Liaquat National Hospital Karachi Pakistan. We reviewed the data in terms of their ICU stay, days of ventilation, mortality and recovery. The duration of the study was from April 2020 to June 2020.

Keywords: Covid-19; Cough; Fever; Hemoptysis

INTRODUCTION

The first case of covid-19 was reported in Wuhan China and from there it has spread in many parts of the world [1]. This is a novel virus that primarily produces respiratory symptoms. It belongs to Corona virus family that means crown like projections [2]. They are single stranded RNA viruses [3]. The name COVID-19 stands for corona virus disease 2019. Initially Chinese researchers gave it the name 2019-nCoV [4]. Later the name Severe Acute Respiratory Syndrome Coronavirus-2 (SARS-CoV-2) was given to it [5].

Common symptoms are cough, shortness of breath, sore throat, rhinorrhea, hemoptysis, muscle ache, headache or confusion, anosmia, diarrhea, and vomiting. While fever, cough and shortness of breath are the commonest [6]. The incubation period of this virus is up to 7 days [7]. In severe cases patients developed Acute Respiratory distress syndrome [6]. Its mortality rate was initially reported up to 15% but in later studies they reported 2% mortality rate associated with this virus [8]. In February 26, 2020 first case of corona virus was reported in Pakistan [9]. Within 15 days the number of confirmed cases was 20 out of 471 and mostly from Sindh, and majority of people had travel history [10].

Our study is single centered study with largest number of covid-19 patients. We assessed the study population in view of their hospital stay, days of ventilation, mortality and recovery.

MATERIALS AND METHODS

This was a cross-sectional observational study with prospectively

collected data of 100 patients with documented Covid-19 infection who were tested positive for Covid-19 PCR, presented to the Department of Medicine, Liaquat National Hospital Karachi Pakistan. Liaquat National Hospital is one of the few major hospitals in the city providing infectious diseases expertise. It has a catchment area of 2 million people; also people are being referred to this hospital for better care from other hospitals and clinics.

These patients were included in the study from the outpatient department of our hospital and were characterized accordingly. We reviewed the data in terms of their ICU stay, days of ventilation, mortality and recovery. The duration of the study was from April 2020 to June 2020. The institutional review board approved the research protocols and analyzed by using SPSS 25 software.

RESULTS

From all the demographic data and clinical presentation, it has been evaluated that variable showed statistical significance with $p < 0.05$. In our study the total number of patients were 100, 76% were males and 24% were females, with the mean age of 61 years (ranging from 32 years to 77 years with SD 10.5). The mean oxygen saturation was 78% (60%-93%; SD 10.4). The mean P/F ratio was 80 (range 44-185; SD 31). Minimum days on mechanical ventilation was 0 and maximum days were 15. (Mean 1.44; SD 3.38). Stay of patients with COVID-19 pneumonia in ICU was from 1 to 15 days (mean 6.68; SD 3.38) as shown in Table 1. Out of 100 patients only 16 patients needed mechanical ventilation as shown in Table 2.

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Received: September 28, 2020; **Accepted:** October 12, 2020; **Published:** October 19, 2020

Citation: Latif A, Rafaey W, Kausar S, E zehra SR, Rafay M (2020) Outcome of Covid-19 Pandemic in Pakistan. J Infect Dis Prev Med. 8: 206. DOI: 10.35248/2329-8731.20.8.206.

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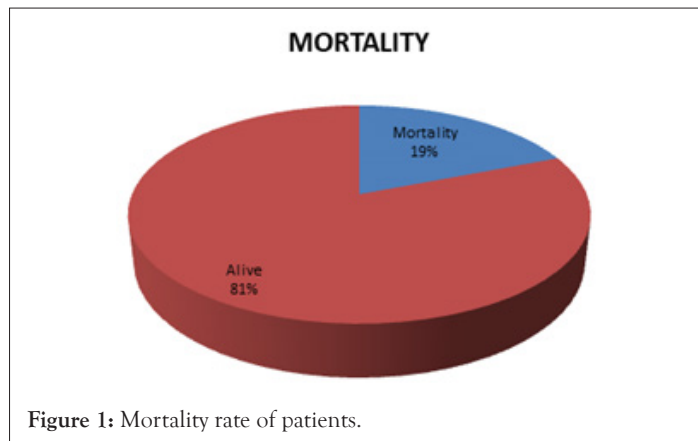
Table 1: Clinical presentation of demographic data.

Characteristic	Mean
Age	61
So ₂	93
P/F ratio	185
Days on mechanical ventilation	15
ICU days	15

Table 2: Days on mechanical ventilator.

Total number of patients	Patients on mechanical ventilation	Patients without mechanical ventilator
100	16	84

Out of 100 patients 19 patients did not survived. So mortality in our series is 19% and 81% of patients remained alive. As shown in Figure 1. 64 out of 100 patients were improved and 84% of the patients received Tocilizumab. 12% of the patients received Convalescent plasma therapy and 44% received inj Remdesivir while 40% of the patients received IVIG therapy (Table 3).

**Figure 1:** Mortality rate of patients.**Table 3:** Mortality characteristics number of patients.

Characteristics	Number of patients
Total number of patients	100
Number of patients improved	64
Tocilizumab administration	84
Plasma therapy	12
Remdesivir administration	44
IVIG Therapy	40

DISCUSSION

The COVID-19 pandemic has been challenging because large number of patients require advanced respiratory support, including high flow nasal oxygen, non-invasive ventilation and invasive mechanical ventilation. ICU mortality rate of patients with COVID-19 pneumonia is above 40%, notably higher than other patients seen in ICU with viral pneumonia [11]. Mortality in ICU setup does not differ significantly across the continents though there are variations in admission criteria, treatment regimen given to the

patients and the threshold for their application [12]. There is also variation in relative proportion of patients receiving non-invasive and invasive respiratory support, with non-invasive ventilation being used more in Asia [11]. Corticosteroids, immunoglobulins, antiviral drugs and other immunomodulatory treatments are being used with different preferences in different continents. Mortality in patients with COVID-19 pneumonia is highly age dependent and variation in the age of admitted patients have significant influence on mortality [13]. Comorbidities are also the potential risk factors; it has been observed that hypertension is significantly variably distributed in survivors and non-survivors of COVID-19 pneumonia. ACE2 plays a dual role of severe Acute Respiratory Syndrome (SARS) virus receptor and vasopectidase, it has been speculated that patients with hypertension with COVID-19 pneumonia might be more likely to become critically ill [14].

In our study the mean age was around 61 and the mortality rate was much lower as documented in other studies described above. Majority of our patents improved and few needed mechanical ventilation. Most of our patients received Tocilizumab and Remdesivir. Those who expired during treatment were elderly with age above 50 and had co-morbidities.

P/F ratio is also noninvasive predictive marker, correlated with the diagnosis of ARDS. P/F ratio has been found in the range of severe ARDS (<100) in critically ill patients with SARS-CoV2 [15]. The higher mortality rate of patients who received mechanical ventilation is also due to ventilator associated pneumonia and increase positive pressure ventilation that may cause pneumothorax. There is still debate in the effectiveness of noninvasive ventilation treatment or HFNC in the first line or whether the early use of invasive mechanical ventilation will improve the prognosis.

CONCLUSION

This is the data of Covid-19 infected patients from one of the biggest tertiary care hospitals of Pakistan. Our mortality and recovery rate and statistics are different from previous western studies in the treatment of this patient.

CONFLICT OF INTEREST

We wish to confirm that there are no known conflicts of interest associated with this publication and there has been no significant financial support for this work that could have influenced its outcome. We confirm that the manuscript has been read and approved by all named authors and that there are no other persons who satisfied the criteria for authorship but are not listed. We further confirm that the order of authors listed in the manuscript has been approved by all of us. We confirm that we have given due consideration to the protection of intellectual property associated with this work and that there are no impediments to publication, including the timing of publication, with respect to intellectual property. In so doing we confirm that we have followed the regulations of our institutions concerning intellectual property.

We understand that the Corresponding Author is the sole contact for the Editorial process. He is responsible for communicating with the other authors about progress, submissions of revisions and final approval of proofs. We confirm that we have provided a current, correct email address which is accessible by the Corresponding Author.

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