



STUDY OF CLINICAL PROFILE OF COVID 19 (SARS-COV-2) PATIENTS ADMITTED AT COVID CARE CENTRE AT A TERTIARY CARE HOSPITAL DURING SECOND WAVE OF COVID.

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ABSTRACT **Background:** SARS-CoV-2, a single-stranded RNA virus belonging to the family of betacoronavirus is the culprit virus responsible for the ongoing pandemic of COVID-19. SARS-CoV-2 is believed to have originated from bats which act as the natural reservoir. Present study was aimed to study the Clinical Profile of COVID 19 (SARS-COV-2) Patients Admitted at COVID Care Centre at a Tertiary Care Hospital during Second Wave of Covid. **Material and Methods:** Present study was single-center, Retrospective Cross-sectional study, conducted from case records of patients with clinical manifestations like fever and pulmonary symptoms and RT-PCR positive for SARS-CoV-2. Study approval was obtained from institutional ethical committee. **Results:** 80 case-records satisfying study criteria were considered for this study. Majority of patients were from age-group of 61-70 years (26.25 %) followed by age-group of 51-60 years (21.25%). Maximum patients (63.75%) were male and (36.25%) were females. (90.0%) patients were reported fever, dyspnea (75.0%) patients and 8(85.0%) were having dry cough. The majority of patients i.e (70.0%) were having co-morbidities. Clinically & radiologically majority cases had moderate COVID (55.0%) as compared to severe COVID (29.0 %) & mild COVID (16.0%). Mortality was found to 13.75 %. **Conclusion:** SARS CoV-2 causes severe acute respiratory distress syndrome which most fatal in high-risk groups like elderly males with pre-existing comorbidities. Present study reported a mortality of (13.75%) among patients. Older patients with diabetes and hypertension were significantly associated with severe disease.

KEYWORDS : Corona virus disease; Second Wave Covid-19; SARS-COV-2

INTRODUCTION

SARS-CoV-2, a single-stranded RNA virus belonging to the family of betacoronavirus is the culprit virus responsible for the ongoing pandemic of COVID-19 [1]. SARS-CoV-2 is believed to have originated from bats which act as the natural reservoir [2]. The disease spreads through human-to-human contact via respiratory route [3]. The clinical manifestations of the disease vary from no symptoms to mild symptoms to severe illness and death [4]. The primary mode of transmission of SARS-CoV-2 is via exposure to respiratory droplets carrying the infectious virus from close contact or droplet transmission from presymptomatic, asymptomatic, or symptomatic individuals harboring the virus [5]. SARS-CoV-2 gains entry into the hosts' cells by binding the SARS-CoV-2 spike or S protein (S1) to the ACE2 receptors abundantly on respiratory epithelium such as type II alveolar epithelial cells. Besides the respiratory epithelium, ACE2 receptors are also expressed by other organs such as the upper esophagus, enterocytes from the ileum, myocardial cells, proximal tubular cells of the kidney, and urothelial cells of the bladder [6].

The early phase is characterized by viral replication resulting in direct virus-mediated tissue damage, which is followed by a late phase when the infected host cells trigger an immune response [7]. In severe COVID-19, the immune system's overactivation results in a 'cytokine storm' characterized by the release of high levels of cytokines, especially IL-6 and TNF- α , into the circulation, causing a local and systemic inflammatory response [8].

The increased vascular permeability and subsequent development of pulmonary edema in patients with severe COVID-19 are explained by multiple mechanisms. Although the respiratory system is the principal target for SARS-CoV-2 as described above, it can affect other major organ systems such as the gastrointestinal tract (GI), hepatobiliary, cardiovascular, renal, and central nervous system. The median incubation period for SARS-CoV-2 is estimated to be 5.1 days, and the majority of patients develop symptoms within 11.5 days of infection.

Aims and Objectives:

1. To assess the different clinical features of covid-19 patients admitted in the covid care centre during second wave of covid.
2. To obtain the data of number of covid patients with various comorbidities admitted in tertiary care centre.
3. Finding out the outcome of COVID 19(SARS-CoV-2) patients.

MATERIAL AND METHODS

Present study was single-center, Retrospective Cross-sectional study, conducted in department of general medicine, at ACPM Medical College and Hospital, Dhule, India. Case records of patients of Covid 19 hospitalized in covid ward from April 2021 to June 2021 were studied. Study approval was obtained from institutional ethical committee.

Study Population: All RTPCR positive covid patients of more than 14 years of age of either sex admitted in covid care centre will be included in the present study.

Inclusion criteria:

- Patients tested positive for COVID 19 virus by RT-PCR diagnostic method admitted at covid care centre.
- Patients giving informed consent.

Exclusion criteria:

- If there is inability to obtain informed consent from patients.
- If patients has mental retardation.

SAMPLE SIZE:-80

Formula For Calculating Sample Size: $n = Z^2 P(1-P) / d^2$

n- Sample size

Z is the statistic corresponding to level of confidence (level of confidence is 95%) (1.96) P is expected prevalence (0.3) d is precision corresponding to effect size =margin of error =10%=0.1

We reviewed the medical records of all patients with diagnosed COVID-19 infection. The admission data of these patients were collected and evaluated. Data regarding age, sex (male, female), area of living (urban, rural), chief complains of patients at the time of admission (fever, anorexia, fatigue, dry cough, diarrhoea, dyspnoea), preexisting comorbidities (hypertension, diabetes mellitus, IHD, asthma, COPD, chronic kidney disease, CCF, hypothyroidism), need for respiratory support (supplemental oxygen, HFO2, non-invasive ventilation, invasive ventilation), complications (ARDS, septic shock, AKI, multi-organ failure, DIC, myocardial damage, liver injury, rhabdomyolysis), management (haemodialysis, blood transfusion, vasopressors), as well as survived status. Data was collected and compiled using Microsoft Excel, analysed using SPSS 23.0 version. Frequency, percentage, means and standard deviations (SD) was

calculated for the continuous variables, while ratios and proportions were calculated for the categorical variables. Difference of proportions between qualitative variables were tested using chi- square test or Fisher exact test as applicable. P value less than 0.05 was considered as statistically significant.

RESULTS

In present study 80 case-records satisfying study criteria were considered.

Table 1- Demographic profile of characteristics

| Characteristics | No. of patients | Percentage | |
|-----------------------|-------------------|---------------|-------|
| Age groups (in years) | ≤20 years | 02 | 2.50 |
| | 21-30 | 05 | 6.25 |
| | 31-40 | 10 | 12.50 |
| | 41-50 | 15 | 18.75 |
| | 51-60 | 17 | 21.25 |
| | 61-70 | 21 | 26.25 |
| | >70 years | 10 | 12.50 |
| | Mean age(mean±SD) | 59.25 ± 13.63 | |
| Gender | Male | 51 | 63.75 |
| | Female | 29 | 36.25 |
| Area of Living | Rural | 47 | 58.75 |
| | Urban | 33 | 41.25 |

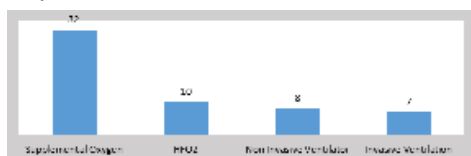
Majority of patients were from age-group of 61-70 years (26.25 %) followed by age-group of 51-60 years (21.25%) and minimum 2(2.50%) patients were from below 20 years. The mean age of patients was 59.25 ± 13.63 years. Out of 80 patients, maximum patients i.e 51(63.75%) were male and 29(36.25%) were females. The majority of patients i.e 47(58.75%) were urban and 33(41.25%) were rural.

Table 2: chief complaint and Co-morbidities in patients

| Particular | No. of patients | Percentage | |
|------------------------|------------------------|------------|-------|
| chief complaint | Fever | 72 | 90.0 |
| | Dry Cough | 68 | 85.0 |
| | Anorexia | 07 | 8.75 |
| | Fatigue | 12 | 15.0 |
| | Dyspnea | 60 | 75.0 |
| | Diarrhoea | 05 | 6.25 |
| | Other | 07 | 8.75 |
| Co-morbidities | Present | 56 | 70.0 |
| | Absent | 24 | 30.0 |
| Present Co-morbidities | Hypertension | 39 | 48.75 |
| | Diabetic Mellitus | 43 | 53.75 |
| | IHD | 10 | 12.5 |
| | Asthma | 09 | 11.25 |
| | COPD | 02 | 2.5 |
| | Chronic Kidney Disease | 03 | 3.75 |
| | Hypothyroidism | 03 | 3.75 |
| | Other | 07 | 8.75 |

In the present study, 72(90.0%) patients were reported fever, dyspnea 60(75.0%) patients and 68(85.0%) were having dry cough. 12(15.0%), 07(8.75%) of patients were reported fatigue and anorexia respectively. 07(8.75%) of patients were having other complaints.

The majority of patients i.e 56(70.0%) were having co-morbidities and 24(0.0%) were not having co-morbidities. Maximum 43(53.75%) and 39(48.75%) patients were having Diabetic Mellitus and hypertension respectively. 09(11.25%) of patients reported asthma, 03(3.75%) of patients were having Chronic Kidney Disease and hypothyroidism respectively.



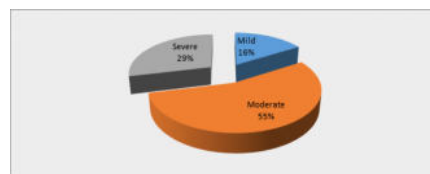
Graph 1: Respiratory Support in patients

32(40.0%) of patients required Supplemental Oxygen and 10(12.5%) of patients were on HFO2. The majority of patients 8(10.0%) were on non Invasive Ventilation and 07(8.75%) were required Invasive Ventilator.

Table 3: Complications in patients

| Complications | No. of patients | Percentage |
|---------------------|-----------------|------------|
| ARDS | 12 | 15.0 |
| Septic Shock | 09 | 11.25 |
| AKI | 05 | 6.25 |
| Multi-organ failure | 03 | 3.75 |
| DIC | 03 | 3.75 |
| Myocardial Damage | 01 | 1.25 |
| Liver Injury | 02 | 2.50 |
| Rhabdomyolysis | 03 | 3.75 |
| Other | 04 | 5.0 |

The Majority i.e 12(15.0%) of patients reported ARDS, 09(11.25%) of patients reported septic shock, 05(6.25%) of patients were having AKI and 03(3.75%) of patients were having Multi-organ failure and DIC. 12(11.8%) patients were observed DIC, 01(1.25%) of patients were having Myocardial Damage and Liver Injury.



Graph 2 : COVID severity in Patients

Clinically & radiologically majority cases had moderate COVID (55.0%) as compared to severe COVID (29.0 %) & mild COVID (16.0%). Mortality was found to 13.75 %.

Table 4: Drug Management of patients

| Management | No. of patients | Percentage | |
|-----------------|---|------------|-------|
| Drug Management | Common Drugs (Limcee, Pan, PCM, Zincovit, Vit D) | 80 | 100.0 |
| | Remdesivir | 31 | 38.75 |
| | Favipiravir | 38 | 47.5 |
| | Hydroxychloroquine | 06 | 7.5 |
| | Lopimune | 23 | 28.75 |
| | Oseltamivir | 15 | 14.7 |
| | Tocilizumab | 21 | 20.6 |
| | Corticosteroids | 47 | 84.3 |
| | Carbapenem Antibiotics (Meropenem) | 12 | 56.8 |
| | Cephalosporins | 10 | 42.2 |
| | Macrolids (Azee) | 40 | 50.0 |
| | Penicilin Antibiotics (Piptaz) | 14 | 71.5 |
| | Anticoagulants (Clexane, Heparin) | 09 | 93.1 |
| | Antiplatelets (Aspirins , Clopidogrel) | 23 | 35.0 |
| | Anti HTN | 42 | 52.5 |
| | Anti Diabetics (Insulins, Oral Hypoglycemics) | 37 | 75.5 |

For the management of COVID-19 patients, 26(25.5%) patients required Haemodialysis, 06(5.9%) of patients required blood transfusion. 37(36.3%) of patients treated with Remdesivir, 44(43.1%) of patients given Fabiflu, 26(25.5%) of patients treated using HCQ tables.

DISCUSSION

Second wave of Covid 19 started in middle of March 2021 and was

supposed to be caused by several mutants of SARS-COV2 virus and its presentation was slightly different from the first wave with newer symptoms involving gastrointestinal system, with more cases of sudden onset breathlessness, with predominant involvement of younger age group, with less comorbidities, more oxygen requirement and ICU admissions.¹⁵

The mean age present study patients were mean 59.25 years compared to those in China (median age – 56 yr) [9], New York (median age – 63 yr) [10] or Italy (median age – 63 yr) [11]. Although dissimilar age pattern (mean age of 40.3 yr) was observed in a study done by Gupta et al [12] at tertiary care hospital from northern India.

In present study maximum patients (63.75%) were male and (36.25%) were females. Similar findings were reported by Nitesh Gupta et al [12] that slight male (58.0%) preponderance. The disease was slightly more common in men than women.

In the present study, (90.0%) patients were reported fever, dyspnea (75.0%) patients and 68(85.0%) were having dry cough. (15.0%), (8.75%) of patients were reported fatigue and anorexia respectively. (8.75%) of patients were having other complaints. Similar findings were observed by Nitesh Gupta et al [12] reported symptomatic with fever being the most common symptoms followed by cough.

Keeping in mind the prevalence of diabetes as around 11.9% in India, present study majority of patients (70.0%) were having comorbidities, Maximum (53.75%) and (48.75%) patients were having Diabetic Mellitus and hypertension respectively. Harharpreet Kaur, et al [13] found that (49.2%) of admitted cases had diabetes. In a meta-analysis study on COVID-19 comorbidities by Paudel et al [14] of a total of 1786 patients the most common comorbidities identified in these patients were hypertension (15.8%), cardiovascular and cerebrovascular conditions (11.7%), and diabetes (9.4%). Present study had higher percentage of diabetes and hypertension as they were all admitted patients.

CONCLUSION

SARS CoV-2 causes severe acute respiratory distress syndrome which most fatal in high-risk groups like elderly males with pre-existing comorbidities. Appropriate measures for monitoring and preventing transmission of disease to such groups and instantaneous treatment of infected individuals should be the utmost priority.

Conflict of Interest: None to declare

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