Epidemiological trend and clinical profile of COVID-19 patients: Experience from a designated COVID-19 center in Delhi

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Abstract

Objective: To study the epidemiological characteristics of the pandemic by describing the clinical profile of the COVID-19 patients presenting to a super specialty hospital.

Methods: This was a descriptive study using medical records of patients who tested positive for SARS-CoV-2 RNA using reverse transcription-polymerase chain reaction between 17th March and 15th January 2021 while maintaining confidentiality. The clinical and demographic data of all the patients were entered in a Microsoft Excel and statistical analysis was done using SPSS 21 software. Regression analysis was performed and a P value < 0.05 was considered to be statistically significant.

Results: A total of 3534 patients were enrolled in this study aged 9–96 years. Among patients with symptoms, fever and cough were the most common presenting symptoms, while 5.6% of the patients were asymptomatic. Hypertension was the most common comorbidity (37%), while no comorbidities were present in 43.0% of the participants and this was statistically significant for age (P = 0.000). Among patient outcomes, >50% of patients were in home isolation, while 11% of patients had a fatal outcome. Elder age group had a higher proportion of expiry among outcomes (P <= 0.001). Most patients had a hospital stay of 9–11 days. A total of 63 health workers were included with male: female ratio being 3.5:1.

Conclusion: Our study reflects that majority of the positive cases that presented to the hospital had mild/moderate symptoms. We believe that appropriate triaging of patients followed by early institution of medicine and good critical care services may help to control this epidemic.

Keywords: Co-morbidities, COVID-19, epidemiology

Introduction

The novel coronavirus COVID-19 disease has emerged as a global threat posing major challenges to the international health system affecting economic and social development. The disease has a dynamic epidemiological trend with a spectrum of clinical signs and symptoms ranging from asymptomatic to critical and patients may rapidly progress to acute respiratory distress syndrome and death.¹² A critical analysis of the clinical profile and epidemiological trend may help in monitoring and predicting future trend of the pandemic. It may also guide us in response preparedness and resource mobilization if needed in future as the disease is showing mutable prevalence.

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COVID-19 started when an unprecedented outbreak of cluster cases with pneumonia of unknown etiology was reported from Wuhan city, China on 31 December 2019.[9] The causative agent was identified and named as Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2), which mainly affects the lower respiratory tract, and the disease was named as COVID-19 disease.[10] The novel coronavirus COVID-19 had indeed affected a large number of people worldwide because of its highly contagious nature. WHO declared COVID-19 a Public Health Emergency of International Concern on January 30th 2020.[4,5] Till date, more than 223 countries, areas, and territories have confirmed cases of COVID-19.[6] As of 12th August, 2021, WHO has confirmed 205,209,715 confirmed cases and 4,333,383 confirmed deaths.[7] India reported its first case on 30th January, 2020 from Kerala and subsequently the number of cases rose drastically engulfing the entire country.[8] The COVID-19 cases appeared again from March 2, 2020, onwards. These cases are related to people who have been evacuated or have arrived from COVID-19 affected countries. From March 20, 2020, onwards, there is an exponential growth in the daily number of COVID-19 cases at the Pan-India level.[9] A total of 3.20 crore cases have been confirmed and 4.29 lakh people have lost their lives to this pandemic.[10] At present, Maharashtra is suffering with the highest load (6.39 lakh cases) followed by Kerala (3.61 lakh cases). However, Delhi had been the center for one of the highest burdens of COVID-19 cases in the country. According to the current data, a total of 14.3 lakh cases have been reported in Delhi with 25,036 deaths.[11]

COVID-19 presents across a spectrum of symptoms. As per the ICMR guidelines, patients with uncomplicated upper respiratory tract infection or non-specific symptoms such as fever, cough, sore throat, nasal congestion, malaise, and headache were classified to have mild disease. Patients with radiologically proven pneumonia but without the signs of severe pneumonia were categorized to have moderate disease. Severe pneumonia included a patient with fever, plus one of the following: respiratory rate >30 breaths/min, severe respiratory distress, and SpO2 <90% on room air. About 80% of the individuals with SARS CoV-2 (the virus causing COVID-19) infections either remain asymptomatic or show mild symptoms of flu (e.g., fever, cough, and sore throat); these may be managed at home or in isolation centers to check the spread of transmission. The remaining 10%-15% of the individuals with SARS CoV-2 have moderate-to-severe symptoms, and need institutional care ranging from oxygen therapy, intensive care to ventilator support.[12,13] The elderly and those with comorbidities (e.g., diabetes mellitus, hypertension, and renal diseases) are at higher risk of developing florid symptoms and meet adverse outcomes.[13,14] India being the second largest populated country in the world may show a dynamic epidemiological characteristic as well as clinical trends. This may be attributed the unique demographic profile and biological diversity. The population has unique vulnerabilities and heterogeneous risk profiles, which may be a further contributing factor.

Studies have shown that there has been a significant fluctuation in the biological and epidemiological trends both in the number of cases and the mortality rates of COVID-19 infection.[17,18]

Subjects and Methods

Setting
The study was conducted in a 650 bedded super specialty hospital under the Government of National Capital Territory of Delhi (North India). It was designated as a COVID-19 center in March 2020 to provide comprehensive services, i.e., counselling, triage, treatment, discharge, and follow-up to the patients from Delhi and adjoining areas. The hospital provided services to all the COVID-19 patients irrespective of the disease severity and no selection was done at any level.

Study design
The present study is a cross-sectional analysis of hospital to elaborate on the profile of COVID-19. The study includes all the patients who presented to the study hospital and were tested positive for SARS-CoV-2 as well as referred COVID-19 patients from other hospitals.

Objectives
The following were the objectives of our study:
1. To study the epidemiological characteristics of the pandemic by analyzing the case detection trends, mortality curve, as well as cumulative admissions and cumulative deaths.
2. To describe the clinical profile of the COVID-19 patients presenting to the hospital.

Study participants and timelines
The information and details of all the individuals testing positive for SARS-CoV-2 by reverse transcription-polymerase chain reaction (RT-PCR) from nasopharyngeal swab sample who were tested in the hospital or were referred to the hospital between 17th March 2020 and 15th January 2021 were utilized for the study. We restricted the data collection date to 15th January 2021 because COVID-19 vaccination was rolled out in India on 16th January 2021. The data were retrieved from the electronic medical record (EMR) section of the hospital after due approval from the Institutional Ethics Committee of the hospital.

Standard operating procedure of the hospital
The hospital followed the guidelines of Indian Council of Medical Research (ICMR) for testing and protocol issued by MOHFW, Government of India, Ministry of Health and Family Welfare Directorate General of Health Services for ascertaining disease severity, triage, and documented clinical management as illustrated in Table 1.[19] The hospital was also efficiently managed to regularly upgrade the management policies in accordance with
the updated revisions of the above guidelines. All the patients reporting to the hospital were received in the holding area where proper screening and initial clinical examination of the patients for COVID-19 symptoms were done. A detailed clinical history, which included travel as well as exposure history and comorbidities, was taken. The patients were broadly categorized into two groups:

1. **Suspected COVID-19 patients:** Patients presenting with acute onset of respiratory illness, fever, cough, dyspnea, respiratory rate >20/min, oxygen saturation <94 percent on room air, history of recent travel or close contact with symptomatic and diagnosed COVID-19 patients with unknown COVID-19 status were tested for SARS-CoV-2 and triaged accordingly in the suspected areas. A nasopharyngeal swab was collected and the sample was immediately immersed in viral transport media. The sample was then transported to the molecular laboratory of the hospital following all the universal precautions where it was tested for viral RNA using reverse transcription-polymerase chain reaction (RT-PCR) as per the guidelines approved by ICMR. Once the viral RNA was detected on RT-PCR, the patient was labelled as COVID-19 positive as per the guidelines of WHO. If confirmed to have SARS-CoV-2, they were labelled as lab-confirmed COVID-19 positive patients.

2. **Lab-confirmed COVID-19 positive patients:** Patients who were referred to the study hospital with a SARS-CoV-2 positive RT-PCR report or were detected thus after presenting to our hospital were included in this category. These patients were clinically assessed and triaged according to their disease severity into the respective facility, i.e., isolation ward high dependency unit (HDU) or intensive care unit (ICU) of the hospital.

### Classification
All the patients received symptomatic treatment for COVID-19 as well as continued treatment for preexisting diseases was also given. The asymptomatic or mildly symptomatic patients were triaged to isolation centers, those with moderate symptoms and needing oxygen therapy (oxygen saturation >90%) were admitted in the isolation wards, and those with severe disease were managed in ICU/HDU step down. Repeat testing and discharge were done as per the recommended guidelines.

### Variables and data analysis
The data of the relevant variables were retrieved from the electronic medical record (EMR) section of the hospital. This included demographic parameters (age, gender, and place of residence), presenting signs and symptoms, history of comorbidities, triage details (isolation facility, ward, and ICU/HDU “step down”), disease severity (mild, moderate, and severe or critical), support required, and the final outcome without revealing the patient’s identity.

### Statistical methods
The clinical and demographic data of all the patients were entered in a Microsoft Excel spreadsheet. The statistical analysis was performed using SPSS 21 software. Detection trend was calculated as 7-day rolling averages. Patient information was summarized as frequency and proportion and wherever applicable as measures of central tendencies. The results were expressed in numbers and percentages. Regression analysis was performed and a P value < 0.05 was considered to be statistically significant.

### Ethical consideration
Secondary data from the hospital-based records were used retrospectively in the present study with due approval of the institutional ethical committee. We managed the study and the data in compliance with the ICMR ethical guidelines for biomedical research involving human participants. The patient identity was kept anonymous all through the process.

### Results

#### 7-day Rolling average
The number of admissions per day averaged over seven days from this facility [Figure 1] presented an initial peak in March.
Epidemiological profile

The various clinical and epidemiological characteristics are summarized in Table 1. Of 3534 patients, there were 2399 (67.9%; 95% CI: 66.3–69.4) men and 1135 (32.1%; 95% CI: 30.6–33.7) women (ratio: 2.1:1; \( P = 0.0001 \)). Age of the participants ranged from 09 to 96 years (median: 51 years; inter-quartile range: 39–64) with a statistically significant difference (\( P < 0.001 \)) between the age of men (51.3 ± 16.2 years) and women (52.2 ± 16.7 years). Only 5.6% of the patients were asymptomatic more commonly in the younger age group. Among those symptomatic, fever and cough were the most common presenting symptoms; most had a combination of two or more symptoms. People were equally likely to manifest symptoms across both age groups (\( P = 0.051 \)). No comorbidities were present in 43.0% of the participants and this was statistically significant for age (\( P = 0.000 \)). Most patients had hypertension as the most common comorbidity (37%), and it was seen more in the elder age group (\( P < 0.001 \)). Tuberculosis was seen more commonly in the younger age group (0.8%) and it was statistically significant (\( P = 0.03 \)). A large subset of patients (60%) required ICU care during their hospital stay and it was needed more frequently in the elder age group (\( P < 0.001 \)). Over the course of the study, more than 30% of the patients were sent to home isolation, 30% of the patients recovered, while 11% of the patients had a fatal outcome. Elder age group had a higher proportion of expiry among outcomes (\( P <= 0.001 \)).

Hospital stay and patient outcome: The relationship between these two variables is depicted in Figure 2. Most patients had a hospital stay of 9–11 days. Among the three outcomes of home isolation, recovery, and death, the most common was home isolation, and it was seen most of them were sent for home isolation on the 10th day of stay. In contrast, death was seen most commonly on the 1st day of stay. This could be attributed to the severe presentation in such cases which could have led to rapid deterioration and death. Recovery was also mostly seen between 10–15 days of stay.

| Clinical Severity | Clinical presentation | Clinical parameters | Remarks |
|-------------------|-----------------------|---------------------|---------|
| Mild              | Patients with uncomplicated upper respiratory tract infections may have mild symptoms such as fever, cough, sore throat, nasal congestion, malaise, and headache. | Without evidence of breathlessness or hypoxia (normal saturation). | Managed at Covid Care Center |
| Moderate          | Pneumonia with no signs of severe disease. | Adolescent or adult with the presence of clinical features of dyspnea and or hypoxia, fever, cough, including \( \text{SpO}_2 \). [Fast breathing (in breaths/min): <2 months: ≥60; 2-11 months: ≥50; 1-5 years: ≥40] | Managed in Dedicated Covid Health Center |
| Severe            | Severe pneumonia | Adolescent or adult with clinical signs of pneumonia plus one of the following: respiratory rate >30 breaths/min, severe respiratory distress and \( \text{SpO}_2 \) <90% on room air | Managed in Dedicated Covid Health Center |
| Acute respiratory distress syndrome | Onset: new or worsening respiratory symptoms within one week of known clinical insult. Chest imaging (Chest X-ray and portable bedside lung ultrasound): bilateral opacities, not fully explained by effusions, lobar or collapse, or nodules. Origin of pulmonary infiltrates: respiratory failure not fully explained by cardiac failure or fluid overload. Need objective assessment (e.g., echocardiography) to exclude hydrostatic cause of infiltrates/edema if no risk factor presents. Oxygenation impairment in adults: Mild ARDS: 200 mmHg <\( \text{PaO}_2 \)/\( \text{FiO}_2 \) ≤300 mmHg (with PEEP or CPAP ≥5 cm \( \text{H}_2\text{O} \)) Moderate ARDS: 100 mmHg <\( \text{PaO}_2 \)/\( \text{FiO}_2 \) ≤200 mmHg with PEEP ≥5 cm \( \text{H}_2\text{O} \)) Severe ARDS: \( \text{PaO}_2 \)/\( \text{FiO}_2 \) ≤100 mmHg with PEEP ≥5 cm \( \text{H}_2\text{O} \) When \( \text{PaO}_2 \) is not available, \( \text{SpO}_2 \)/\( \text{FiO}_2 \) ≤315 suggests ARDS (including in non-ventilated patients) | Managed in Dedicated Covid Health Center |
| Sepsis            | Adults: Acute life-threatening organ dysfunction caused by a dysregulated host response to suspected or proven infection. Signs of organ dysfunction include: altered mental status, difficulty or fast breathing, low oxygen saturation, reduced urine output, fast heart rate, weak pulse, cold extremities or low blood pressure, skin mottling, or laboratory evidence of coagulopathy, thrombocytopenia, acidosis, high lactate or hyperbilirubinemia. | | Managed in Dedicated Covid Health Center |
Table 2: Clinicoepidemiological profile of patients with COVID-19 at the study hospital

| Comorbidities | <60 (n=2283) | >60 (n=1251) | P for Age distributions | Total (n=3534) | P   |
|---------------|-------------|-------------|-------------------------|---------------|-----|
| Gender Female | 717 31.4%   | 418 33.4%   | 0.222                   | 1135 32.1%    | 0.0001 |
|               | 1566 68.6% | 833 66.6%   |                         | 2399 67.9%    |     |
| Number of signs |         |             | 0.051                   |               |     |
| Nil           | 140 6.1%   | 57 4.6%     |                         | 197 5.6%      |     |
| >=1           | 2127 93.2% | 1194 95.4%  |                         | 3321 94.0%    | -   |
| 1             | 246 10.8%  | 128 10.2%   |                         | 374 10.6%     |     |
| 2             | 757 33.2%  | 392 31.3%   | -                       | 1149 32.5%    |     |
| 3             | 702 30.7%  | 389 31.1%   | -                       | 1091 30.9%    |     |
| 4             | 393 17.2%  | 266 21.3%   | -                       | 659 18.6%     |     |
| 5             | 29 1.3%    | 15 1.2%     | -                       | 44 1.2%       |     |
| 6             | 0 0.0%     | 0 0.0%      | -                       | 0 0.0%        |     |
| Signs and Symptoms |     |             | 0.01%                   |               |     |
| Fever         | 1785 78.2% | 1014 81.0%  | 0.450                   | 2799 79.2%    | 0.5% |
| Cough         | 1493 65.4% | 854 68.3%   | 0.084                   | 2347 66.4%    | 0.6% |
| Sore Throat   | 513 22.5%  | 305 24.4%   | 0.198                   | 818 23.1%     | 0.4% |
| Rhinorrhea    | 185 8.1%   | 90 7.2%     | 0.335                   | 275 7.8%      | 0.7% |
| Dypsnea       | 1203 52.7% | 756 60.4%   | 0.000                   | 1959 55.4%    | 0.1% |
| Vomiting      | 38 1.7%    | 13 1.0%     | 0.136                   | 51 1.4%       | 0.1% |
| Fatigue       | 296 13.0%  | 159 12.7%   | 0.828                   | 455 12.9%     | 0.1% |
| Diarrhea      | 26 1.1%    | 16 1.3%     | 0.713                   | 42 1.2%       | 0.1% |
| Myalgia       | 38 1.7%    | 26 2.1%     | 0.378                   | 64 1.8%       | 0.1% |
| Anosmia       | 4 0.2%     | 1 0.1%      | 0.471                   | 5 0.1%        | 0.1% |
| Loss of Appetite | 2 0.1% | 8 0.6%     | 0.003                   | 10 0.3%       | 0.1% |
| Comorbidities No Comorbidities | 1201 52.6% | 337 26.9%   | 0.000                   | 1538 43.5%    | 0.1% |
| Hypertension  | 669 29.3%  | 654 52.3%   | 0.000                   | 1323 37.4%    | 0.2% |
| Diabetes mellitus | 566 24.8% | 490 39.2%   | 0.000                   | 1056 29.9%    | 0.1% |
| Pneumonia     | 29 1.3%    | 28 2.2%     | 0.029                   | 57 1.6%       | 0.1% |
| Thyroid Disorder | 131 5.7 | 71 5.7%   | 0.939                   | 202 5.7%      | 0.1% |
| Hepatitis     | 2 0.1%     | 2 0.2%      | 0.541                   | 4 0.1%        | 0.1% |
| CAD           | 86 3.8%    | 199 15.9%   | 0.000                   | 285 8.1%      | 0.1% |
| PTCa          | 28 1.2%    | 96 7.7%     | 0.000                   | 124 3.5%      | 0.1% |
| CABG          | 2 0.1%     | 14 1.1%     | 0.000                   | 16 0.5%       | 0.1% |
| COPD          | 62 2.7%    | 95 7.6%     | 0.000                   | 157 4.4%      | 0.1% |
| Depression    | 5 0.2%     | 0 0.0%      | 0.337                   | 6 0.2%        | 0.1% |
| Tuberculosis  | 19 0.8%    | 3 0.2%      | 0.032                   | 22 0.6%       | 0.1% |
| Heart Disease | 25 1.1%    | 14 1.1%     | 0.948                   | 39 1.1%       | 0.1% |
| Kidney Disease | 5 0.2% | 2 0.2%  | 0.705                   | 7 0.2%        | 0.1% |
| Malignancy    | 9 0.4%     | 11 0.9%     | 0.066                   | 20 0.6%       | 0.1% |
| Pancreatitis  | 1 0.0%     | 1 0.1%      | 0.666                   | 2 0.1%        | 0.1% |
| Neurological Disorder | 14 0.6 | 3 0.2%  | 0.125                   | 17 0.5%       | 0.1% |
| Therapy Given |             |             |                        |               |     |
| NED           | 1267 55.5% | 809 64.7%   | 0.000                   | 2076 58.7%    | 0.1% |
| O2 Therapy    | 1304 57.1% | 826 66.0%   | 0.000                   | 2130 60.3%    | 0.1% |
| BIPAP         | 82 3.6%    | 135 10.8%   | 0.000                   | 217 6.1%      | 0.1% |
| High flow nasal cannula | 115 5.0 | 168 13.4%  | 0.000                   | 283 8.0%      | 0.1% |
| Intensive Care | 1304 57.1 | 829 66.3% | 0.000                   | 2133 60.4%    | 0.1% |
| Outcome       |             |             |                        |               |     |
| Isolation     | 1256 55.0% | 604 48.3%   | 0.000                   | 1860 52.6%    | 0.1% |
| Recovered     | 748 32.8%  | 329 26.3%   | 0.000                   | 1077 30.5%    | 0.1% |
| Death         | 141 6.2%   | 234 18.7%   | 0.000                   | 375 10.6%     | 0.1% |

**Notes:**
- CAD: Coronary artery disease, PTCa: percutaneous transluminal coronary angioplasty, CABG: Coronary artery bypass grafting, COPD: Chronic obstructive pulmonary disease, NED: Nephilisation, BIPAP: Bilevel positive airway pressure.
- Percentages may not sum to 100% due to rounding error.
- P values indicate statistical significance compared to the age distribution.
The main cause might be

The slope of admissions and mortality is shown in Figure 3. Admissions rose gradually till June 2020 when it spiked followed by another spike in September. The maximum jump in admissions was seen in November 2020. However, deaths only saw a substantial spike only in November 2020, which coincided with the increased admissions.

Impact on health workers

During the stated period of study, a total of 63 health care workers, which included doctors (27), nursing staff (12), technicians (05), nursing orderly (11), pharmacist (01), house-keeping (06), and security guard (01), became COVID-19 positive. Among them, 49 were males and 14 females with male: female ratio being 3.5:1. All of them were <60 age group. The majority of the cases suffered from mild-to-moderate disease and recovered completely. However, one life was lost in the battle.

Discussion

In the present study, we analyzed the epidemiological trends as well as the clinical profile of the COVID-19 patients who presented to the hospital.

India’s demography is quite young (median age ~ 27 years) with about 49:51 female-to-male ratios; however, the profile of the patients in our study hospital showed higher proportions of older male individuals. The majority of the patients (50%) were in the age range of 39–64 (interquartile range) with a median age of 51 years, which is quite similar when compared to case studies of China (median age: 56 years), New York (median age: 63 years), and Italy (median age: 63 years).[20–23] Goyal et al.[23] retrospectively analyzed data from 393 patients and deduced a mean age of 62 years with common symptoms of cough, fever, and breathlessness. However, two Indian studies also showed a relatively younger age group with median age of 33 years and 40.3 years, respectively.[24,25] Limitation of sample size and demographic distribution could be the cause for this discrepancy among various studies.

We found that most patients presented with a combination of flu symptoms (94%) and could be managed without much need for supportive therapy. The most common clinical symptoms were fever (79.2%) followed by cough (66.6%). We reported that young patients were more likely to need supportive therapy while the elderly were more likely to encounter a fatal outcome. In a series of 21 case studies, Gupta et al.[26] documented that the most common clinical symptoms were cough and fever, 43.9% of individuals were asymptomatic, and hypertension was the most common comorbidity seen.

The earliest data to emerge from across the world have consistently described patients who have presented with a milder illness and have rapidly recovered.[26–28] The WHO-China Joint mission concluded that 80% of the 55,924 patients with laboratory-confirmed COVID-19 in China had mild-to-moderate disease, while 13.8% the patients developed severe disease and 6.1% the patients had a critical stage requiring intensive care.[21] A study conducted in north India also concluded that 58% of the patients in their study were asymptomatic on the day of admission.[21] However, in our study only, 5.6% of the patients were asymptomatic and more commonly noted in the younger age group. Similar to our findings, Kim et al.[28] also observed 213 COVID-19 patients in South Korea and found that 19% remained asymptomatic. Others had a cough (40%) and hypoxia (40%).

In our study, a large subset of patients (60%) required ICU care during their hospital stay and it was needed more frequently in the elderly age group. Over the course of the study, more than 50% of the patients were sent to home isolation, 30% of the patients recovered, while 11% of the patients had a fatal outcome. Admission rates to the ICU as reported in literature from China ranged from 5% to 23.2%, 1.6%–2.3% required mechanical ventilation, and death rates ranged from 1.4% to 3.6%.[14,20] In a study carried out in India documented 30% admission to ICU; however, the mortality was quite high that is 32.1% compared to 1.46% in patients who did not have an ICU stay.[19] Colaneri et al.[31] also retrospectively studied 44 COVID-19-positive patients and nearly 39% of the patients in their study developed a serious illness, while two (4.5%) died. The number of patients admitted to the ICU in our study was quite higher (60%) when compared to USA, UK, and China; however, the mortality (11%) was very less.[13,20,32] The main cause might be a late presentation as people were trying to home quarantine in case of mild/moderate symptoms and only coming to the hospital when their condition worsened or SpO2 level dropped down. Being tertiary care hospitals, a significant proportion of our ICU patients usually came with more severe disease due to delayed presentation.

In the present study, the overall fatality rate among those with an outcome was high (about 11%). Nevertheless, most (89%) patients recovered. Goyal et al. documented 10.4% mortality in their study.[23] The values are quite low than those reported for other countries.[33] This outcome may be ascribed to the ability of our healthcare system to adapt and ensure the availability of resources in time. The recovery rate in India was 64.53% at the
time of this report compared to other countries. However, the recovery in Delhi was high at 90%, pointing to the availability of good healthcare resources. However, if the number of cases again started increasing exponentially as feared, there might be a shortage of beds, ventilators, and other vital resources. Hence, our guidelines are constantly updated to ensure the best possible care for patients in this evolving situation.

Many studies reported poor prognosis of COVID-19 in patients with comorbidities like diabetes mellitus, hypertension, respiratory diseases, cardiac diseases, renal diseases, and malignancy. The most common comorbid condition in our study population was hypertension (37.4%) followed by diabetes mellitus (29.9%) and CAD (8.1%).

Most patients had an overall hospital stay of 9–11 days and recovery was also mostly seen between 10–15 days of stay. This is in concordance with other studies. This can be attributed to an early aggressive treatment that obviated the need for mechanical ventilation.

The PAN India data released in June 2020 showed that about 15.34% of the active COVID-19 patients needed oxygen support, 15.34% of the patients needed intensive care units (ICU), and 4.16% of the patients required ventilator support. However, an increment was noted from the month October onwards. The data released by health ministry documented that oxygen (O₂) supported beds have increased from 57,924 to 265,046 between April and October 19, whereas the number of ICU beds and ventilator beds has increased 3.3 times. As discussed, our ICU admission was quite high (60.3%) as our hospital was designated COVID-19 hospital with 58.7% patients on NEB, 6.1% patients on BIPAP, and 8% on high flow cannula.

The trend in the 7-day rolling average shows several ups and downs. In comparison to our previous study, we visualized an upward trend in the 7-day moving averages. The reason would be reduced social distancing and laxity among the public regarding COVID-19 even with good testing and treatment services as well as vaccination at our center. Thus, it is of paramount importance that stringent containment measures continue to be in place with maximal public-administration cooperation.

However, India suffered the second wave of COVID-19 since April 15, 2021 and the scenario is quite grim. The pandemic is sweeping through India at such a pace that sets new records. The Indian government reported 273,810 new infections nationally on 18th April 2021. There might be a plethora of causes behind this unprecedented surge, which included the emergence of new infectious variants, unrestricted social interactions, and low vaccine coverage. Hence, a quick, effective, and collective effort of the public, government authorities, health care infrastructure, and policymakers is needed to suppress the rapid surge of the epidemic.

Conclusion

COVID-19 is quite different from SARS because of its high infectivity. There are still many uncertainties, which prevail about the epidemic. In summary, this pandemic has been a major test for the medical community worldwide and has provided indeed many valuable experiences regarding the existing health infrastructure in the country and the policies that need to be drafted with precision and futuristic vision. It has revealed weakness in the management of emerging viral diseases and reminded us that communicable diseases must never be underestimated. Adoption of aggressive measures as well as their wide implementation may help to control the epidemic. Moreover, we also need to build sufficient resources, organize human as well as material resources, and share and analyze the data in a timely manner to implement control activities.

Key message

The infectivity of COVID-19 has surpassed that SARS-CoV and MERS-CoV. The disease has spread globally at a rapid pace and continues to escalate. There is little knowledge about the characteristics of the newly emerging virus and its epidemiological traits. Understanding the severity and how best to treat the virus remains a challenge.

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Conflicts of interest

There are no conflicts of interest

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