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Clinico-demographic profile & hospital outcomes of COVID-19 patients admitted at a tertiary care centre in north India

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***Background & objectives*: In December 2019, a novel coronavirus (SARS-CoV-2) emerged in China and rapidly spread globally including India. The characteristic clinical observations and outcomes of this disease (COVID-19) have been reported from different countries. The present study was aimed to describe the clinico-demographic characteristics and in-hospital outcomes of a group of COVID-19 patients in north India.**

***Methods*: This was a prospective, single-centre collection of data regarding epidemiological, demographic, clinical and laboratory parameters, management and outcome of COVID-19 patients admitted in a tertiary care facility in north India. Patient outcomes were recorded as death, discharge and still admitted.**

***Results*: Data of 144 patients with COVID-19 were recorded and analyzed. The mean age of the patients was 40.1±13.1 yr, with 93.1 per cent males, and included 10 (6.9%) foreign nationals. Domestic travel to or from affected States (77.1%) and close contact with COVID-19 patients in congregations (82.6%) constituted the most commonly documented exposure. Nine (6.3%) patients were smokers, with a median smoking index of 200. Comorbidities were present in 23 (15.9%) patients, of which diabetes mellitus (n=16; 11.1%) was the most common. A significant proportion of patients had no symptoms (n=64; 44.4%); among the symptomatic, cough (34.7%) was the most common symptom followed by fever (17.4%) and nasal symptoms (2.15%). Majority of the patients were managed with supportive treatment with hydroxychloroquine and azithromycin given on a case-to-case basis. Only five (3.5%) patients required oxygen supplementation, four (2.8%) patients had severe disease requiring intensive care, one required mechanical ventilation and mortality occurred in two (1.4%) patients. The time to reverse transcription-polymerase chain reaction (RT-PCR) negativity was 16-18 days.**

***Interpretation & conclusions*: In this single-centre study of 144 hospitalized patients with confirmed COVID-19 in north India, the characteristic findings included younger age, high proportion of asymptomatic patients, long time to PCR negativity and low need for intensive care unit care.**

Keywords Clinico-epidemiologic - cough - COVID-19 - north India - outcome - prospective

In December 2019, an outbreak of cases of pneumonia of unknown aetiology was identified at Wuhan city in Hubei province of China. In the early January 2020, the Chinese authorities identified a new strain of coronavirus which was later named as 2019 novel coronavirus (2019-nCoV)[1]. This virus spread rapidly across the globe, and the WHO subsequently declared COVID-19 (coronavirus disease 2019) as a pandemic on March 11, 2020[2]. As per the WHO data, as on May 5, 2020, a total of 3,517,345 confirmed cases and 243,401 deaths had been reported worldwide[3]. Countries such as the USA, Spain, Italy and France bore the maximum brunt of disease load[3].

Coronavirus has caused large respiratory outbreaks previously in the form of severe acute respiratory syndrome (SARS) outbreak in 2003 and Middle East respiratory syndrome (MERS) in 2012 which has caused >10,000 cases globally and mortality around 10 and 37 per cent for SARS and MERS, respectively[4,5]. In India, the first case of COVID-19 was identified on January 30, 2020[6] and the number has been increasing steadily due to local transmission and foci of community transmission. As of April 14, 2020, the number of cases in India was 11,485 with overall reported mortality of 396[7]. Delhi recorded 1,561 cases till April 14, with 30 deaths[8].

The clinical presentation and outcomes of patients with COVID-19 have been variable in different countries[9-16]. Therefore, it is important to analyze and document the clinical behaviour of this disease in the local population. Herein, we report the clinical profile, exposure characteristics and outcomes of the first 144 COVID-19 patients admitted to a tertiary care facility in north India.

Material & Methods

Data on epidemiological, demographic, clinical and laboratory parameters, management and outcome from consecutive patients with microbiological diagnosis of COVID-19 admitted to the All India Institute of Medical Sciences (AIIMS), New Delhi, India, from March 23 till April 15, 2020, were collected prospectively. The AIIMS, New Delhi, has dedicated COVID-19 facilities at the National Cancer Institute, Jhajjhar (AIIMS-NCI, Jhajjhar) and AIIMS Trauma Center, catering to COVID-19 patients across all severity spectra. Our centre was designated as a referral facility for COVID-19 patients from nodal public sector hospital, as per government policy[17]. Patients of all severity were referred for admission; the hospital had no control over patient selection. Patients were received in a screening area, evaluated on arrival and triaged to isolation facility, ward, high-dependency unit or intensive care unit (ICU) as per clinical assessment. A focussed history including travel and exposure history and comorbidities were recorded. After initial clinical evaluation, patients with dyspnoea, respiratory rate (RR) >20/min, or oxygen saturation (SpO_2) <94 per cent on room air, clinical diagnosis of pneumonia and those deemed to be at risk for severe disease were subjected to chest radiography. Baseline haemogram and liver and kidney function tests were done for all symptomatic patients, and those at risk of severe disease. Patients with age >60 years and those with cardiovascular risk factors (hypertension, coronary artery disease); diabetes mellitus; immunocompromised state and chronic respiratory, liver or kidney diseases, were considered at high-risk for progression to severe disease. Severe disease was defined as either of these, *i.e.*, RR >24/min, SpO_2 <94 per cent on room air, confusion, drowsiness, hypotension, sepsis, septic shock or admission to ICUs[17,18].

Dates of symptom onset and resolution were recorded. Time elapsed between the onset and resolution of symptoms was taken as time to clinical resolution. Treatment protocol was followed as per the international[18] and local institutional guidelines.

All patients received symptomatic treatment and were continued on treatment for pre-existing diseases. Azithromycin was prescribed to patients with respiratory symptoms with or without fever. Patients with a clinical diagnosis of pneumonia received a combination of beta-lactam with a beta-lactamase inhibitor along with azithromycin. Hydroxychloroquine (HCQ) was prescribed to symptomatic patients at high-risk of progression to severe disease, and to those with a clinical diagnosis of pneumonia, if there were no contraindications, based on the treating clinician's judgement. Baseline electrocardiogram (ECG) was performed in patients as indicated, and in all patients prior to initiation of HCQ. Follow up ECG was done as clinically indicated. Oxygen supplementation was given with the help of a nasal prong, a face mask and a non-rebreathing mask as clinically indicated. Eligible patients were applied with prone positioning under supervision.

Throat and nasopharyngeal samples were collected using dacron swabs from patients suspected of having

SARS-CoV-2 infection. Samples were immediately immersed in viral transport medium (VTM, Hank's balanced salt solution) and transported in triple layered packaging to virology laboratory, where these were processed in a biological safety cabinet (BSC-type IIb). RNA was extracted from VTM fluid followed by real-time reverse transcription-polymerase chain reaction (RT-PCR) using the standardized National Institute of Virology, Pune, protocol as reported earlier[19]. Qualitative RT-PCR targeting the envelope (*E*), open reading frame 1b (*ORF-1b*) and RNA-dependent RNA polymerase (*RdRp2*) genes of beta coronaviruses and SARS-CoV-2 virus were utilized for diagnosis[19].

The duration of infectivity was calculated based on the duration between the first positive real-time RT-PCR to the first negative RT-PCR. As per the hospital policy at that time, follow up nasopharyngeal and throat swab for RT-PCR was sent after four days of resolution of symptoms, or after seven days of symptom onset, whichever was later, subject to the availability of viral transport media. If the follow up RT-PCR was positive, another sample was sent after 4-7 days. Patients were discharged after two consecutive negative RT-PCR tests, along with normal chest examination findings or improvement in chest radiograph. Outcomes were recorded as death, discharge or still admitted.

Statistical analysis: Continuous data were presented as mean±standard deviation (SD), if normally distributed, and median [interquartile range (IQR)], if data were non-normal. Categorical variables were presented as frequency and percentages (n; %). Comparability of groups was analyzed by Chi-square test, Student's t test or Mann-Whitney test as appropriate. IBM SPSS Statistics version 26 (IBM Corp., Armonk, NY, USA) software was used for statistical analyses.

Results

A total of 144 patients were studied, of whom 134 (93.1%) were males and the overall mean age was 40.1±13.1 yr, with 10 (6.9%) patients being foreign nationals. The State-wise distribution of patients is shown in Table I. Recent domestic travel to or from affected States (n=111; 77.1%) and close contact with COVID-19 patients in congregations (n=119; 82.6%) constituted the most common exposure characteristic. Other exposure characteristics included foreign travel to an affected country (n=20; 13.9%), and household close contact with a known COVID-19 patient (n=7; 4.9%). Two (1.4%) patients were healthcare workers treating COVID-19 patients, and one was a public official with close contact with a patient during work. Nine patients were smokers, with two (1.4%) being current smokers and seven (4.9%) being reformed smokers; the median smoking index was 200 [interquartile range (IQR): 125-250]. Comorbidities were present in 23 (15.9%) patients, of which diabetes mellitus (n=16; 11.1%) was the most common comorbidity observed, while one patient each had asthma and concomitant pulmonary tuberculosis. Two (1.4%) patients were receiving angiotensin-converting enzyme inhibitors (ACEIs) or angiotensin II receptor blockers (ARBs). Based on age and previously identified risk factors, 31 (21.5%) patients were considered to be at risk of progression to severe disease. Table I describes the baseline characteristics of the admitted COVID-19 patients.

Sixty four (44.4%) patients were asymptomatic and remained so during the hospital stay. In others, the most common symptoms were cough (n=50; 34.7%), fever (n=25; 17.4%), nasal symptoms (n=31; 21.5%) and throat irritation (n=31; 21.5%). Only eight (5.6%) patients complained of dyspnoea, while gastrointestinal symptoms in the form of nausea or vomiting were reported by three (2.1%) patients; diarrhoea was reported by four (2.8%) patients (Table II). The median duration of onset of symptoms before admission was three days (IQR: 2-6 days). There was no significant difference in age, sex or frequency of comorbidities between asymptomatic and symptomatic patients.

At admission, 16 (11.1%) patients had fever >37.3°C. Only four (2.8%) patients had severe disease at admission. Anaemia was present in five (3.5%) patients; no patient had leucopenia; however, leucocytosis [total leucocyte count (TLC) >11,000/µl] was present in 15 (10.4%) patients and lymphopenia (absolute lymphocyte count <1500/µl; or lymphocytes <5%) in nine (6.3%) patients. There was no significant difference in baseline laboratory parameters such as haemoglobin, TLC, lymphopenia, neutrophil-lymphocyte (NL) ratio, platelet counts, urea, creatinine, total protein, albumin, bilirubin, alanine aminotransferase, aspartate aminotransferase or alkaline phosphatase between symptomatic and asymptomatic patients. Among the 144 patients, four (2.8%) had severe disease, whereas the remaining 140 (97.2%) had mild-to-moderate disease. There was no significant association between severe disease with respect to age, sex, smoking status, TLC grading or lymphopenia. However, a significant association was observed between severe disease at presentation and NL ratio (P<0.05). Table III depicts the baseline

Table I. Baseline characteristics of the admitted patients with COVID-19 (n=144)

Parameter	n (%)
Age in years*	40.1±13.1
Sex	
Male	134 (93.1)
Female	10 (7.2)
Indian nationals	134 (93.1)
State of residence	
Andaman and Nicobar Islands	6 (4.5)
Andhra Pradesh	12 (9.0)
Assam	2 (1.5)
Bihar	1 (0.8)
Delhi	26 (19.4)
Haryana	1 (0.8)
Maharashtra	6 (4.7)
Puducherry	4 (3.0)
Rajasthan	1 (0.8)
Tamil Nadu	74 (55.2)
Telangana	1 (0.8)
Country of residence (foreign nationals) (n=10)	
Fiji	3 (2.1)
Kyrgyzstan	1 (0.7)
Malaysia	2 (1.4)
Thailand	4 (2.8)
Exposure characteristics	
Recent foreign travel within 14 days of symptoms	20 (13.9)
Recent domestic travel to affected States	111 (77.1)
Close contact with COVID-19 patients	7 (4.9)
Healthcare worker treating COVID-19 patients	2 (1.4)
Public service personnel with exposure to COVID-19 patients	1 (0.7)
Public congregation	119 (82.6)
Smoking status	
Current smoker	2 (1.4)
Reformed smoker	7 (4.9)
Never smoker	135 (93.8)
Smoking index (n=6)#	200 (125-250)
Comorbidities	23 (15.9)
Diabetes mellitus	16 (11.1)
Hypertension	3 (2.1)
Coronary artery disease	1 (0.7)
Hypothyroidism	3 (2.1)
Neurologic (parkinsonism)	1 (0.7)
Chronic respiratory diseases	2 (1.4)
Bronchial asthma	1 (0.7)
Concomitant pulmonary tuberculosis	1 (0.7)
Patients receiving ACEIs or ARBs	2 (1.4)
Time from first symptom appearance to admission (days)#	3 (2-6)

*Values expressed as mean (SD); #Values expressed as median (IQR). ACEIs, angiotensin-converting enzyme inhibitor; ARB, angiotensin II receptor blocker; SD, standard deviation; IQR, interquartile range

clinical and laboratory parameters of the COVID-19 patients included in this study.

Majority of the patients were treated with supportive care and required only symptomatic treatment *i.e.*, antihistamines (48.6%), vitamin C (47.2%) and paracetamol (20.8%). Azithromycin was prescribed to 29 (20.1%) patients, HCQ was administered to 27 (18.7%) patients and 11 (7.6%) received both HCQ and azithromycin. One patient was prescribed antitubercular therapy on a clinico-radiological basis. Table III summarizes the treatment details of patients. Only one (0.7%) patient required mechanical ventilation. Five (3.5%) patients required oxygen supplementation. None of the patients were treated with non-invasive ventilation or high-flow nasal cannula.

Two of 144 patients died, giving a mortality of 1.4 per cent. These two deaths were among the severe group, amounting the mortality to 50 per cent in that group. One of these was a 35 yr old male with diabetic ketoacidosis, multilobar consolidation and septic shock, who required cardiopulmonary resuscitation immediately on arrival to the hospital and died within the next three hours. The second was an emaciated, malnourished patient with bicytopenia, bilateral lung

Table II. Symptom profile of the admitted COVID-19 patients (n=144)

Symptom profile	n (%)	Duration in days*
Asymptomatic	64 (44.4)	-
Symptomatic	80 (55.6)	-
Fever	25 (17.4)	5 (3-7)
Nasal symptoms	31 (21.5)	3 (3-4)
Throat irritation	31 (21.5)	3 (3-4)
Cough	50 (34.7)	3 (2-7)
Sputum	5 (3.5)	4 (2.5-8.0)
Dyspnea	8 (5.6)	2 (2-3)
Fatigue	2 (1.4)	6 (4-6)
Myalgia	5 (3.5)	3 (1-6)
Diarrhoea	4 (2.8)	2 (1-2)
Nausea/vomiting	3 (2.1)	2 (1-2)
Other symptoms		
Chest pain	1 (0.7)	NR
Earache	1 (0.7)	NR
Giddiness	1 (0.7)	NR
Headache	2 (1.4)	NR

*Median (IQR). NR, not recorded

infiltrates and right upper zone cavitation, who died on the fifth day of admission due to refractory acute respiratory distress syndrome.

The disease severity at baseline did not show any significant association with age, sex, smoking history, smoking index, baseline TLC, TLC grading, percentage lymphocyte count, lymphopenia or time to RT-PCR negativity. Till the time of data analysis, 125 (86.8%) patients had achieved two consecutive negative RT-PCR reports. The median time to RT-PCR negativity, calculated as the duration from the first positive report to the first negative report, was 18 days (IQR: 17-18). There was no significant difference in the median time to RT-PCR negativity between symptomatic (18; IQR: 17.5-18) and asymptomatic (18; IQR: 15-18) patients in our cohort. The median time to RT-PCR negativity was 16 days (IQR: 14.5-18) in patients receiving HCQ, as compared to 18 (IQR: 17.3-18) days in those who did not receive it (P<0.001). Time to RT-PCR positivity did not vary significantly in patients receiving azithromycin or combination of azithromycin along with HCQ as compared to those not receiving these drugs. However, both deaths occurred in patients who were receiving azithromycin and HCQ.

Discussion

We reported the clinical characteristics, hospital course and outcome of the first 144 patients admitted to a COVID-19-dedicated hospital from north India. Compared to previously published reports from other countries (Table IV), the mean age of our patients was significantly lower (40.1 vs. 47-63 yr)[9-15,20]. Our patients had large male preponderance compared to global data (93 vs. 54.3-73%). However, this may be related to the fact that the majority of our patients were part of a public congregation mainly attended by males, which was identified as a COVID-19 hotspot, and patients were identified on active screening. Of note, two patients were healthcare workers treating COVID-19 patients, and one was a public official with close contact with a COVID-19 patient during work, highlighting the risk associated within healthcare and law enforcement work during an ongoing pandemic. Severe disease was seen in only 2.8 per cent subjects, a much lower figure compared to that of other studies where 15.7-29 per cent of all patients had severe disease[9-15]. Another observation was that a significant proportion of our patients (44.4%) was asymptomatic at admission, and remained so throughout the hospital course. This may be a cause of concern as these asymptomatic patients are potential carriers or transmitters of infection in the community. Most symptomatic patients had mild respiratory symptoms such as nasal symptoms, throat irritation and cough, which was different from the reported symptoms in other studies. Fever was present in only 17 per cent of our patients, which was far less compared to other reports across the globe, including the Chinese cohort in whom 44 per cent had fever at the time of presentation and 88 per cent developed fever during the hospital stay[9]. Thus, overemphasis on fever as a predominant symptom may lead to several cases being missed. The differences in symptom profile in our study may be due to the selection bias, as most patients were identified on active screening. Lymphopenia, commonly associated with severe disease in reported studies[9,10], was not found to be significantly associated with severe disease in our study. However, higher NL ratio was significantly associated with severe disease in our study, as has been reported in a recent meta-analysis of published COVID-19 studies[21].

Two consecutive negative RT-PCR tests performed 24 h apart were required for discharge from the hospital. The mean time to RT-PCR conversion was

Table III. Baseline vitals, laboratory parameters, hospital course, treatment details and outcomes of the admitted COVID-19 patients (n=144)

Parameter at admission	n (%)
Fever (≥37.3°C)	16 (11.1)
RR (breaths/min)#	18 (16-18)
SpO_2 (%)*	95.6±13.8
Heart rate (beats/min)*	85.0±14.0
Systolic blood pressure (mmHg)*	111.6±15.6
Diastolic blood pressure (mmHg)*	78.1±11.7
Heart rate >110/min	4 (2.8)
RR >24 breaths per minute	4 (2.8)
SpO_2 <94%	3 (2.1)
Systolic blood pressure <90 mmHg	1 (0.7)
Disease severity status at baseline	
Mild to moderate	140 (97.2)
Severe	4 (2.8)
Laboratory findings	
Hb (g %)*	14.1±1.4
Platelet count (10^5/µl)#	3.3 (2.9-4.0)
Anaemia	5 (3.5)
TLC (per µl)#	8460 (6900-9790)
TLC grading (per µl)	
4,000-11,000	121 (84)
>11,000	15 (10.4)
Neutrophil: lymphocyte ratio#	1.9 (1.5-2.6)
Lymphopenia	9 (6.3)
Serum proteins (g/dl)*	6.9±0.7
Serum albumin (g/dl)*	4.3±0.5
Bilirubin (mg/dl)#	0.5 (0.4-0.7)
ALT (units/l)#	28.3 (24.8-38.8)
AST (units/l)#	30.5 (21.0-46.7)
Alkaline phosphatase (units/l)#	79 (67.7-97.5)
Radiologic findings (n=18)	
Normal	9 (50)
Lobar consolidation with bilateral interstitial infiltrates	4 (22.2)
Patchy bilateral infiltrates	3 (16.6)
Cavitation along with bilateral interstitial infiltrates	2 (11.1)
Drugs received	
Paracetamol	30 (20.8)
Antihistamines	70 (48.6)
Oral vitamin C	68 (47.2)
Azithromycin	29 (20.1)
HCQ	27 (18.7)
Both azithromycin and HCQ	11 (7.6)
Beta-lactam/beta-lactamase inhibitor	7 (4.9)
Teicoplanin	1 (0.7)
Antitubercular treatment	1 (0.7)
Hospital course and outcome	
Time to RT-PCR negativity (days)*	16.9±2.9
Improved	139 (96.5)
Worsening requiring shifting to ICU/high-dependency unit	5 (3.5)
MV	1 (0.7)
Outcome	
Transferred out	1 (0.7)
Death	2 (1.4)
Cured	125 (86.8)
Still admitted	16 (11.1)

*Values in mean±SD; #Values in median (IQR). SpO_2, oxygen saturation; RR, respiratory rate; TLC, total leucocyte count; ALT, alanine aminotransferase; AST, aspartate aminotransferase; MV, mechanical ventilation; RT-PCR, reverse transcription-polymerase chain reaction; Hb, haemoglobin; HCQ, hydroxychloroquine; ICU, intensive care unit

16.9±2.9 days even though most patients had mild-to-moderate disease. This was similar to the findings of other studies where the median duration for which SARS-CoV-2 RNA remained detectable by PCR in nasopharyngeal swabs was 12.5 and 14 days, respectively[16,22].

HCQ has demonstrated variable results in RT-PCR conversion and time-to-clinical resolution[23-25]. In our study, all patients with severe disease, or significant comorbidities, deemed to be at high-risk of progression to severe disease were given HCQ. Although HCQ reduced median time to RT-PCR negativity from 18 to 16 days, the clinical significance of this observation remained uncertain because this was not a randomized comparison. Azithromycin possesses anti-inflammatory and immunomodulatory

Table IV. Comparison of present study with published descriptive studies on COVID-19

Study	Guan *et al*[9] (n=1099)	Chen *et al*[13] (n=99)	Huang *et al*[10] (n=41)	Wang *et al*[11] (n=138)	Richardson *et al*[20] (n=5700)	Current study (n=144)
Age (yr)	47	55.5	49	56	63 (52-75)[#]	40.1 (13.1)[*]
Males, n (%)	637 (58.1)	67 (68)	30 (73)	75 (54.3)	3437 (60.3)	134 (93.1)
Exposure characteristics, n (%)						
Living in Wuhan	483 (43.9)	NR	NR	NR	NR	Community hotspots 119 (82.6) Domestic travel to affected areas 111 (77.1)
Contact with wildlife	13 (1.9)	49 (49)	27 (66)	12 (8.7)	NR	
Recently visited Wuhan	193 (31.3)	NR	NR	NR	NR	
Contact with Wuhan residents	442 (72.3)	NR	NR	NR	NR	
Smoking history, n (%)	158 (14.6)	NR	3 (7)	NR	558 (15.6)	9 (6.3)
Comorbidities, n (%)						
Any	261 (23.7)	50 (51)	13 (32)	64 (46.4)	NR	NR
Cardiovascular	27 (2.5)	40 (40)	6 (15)	20 (14.5)	NR	1 (0.7)
Neurological	15 (1.4)	1 (1)	NR	7 (2.9)	NR	1 (0.7)
Hypertension	165 (15)	NR	6 (15)	43 (31.2)	3026 (56.6)	3 (2.1)
Digestive system disease	23 (2.1)	11 (11)	1 (2)	4 (2.9)	NR	NR
Endocrine system disease	81 (7.4)	13 (13)	8 (20)	14 (10.1)	1808 (33.8)	16 (11.1)
Malignant tumour	10 (0.9)	1 (1)	1 (2)	10 (7.2)	NR	NR
Pulmonary disease	12 (1.1)	1 (1)	1 (2)	4 (2.9)	NR	3 (2.1)
Obesity	NR	NR	NR	NR	1737 (41.7)	NR
Fever, n (%)	975 (88.7)	82 (83)	40 (98)	136 (98.6)	1734 (30.7)	25 (17.4)
Cough, n (%)	745 (67.8)	81 (82)	31 (76)	82 (59.4)	NR	50 (34.7)
Nasal symptoms/ throat irritation, n (%)	153 (13.9)	5 (5)	NR	24 (17.4)	NR	31 (21.5)
Sputum, n (%)	NR	NR	11 (28)	37 (26.8)	NR	5 (3.5)
Dyspnoea, n (%)	205 (18.7)	31 (31)	22 (55)	43 (31.2)	NR	8 (5.6)
Diarrhoea, n (%)	42 (3.8)	2 (2)	1 (3)	14 (10.1)	NR	4 (2.8)
Severe disease, n (%)	173 (15.74)	23 (23)	12 (29)	36 (26)	1584 (27.8)	4 (2.8)
Lymphopenia, n (%)	731 (83.2)	35 (35)	26 (63)	NR	3387 (60)	9 (6.3)
Progression to severe disease, n (%)	173 (15.74)	23 (23)	13 (32)	36 (26)	NR	5 (3.5)

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Study	Guan *et al*[9] (n=1099)	Chen *et al*[13] (n=99)	Huang *et al*[10] (n=41)	Wang *et al*[11] (n=138)	Richardson *et al*[20] (n=5700)	Current study (n=144)
Oxygen supplementation, n (%)	454 (41.3)	75 (76)	27 (66)	106 (76.81)	1584 (27.8)	5 (3.5)
Mechanical ventilation, n (%)	67 (6.1)	17 (17)	14 (34)	32 (23.2)	320 (12.2)	1 (0.8)
HCQ administration, n (%)	NR	NR	NR	NR	NR	27 (18.7)
Other specific drugs (%)	Oseltamivir (35.8) Antifungals (2.8) Steroids (18.6)	Antivirals (76) Antifungal (15) Steroids (19) Antibiotics (71) IVIg (27)	Antivirals (93) Antibiotics (100) Steroids (22)	Antivirals (89.9) Steroids (44.9)	NR	Azithromycin (20.1) Antitubercular therapy (0.7)
Mortality (%)	1.4	11	15	4.3	21	1.4

All values expressed as number (%); median (IQR)[#] or mean (SD)[*]. IVIg, intravenous immunoglobin

properties extending beyond their antibacterial activity. A review of literature by Min and Jang[26] showed that macrolides could be considered a promising treatment option for respiratory viral infections. Among patients administered azithromycin, no significant change in time to RT-PCR conversion was noted.

Only nine patients were smokers, and all improved with treatment. None of them had severe disease, or worsening during the hospital course. Due to the low number of smokers and the low frequency of adverse events, we could not evaluate the correlation of smoking with the severity of disease or adverse outcome. However, according to a recent systematic review and meta-analysis, smoking appears to be a risk factor for COVID-19 progression with higher prevalence of smoking among COVID-19 patients with severe, progressive disease or intensive care admission[27,28].

In previous studies[9-13,20], 15.7-29 per cent of patients were reported to have severe disease; however, only 2.8 per cent patients in our study had severe disease at admission. Furthermore, the mortality in our study was 1.4 per cent (2/144). Only one patient required mechanical ventilation and five required oxygen supplementation. This was possibly due to the fact that our health centre was primarily prepared as a facility for the relatively less-sick patients initially. Our observed mortality was similar to that reported from China[9], but far less than reported from Europe or the USA[15,20]. A recent descriptive case series of 21 patients has been published from New Delhi, India[29]. Although we reported only 144 patients in this study, the age distribution, severity and mortality statistics in our study were similar to those reported from Delhi and national level[7,8,29]. At this juncture, no definitive conclusions with respect to reasons for differences in disease severity and outcome can be drawn; however, it is possible that an overall younger age distribution, combined with low frequency of comorbidities, lymphopenia and hypoxemia, may be the contributing factors for some characteristic features in our patients.

In conclusion, our study highlights some important differences in Indian patients from those already reported in literature from China, Europe and the USA. This study was limited to the in-hospital clinical course only and follow up details were not available; thus, information of relapses was not reported. Furthermore, by virtue of being a referral centre and not accepting patients directly, majority of the patients had mild-to-moderate disease; the spectrum of severe illness was underrepresented.

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