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Original Article

# Study of Clinical Profile of Coronavirus Disease-19 Infected Patients in South Tamil Nadu: A Retrospective Study

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## Abstract

**Introduction:** The disease has imposed a huge burden on health resources. The World Health Organization declared Coronavirus disease 2019 (COVID-19) a global pandemic on March 11, 2020. Illness ranges in severity from asymptomatic or mild-to-severe; a significant proportion of patients with clinically evident infection develop severe disease.

**Aim:** This study aimed to analyze the clinical profile of COVID patients.

**Materials and Methods:** A total of 100 consecutive patients with confirmed COVID-19 infection admitted to the hospital were enrolled. The diagnosis of severe acute respiratory syndrome coronavirus 2 infection was confirmed by reverse transcription-polymerase chain reaction on the throat and nasopharyngeal swabs. Oral consent was obtained from patients. Results were analyzed statistically and discussed below.

**Results:** Out of 100 patients, 69 were male, and 31 were female. Based on age group, nine patients were age below 40 years, 18 were between 41 and 50 years, 29 were between 51 and 60 years, 27 patients were between 61 and 70 years, and 17 patients had age above 70 years. The majority of the patients had systolic blood pressure >120, and 70 patients had diastolic blood pressure between 71 and 80 mm/hg. Fifty-four patients had heart rate between 61 and 100 rates/min, 51 patients had spo2 >96. C-reactive protein and lactate dehydrogenase values are abnormal for 98 patients. Sixty-eight patients did not need oxygen therapy, and 78 patients did not need ventilation.

**Conclusions:** In our study, the main clinical presentation was cough, fever, and breathlessness. The most common associated comorbidity was diabetes mellitus, followed by hypertension.

**Key words:** Clinical profile, Coronavirus disease 2019, Mortality

## INTRODUCTION

In December 2019, a case of pneumonia of unknown origin was reported in Hubei Province, China.[1] The causative pathogen, isolated from human airway epithelial cells, was found to be a novel enveloped betacoronavirus,[2] now known as severe acute respiratory syndrome corona virus-2 (SARS-CoV2). The disease was named Coronavirus disease 2019 (COVID-19). Although it shares phylogenetic similarity with SARS-CoV, it is the seventh member of the family of Coronaviridae to infect humans.[3] Given the rapid spread of COVID-19 and the steep rise in morbidity and mortality it caused, the World Health Organization declared it as a pandemic on March 11, 2020.[1,4-6]

The etiological agent, the SARS-CoV, is believed to be an animal virus that crossed the species barrier to humans recently when ecological changes or changes in human behaviour increased opportunities for human exposure to the virus and virus adaptation, enabling human-to-human transmission.

The clinical features of COVID-19 are varied, ranging from an asymptomatic state to acute respiratory distress syndrome (ARDS) and multi-organ dysfunction. The common clinical features include fever (not in all), cough, sore throat, headache,

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fatigue, headache, myalgia, and breathlessness. Conjunctivitis has also been described. Thus, they are indistinguishable from other respiratory infections. In a subset of patients, by the end of the 1st week, the disease can progress to pneumonia, respiratory failure, and death. This progression is associated with an extreme rise in inflammatory cytokines including Interleukin (IL2), IL7, IL10, Granulocyte colony-stimulating factor, IP10, MCP1, MIP1A, and Tumor necrosis factor α.[5]

The median time from onset of symptoms to dyspnea was 5 days, hospitalization 7 days, and ARDS 8 days. The need for intensive care admission was in 25–30% of affected patients in published series. Complications witnessed included acute lung injury, ARDS, shock, and acute kidney injury. Recovery started in the 2nd or 3rd week. The median duration of hospital stays in those who recovered was 10 days. Adverse outcomes and death are common in the elderly and those with underlying comorbidities (50–75% of fatal cases). The fatality rate in hospitalized adult patients ranged from 4% to 11%. The overall case fatality rate is estimated to range between 2% and 3%.[7]

### Aim

This study aimed to analyze the clinical profile of COVID patients.

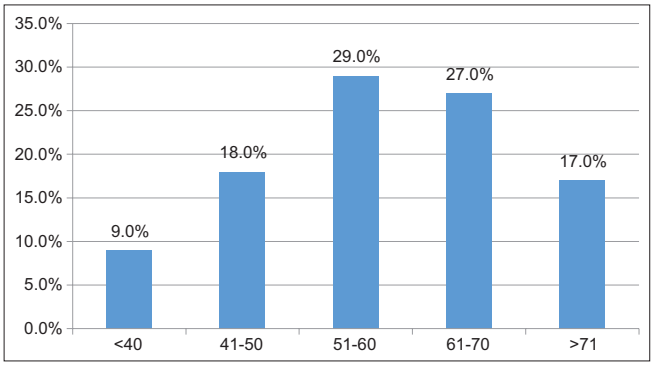


**Figure 1: Age distribution**

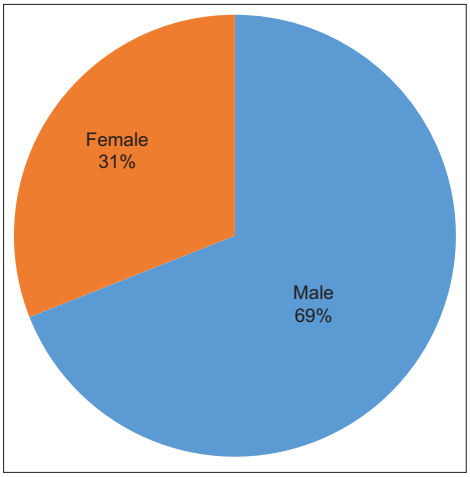


**Figure 2: Gender distribution**

## MATERIALS AND METHODS

A total of 100 consecutive patients with confirmed COVID-19 infection admitted to the hospital were enrolled. The diagnosis of SARS-CoV-2 infection was confirmed by Reverse transcription-polymerase chain reaction on the throat and nasopharyngeal swabs. Oral consent was obtained from patients. Various factors such as demographics, presenting symptoms, comorbidities, intensive care unit admission, oxygen requirement, and ventilator therapy were studied. The signs and symptoms included those seen in influenza-like illness,[8] pneumonia (chest pain, dyspnea, wheezing, lower chest wall indrawing, history of tuberculosis), gastroenteritis (nausea, vomiting, abdominal pain, and diarrhea), ear pain, altered consciousness, and seizures. The comorbidities included hypertension (HTN), diabetes with and without complications, obesity, chronic kidney disease, moderate or severe liver disease, asthma, chronic pulmonary disease other than asthma, and chronic cardiac disease including congenital anomalies but excluding HTN.

The information recorded included demographic data, medical history, exposure history, underlying comorbidities, symptoms, signs, laboratory findings, chest computed tomographic (CT) scans, and treatment measures (antiviral therapy, anti-retroviral therapy, antimalarial therapy, and

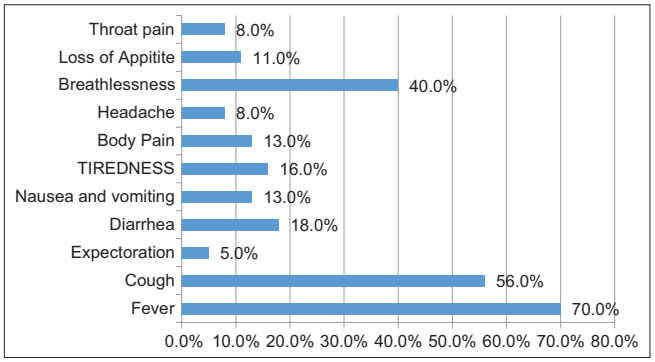


**Figure 3: Symptoms**

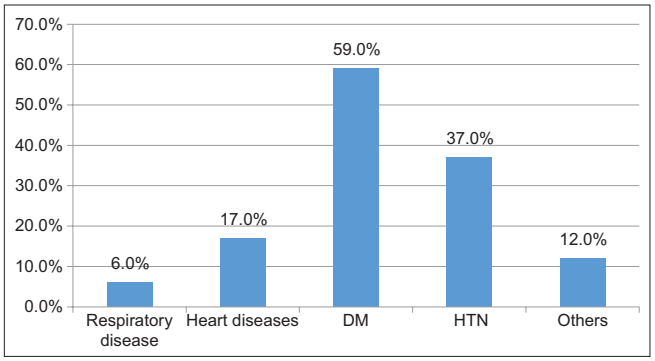


**Figure 4: Comorbidities**

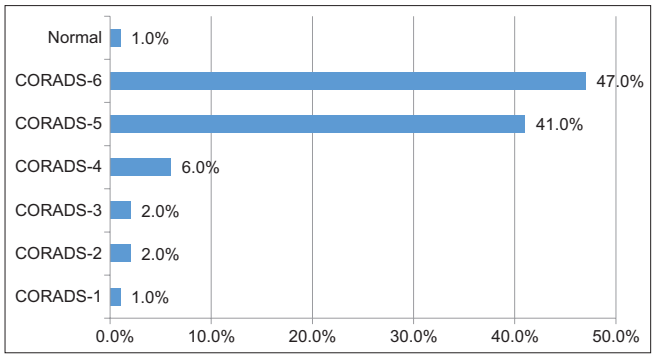


**Figure 5: Computed tomography findings**

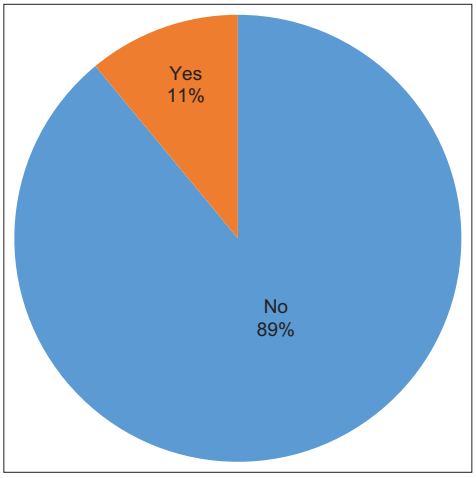


**Figure 6: Mortality**

respiratory support). Results were analyzed statistically and discussed below.

## RESULTS

Out of 100 patients based on age group, nine patients were aged below 40 years, 18 were between 41 and 50 years, 29 were between 51 and 60 years, 27 patients were between 61 and 70 years, and 17 patients had to age above 70 years. Out of 100 patients, 69 were male, and 31 were female Figures 1 and 2.

The majority of the patients had systolic blood pressure >120, and 70 patients had diastolic blood pressure between 71 and 80 mm/hg. Fifty-four patients had heart rate between 61 and 100 rates/min, 51 patients had spo2 >96. C-reactive protein (CRP) and lactate dehydrogenase (LDH) values are abnormal for 98 patients. Sixty-eight patients did not need oxygen therapy, and 78 patients did not need ventilation Table 1.

In this study, four patients are asymptomatic, seventy patients had a fever, 56 patients had a cough, 18 patients had diarrhea, 13 patients had nausea and vomiting, five

**Table 1: Diseases parameters**

| Parameters | Normal values | Frequency | Percentage |
|---|---|---|---|
| SBP | 100 | 6 | 6.0 |
| | 101–120 | 38 | 38.0 |
| | >120 | 56 | 56.0 |
| DBP | 70 | 23 | 23.0 |
| | 71–90 | 70 | 70.0 |
| | >90 | 7 | 7.0 |
| HR | <60 | 2 | 2.0 |
| | 61–100 | 54 | 54.0 |
| | >101 | 44 | 44.0 |
| SPO2 | <95 | 49 | 49.0 |
| | >96 | 51 | 51.0 |
| Liver function test | Normal | 85 | 85.0 |
| | Abnormal | 15 | 15.0 |
| PT/INR | Normal | 76 | 76.0 |
| | Abnormal | 24 | 24.0 |
| D-Dimer | Normal | 49 | 49.0 |
| | Abnormal | 51 | 51.0 |
| CRP | Normal | 2 | 2.0 |
| | Abnormal | 98 | 98.0 |
| LDH | Normal | 2 | 2.0 |
| | Abnormal | 98 | 98.0 |
| Oxygen therapy | Yes | 39 | 39.0 |
| | No | 61 | 61.0 |
| Ventilation | Yes | 22 | 22.0 |
| | No | 78 | 78.0 |

CRP: C-reactive protein, LDH: lactate dehydrogenase, SBP: Systolic blood pressure, DBP: Diastolic blood pressure, $SPO_2$: Oxygen saturation

patients had expectoration, 16 patients had tiredness, 13 patients had body pain, eight patients had a headache, 40 patients had breathlessness, 11 patients had a loss of appetite, and eight patients had throat pain Figure 3.

In this study, six patients had respiratory diseases, 17 patients had heart diseases, 59 patients had diabetes mellitus, 37 patients had HTN, and 12 patients had other diseases Figure 4.

In CT findings, 47% of patients were in COVID-19 reporting and data system (CO-RADS) 6, 41% were in CO-RADS 5 and 1% showed normal. The total duration of hospital stay was 8.25 days. 11% of mortality was observed in this study Figures 5 and 6.

## DISCUSSION

In our study, fever was the most common symptom present in our patients, followed by a cough, which was similar to that reported in Huang *et al.*[1] and Wang *et al.*,[6] where the fever was the most common symptom found (91.7%) and Guan *et al.*[7] (87.9%). Seven of our patients (33.33%) were asymptomatic at the time of presentation.

Guan *et al.* published a report on 1099 patients with laboratory-confirmed COVID-19 from 552 hospitals in

30 provinces, autonomous regions, and municipalities in mainland China through January 29, 2020. The most common symptoms reported were fever (43.8% on admission and 88.7% during hospitalization), and cough (67.8%), diarrhea (3.8%) was uncommon. A severe form of the disease was reported in the elderly and patients with comorbidities. Overall reported cases of death in this study were 15 (1.4%).[9]

Most of the patients having COVID-19 were male, which was similar to that reported by Huang *et al*.[1] Wang *et al*.[6] and Chen *et al*.,[5] which show 73.0% male predominance. In Rajasthan, a study conducted by Bhandari *et al*. was found that male patients constituted 66.66% of total patients, and the majority of the patients (80.90%) were below 60 years of age.[10] In India, a study conducted by Gupta *et al*. was found that the mean age of participants was 40.3 years (range 16–73 years). There was a male preponderance (66.7%).[11]

Zhang *et al*. was found that overall median age of 57.0 years. All patients were community□ acquired cases. Fever (91.7%), cough (75.0%), fatigue (75.0%), and gastrointestinal symptoms (39.6%) were the most common clinical manifestations, whereas HTN (30.0%) and diabetes mellitus (12.1%) were the most common comorbidities.[12]

Richardson *et al*. conducted a case series of patients with COVID-19 admitted to 12 hospitals in New York City, Long Island, and Westchester County, New York, within the North well Health system. The study included all sequentially hospitalized patients between March 1, 2020, and April 4, 2020. A total of 5700 patients were included (median age, 63 years [interquartile range (IQR), 52–75; range, 0–107 years]; 39.7% female). The most common comorbidities were HTN (3026; 56.6%), obesity (1737; 41.7%), and diabetes (1808; 33.8%).[13]

## CONCLUSION

In our study, the main clinical presentation was cough, fever, and breathlessness. The most common associated comorbidity was diabetes mellitus, followed by HTN. 11% of mortality was noted in the COVID patients geriatrics age group. 90% of mortality patients were on the ventilator.

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