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COVID-19 clinical profile: A review based on current evidence

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Abstract
The Covid-19 (Novel corona virus) continues to wreck havoc across China, European countries, USA and now seems to gain a strong foothold in India. Currently, the research on COVID-19 is in its primary stages. Based on current published article, this review systematically summarizes the clinical characteristics of COVID-19. It is hoped that this review will help the public and medical person to recognize and deal with COVID-19, and provide a reference for future studies.

Keywords: Corona virus, COVID-19, SARS-CoV, Novel corona virus

Introduction
Severe acute respiratory syndrome (SARS) was first recognized as a global threat in mid-March 2003. The first known cases of SARS occurred in Guangdong province, China, in November 2002 and WHO reported that the last human chain of transmission of SARS in that epidemic had been broken on 5 July 2003. The etiological agent, the SARS coronavirus (SARSCoV) 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. By July 2003, the international spread of SARS-CoV resulted in 8098 SARS cases in 26 countries, with 774 deaths. The epidemic caused significant social and economic disruption in areas with sustained local transmission of SARS and on the travel industry internationally in addition to the impact on health services directly [1].

On December 31, 2019, the China Health Authority alerted the World Health Organization (WHO) to several cases of pneumonia of unknown aetiology in Wuhan City in Hubei Province in central China. The cases had been reported since December 8, 2019, and many patients worked at or lived around the local Huanan Seafood Wholesale Mark*et al*though other early cases had no exposure to this market. On January 7, a novel coronavirus, originally abbreviated as 2019-nCoV by WHO, was identified from the throat swab sample of a patient. This pathogen was later renamed as severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) by the Coronavirus Study Group and the disease was named coronavirus disease 2019 (COVID-19) by the WHO. As of January 30, 7736 confirmed and 12,167 suspected cases had been reported in China and 82 confirmed cases had been detected in 18 other countries. In the same day, WHO declared the SARS-CoV-2 outbreak as a Public Health Emergency of International Concern (PHEIC) [2].

Clinical profile
The clinical features of COVID-19 are varied, ranging from asymptomatic state to acute respiratory distress syndrome and multi organ dysfunction. The common clinical features include fever (not in all), cough, sore throat, headache, 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 first week the disease can progress to pneumonia, respiratory failure and death. This progression is associated with extreme rise in inflammatory cytokines including IL2, IL7, IL10, GCSF, IP10, MCP1, MIP1A, and TNFα [3]. The median time from onset of symptoms to dyspnea was 5 days, hospitalization 7 days and acute respiratory distress syndrome (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 wk. The median duration of hospital stay in those who recovered was 10 days. Adverse outcomes and death are more common in the elderly and those with underlying co-morbidities (50–75% of fatal cases). Fatality rate in hospitalized adult patients ranged from 4 to 11%. The overall case fatality rate is estimated to range between 2 and 3% [4].

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%), diarrhoea (3.8%) was uncommon. A severe form of the disease was reported in elderly and in patients with comorbidities. Overall reported cases of death in this study were 15 (1.4%) [10]. The case reported from the United States was virus-positive in respiratory and faecal specimens; he had respiratory failure requiring oxygen

supplementation. The patient was treated with intravenous Remdesivir (a novel nucleotide analogue prodrug under development) and reported to be afebrile and stable [5].

In India a study conducted by Gupta N *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%). Seven were from Delhi, eight from Agra, two from Kolkata, and the remaining four were from Noida, Ghaziabad, Gurgaon, and Rajasthan, respectively. The average length of stay in hospital was 11.54 days and the mean duration of symptoms was 2.1 days. Eleven (52.4%) patients had a history of contact with a lab-confirmed COVID-19 patient. More than half of the patients, 13 (61.9%), had a travel history outside India. The majority of patients 8 (38.1%) visited Italy, followed by 2 (9.5%) who travelled to London, and other 3 patients (4.8%) who had been to Iran, Saudi Arabia, and Malaysia, respectively. The common presentation and symptoms experienced by nine patients were cough and fever. Sore throat, breathlessness, and headache were present in 5(23.8%), 1(4.8%), 3 (13.6%), respectively. Six patients (28.6%) had comorbidities. The most common comorbidity was hypertension (5 patients) and diabetes mellitus (3 patients) adequately controlled with drugs. One (4.8%) patient with hypertension and one with diabetes mellitus also showed anxiety disorder and hypothyroidism. Another patient had an underlying migraine and obstructive sleep apnoea. Chest roentgenogram was performed in all patients at initial presentation, and in 20 cases (95.2%), it showed no abnormality [6].

In Rajasthan a study conducted by Bhandari S *et al* was found that male patients constituted 66.66% of total patients and majority of the patients (80.90%) were below 60 years of age. Most of the patients (71.40%) were either foreigners or had a history of foreign travel suggesting that these cases were not community acquired except for 4 cases from textile producing district Bhilwara (known as Manchester of India), an first epicenter of North India. Approximately 33.33% patients were completely asymptomatic and of those who were symptomatic cough was the most common symptom (85.71%) followed by fever (78.57%), myalgia (64.28%), headache (28.57%) and dyspnea (28.57%). Three patients (14.28 %) had underlying co morbidity in the form of hypertension, diabetes mellitus, hypothyroidism, chronic kidney disease or coronary artery disease. 11 patients (52.38%) had lymphopenia in their hemogram during the course of admission. 3 patients (14.28%) had leucocytosis and 4 patients (19.04%) presented with thrombocytopenia. All 4 patients in the severe category had raised FDP, D-Dimer levels and they needed oxygen support. These patients had deranged liver functions and had elevated pro-calcitonin levels, serum ferritin levels and LDH levels. 1 out of the these 4 cases went into ARDS during the course of treatment. 10 patients yielded negative results for Covid-19. The mean duration from admission to getting 1st Covid-19 sample negative was 8.3 days. 18 patients (85.71%) are still under treatment. Conclusion: Clinical investigations in initial Covid-19 patients in the Indian subcontinent reveal lymphopenia as predominant finding in hemogram. Patients with older age and associated comorbid conditions (COPD and diabetes) seem to have greater risk for lung injury thereby requiring oxygen support during the course of disease and these patients also had greater derangement in their biochemical profile [7].

Fei Zhou *et al* was reported a study on clinical course and mortality risk for adults with COVID-19 severe enough to require hospitalisation. 191 patients (135 from Jinyintan Hospital and 56 from Wuhan Pulmonary Hospital) were included in this study, of whom 137 were discharged and 54 died in hospital. 91 (48%) patients had a comorbidity, with hypertension being the most common (58 [30%] patients), followed by diabetes (36 [19%] patients) and coronary heart disease (15 [8%] patients). Multivariable regression showed increasing odds of in-hospital death associated with older age (odds ratio 1·10, 95% CI 1·03–1·17, per year increase; p=0·0043), higher Sequential Organ Failure Assessment (SOFA) score (5·65, 2·61–12·23; p<0·0001), and d-dimer greater than 1 μg/mL (18·42, 2·64–128·55; p=0·0033) on admission. Median duration of viral shedding was 20·0 days (IQR 17·0–24·0) in survivors, but SARS-CoV-2 was detectable until death in non-survivors. The longest observed duration of viral shedding in survivors was 37 days [8].

Chen N *et al.* was found that Patients had clinical manifestations of fever (82 [83%] patients), cough (81 [82%] patients), shortness of breath (31 [31%] patients), muscle ache (11 [11%] patients), confusion (nine [9%] patients), headache (eight [8%] patients), sore throat (five [5%] patients), rhinorrhoea (four [4%] patients), chest pain (two [2%] patients), diarrhoea (two [2%] patients), and nausea and vomiting (one [1%] patient). According to imaging examination, 74 (75%) patients showed bilateral pneumonia, 14 (14%) patients showed multiple mottling and ground-glass opacity, and one (1%) patient had pneumothorax. 17 (17%) patients developed acute respiratory distress syndrome and, among them, 11 (11%) patients worsened in a short period of time and died of multiple organ failure [9].

Richardson S *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 Northwell 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 hypertension (3026; 56.6%), obesity (1737; 41.7%), and diabetes (1808; 33.8%). At triage, 30.7% of patients were febrile, 17.3% had a respiratory rate greater than 24 breaths/minute, and 27.8% received supplemental oxygen. The rate of respiratory virus co-infection was 2.1%. Outcomes were assessed for 2634 patients who were discharged or had died at the study end point. During hospitalization, 373 patients (14.2%) (median age, 68 years [IQR, 56-78]; 33.5% female) were treated in the intensive care unit care, 320 (12.2%) received invasive mechanical ventilation, 81 (3.2%) were treated with kidney replacement therapy, and 553 (21%) died. As of April 4, 2020, for patients requiring mechanical ventilation (n = 1151, 20.2%), 38 (3.3%) were discharged alive, 282 (24.5%) died, and 831 (72.2%) remained in hospital. The median postdischarge follow-up time was 4.4 days (IQR, 2.2-9.3). A total of 45 patients (2.2%) were readmitted during the study period. The median time to readmission was 3 days (IQR, 1.0-4.5) for readmitted patients. Among the 3066 patients who remained hospitalized at the final study follow-up date (median age, 65 years [IQR, 54-75]), the median follow-up at time of censoring was 4.5 days (IQR, 2.4-8.1) [10].

Guan W-jie *et al* analyzed the data from 1,590 laboratory-confirmed hospitalized patients 575 hospitals in 31 province/autonomous regions/provincial municipalities across mainland China between December 11th, 2019 and January 31st, 2020. The mean age was 48.9 years. 686 patients (42.7%) were females. Severe cases accounted for 16.0% of the study population. 131 (8.2%) patients reached to the composite endpoints. 399 (25.1%) reported having at least one comorbidity. The most prevalent comorbidity was hypertension (16.9%), followed by diabetes (8.2%). 130 (8.2%) patients reported having two or more comorbidities. After adjusting for age and smoking status, COPD [hazards ratio (HR) 2.681, 95% confidence interval (95%CI) 1.424-5.048], diabetes (HR 1.59, 95%CI 1.03-2.45), hypertension (HR 1.58, 95%CI 1.07-2.32) and malignancy (HR 3.50, 95%CI 1.60-7.64) were risk factors of reaching to the composite endpoints. The HR was 1.79 (95%CI 1.16-2.77) among patients with at least one comorbidity and 2.59 (95%CI 1.61-4.17) among patients with two or more comorbidities. Among laboratory-confirmed cases of Covid-19, patients with any comorbidity yielded poorer clinical outcomes than those without. A greater number of comorbidities also correlated with poorer clinical outcomes [11].

Zhang J *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 hypertension (30.0%) and diabetes mellitus (12.1%) were the most common comorbidities. Drug hypersensitivity (11.4%) and urticaria (1.4%) were self-reported by several patients. Asthma or other allergic diseases were not reported by any of the patients. Chronic obstructive pulmonary disease (COPD, 1.4%) patients and current smokers (1.4%) were rare. Bilateral ground-glass or patchy opacity (89.6%) was the most common sign of radiological finding. Lymphopenia (75.4%) and eosinopenia (52.9%) were observed in most patients. Blood eosinophil counts correlate positively with lymphocyte counts in severe ($r = .486$, $P < .001$) and nonsevere ($r = .469$, $P < .001$) patients after hospital admission. Significantly higher levels of D-dimer, C-reactive protein, and procalcitonin were associated with severe patients compared to nonsevere patients [12].

Conclusion

COVID-19 is a highly infectious disease. Its main initial symptoms – fever, cough and fatigue – are similar to those of SARS. This virus is highly infectious and transmitted through droplets and close contact via airborne droplets generating by coughing, sneezing and smooching. Some cases are life-threatening; as such, COVID-19 poses a great threat to global health and safety. Controlling the spread of the epidemic and reducing mortality as soon as possible is the burning issue. The specific mechanism of the virus remains unknown, and no specific antiviral drugs have been developed. At present, it is important to control the source of infection, cut off the route of transmission, and use existing drugs and means to control progress of the disease proactively. So as per WHO and CDC guideline avoid the contact with sick person and also avoid the market or public place as per possible. There are no anti corona virus vaccine to prevent or treatment but some supporting therapy work. Future research needed to fight with corona virus. Till only ‘Social distance is rescue’.

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