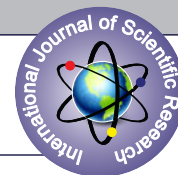


STUDY OF CLINICAL PROFILE, RADIOLOGICAL PRESENTATION, AND PROGNOSTIC PREDICTORS OF COVID 19 POSITIVE PATIENTS IN A TERTIARY CARE HOSPITAL



Respiratory Medicine

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ABSTRACT

BACKGROUND The first case of Covid-19 was identified in Wuhan city, China in December 2019. The symptoms of Covid-19 are variable that include fever, cough, fatigue, breathing problem, loss of smell and taste. The virus is spreading through human touch and small droplets and aerosols. The numbers of deaths due to the virus is increasing day by day and it causing various issues for the government and people to maintain the business and employment.

AIM To study clinical profile, radiological presentation, and prognostic predictors of COVID-19 positive patients in a Tertiary Care Hospital

METHODS It was a retrospective observational study conducted on 103 patients diagnosed with COVID-19. Clinical characteristics and outcomes of consecutive adult patients admitted to Sahyaadrie Multi-specialty hospitals, dedicated covid health care (DCHC), Osmanabad, (Maharashtra) from 1st October 2020 to 31 Dec 2020 were studied. The diagnosis of SARS-CoV-2 infection was confirmed by Rapid antigen test and real-time reverse transcriptase-polymerase chain reaction (RT-PCR) on the throat and/or nasopharyngeal swabs.

RESULTS There were 49 patients (47.6%) belonging to the rural area and 54 patients (52.4%) belonging to the urban area. The majority of the patients (n = 77) had an abnormal respiratory rate of more than 20 breaths per minute. Chest X-Ray showed that 26 patients (25.24%) had a normal chest x-ray and 77 patients (74.75%) had an abnormal chest x-ray. The average HRTCT score was 10.92 with 12 patients (11.7%) having upper HRCT level, 63 patients (61.2%) having middle HRCT level and 89 patients (86.4%) with lower HRCT level.

CONCLUSION Male patients over the age of 55 years are most prone to Covid-19. The virus is hurting the respiratory system of human and affecting the living condition as patients with cancer, diabetes and other critical illnesses are having a strong impact on the body and internal system.

KEYWORDS

Corona, Covid-19, clinical predictors, critical condition and fever and cough

INTRODUCTION

Coronavirus disease 2019 (Covid-19) is considered a contiguous disease caused by the Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2). The first case of Covid-19 was identified in Wuhan city, China in December 2019. According to the analysis of the study of the virus, the symptoms are variable that include fever, cough, fatigue, breathing problem, loss of smell and taste. The virus is spreading through human touch and small droplets and aerosols. The virus may also spread via contaminated surface and transmit to the human. There are different types of testing methods used to diagnose the disease but there are many people found with no symptoms which make it difficult for the care workers to find the infected people in society. However, the governments of nations and leading health care organizations have found some preventive measures to protect the people from this disease and creating awareness among the people. The preventive measures are involving physical and social distancing and hand washing as well as the use of masks that minimize the risk of transmission. Although different drugs have been developed for the prevention of the people from the virus and offering the primary treatment but lack of awareness and follow-up of regulations is increasing the numbers of infected people worldwide.

The leading health organization WHO is working on the development of vaccines for the full treatment of the people and protecting the patients from the attack of virus. However, the numbers of deaths due to the virus is increasing day by day and it causing various issues for the government and people to maintain the business and employment. The clinical trials of vaccines are under process and many medical organizations have developed the drugs for minimizing the impact. SARS-CoV-2 is a novel severe acute respiratory and influencing the immune system of the human. Novel coronavirus disease (COVID-19) has wide parameters of clinical manifestations ranging from asymptomatic carriers of the disease to manifestations with respiratory failure requiring mechanical ventilation to ICU (intensive care unit) supports, multi-organ and systemic symptoms ranging from sepsis, septic shock and multiple organ dysfunction syndromes (MODS). The objective of this paper is to describe the clinical profiles, clinical

symptoms, laboratory evaluation, and radiological characteristics of COVID-19 patients. The virus is having a more negative impact on the people who are having a disease like diabetes, cancer or other respiratory issues. The patients over the age of 60 were most affected by the virus and facing various complications. Radiographic abnormality was frequently associated irrespectively with clinical presentation and its severity. In addition to this, a poor prognosis was noted in elderly people.

AIM

To study clinical profile, radiological presentation, and prognostic predictors of COVID-19 positive patients in a Tertiary Care Hospital

METHODS

It was a retrospective observational study conducted on 103 patients diagnosed with COVID-19. Clinical characteristics and outcomes of consecutive adult patients admitted to Sahyaadrie Multi-specialty hospitals, dedicated covid health care (DCHC), Osmanabad, (Maharashtra) from 1st October 2020 to 31 Dec 2020 were studied. The diagnosis of SARS-CoV-2 infection was confirmed by Rapid antigen test and real-time reverse transcriptase-polymerase chain reaction (RT-PCR) on the throat and/or nasopharyngeal swabs. All patients were managed according to the State COVID Consensus protocol and following Indian Council of Medical Research guidelines.

Epidemiological, clinical, laboratory and radiological characteristics and treatment and outcomes data were obtained with data collection forms from electronic medical records and history given by patients. All data were reviewed by internal medicine specialists. 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, Anti-malarial Therapy, Respiratory Support).

RESULTS

The study included 103 patients with an average age of 51.26 years (SD = 14.34). Out of 103 patients, 35.9% (n = 37) were female and 64.1% (n = 66) were male. There were 49 patients (47.6%) belonging to the rural area and 54 patients (52.4%) belonging to the urban area.

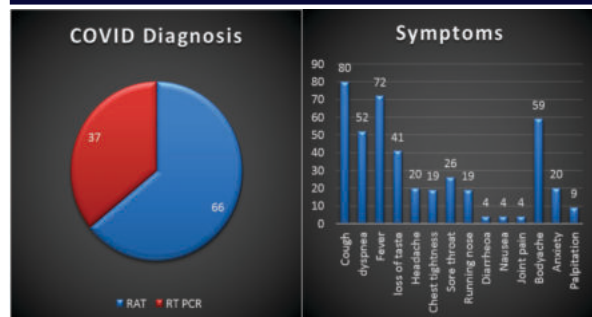


Figure 1: COVID Diagnosis

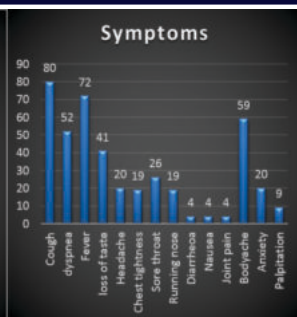


Figure 2: Symptoms

As per Figure 1, 66 out of 103 patients were tested through Rapid Antigen Tests (RAT) and 37 out of 103 patients were tested through RT-PCR (Reverse transcription-polymerase chain reaction). Further, Figure 2 shows that majority of the patients (n = 80) had cough, followed by fever (n = 72) and body ache (n = 59).

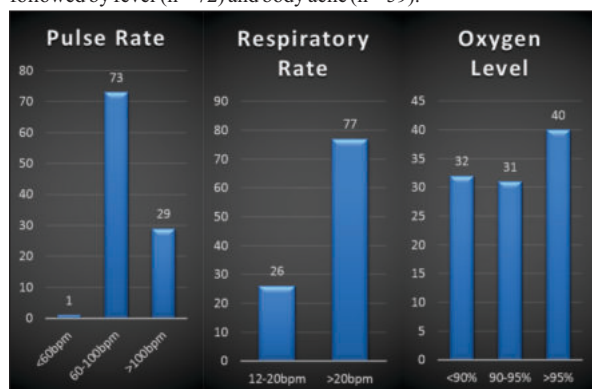


Figure 3: Pulse Rate

Figure 4: Respiratory Rate

Figure 5: Oxygen Level

As per Figure 3, the majority of the patients (n = 73) had normal pulse rate between 60-100 beats per minute. Further, Figure 4 shows that majority of the patients (n = 77) had an abnormal respiratory rate of more than 20 breaths per minute. Finally, Figure 5 represents that 32 patients had oxygen level of <90%, 31 patients had oxygen level between 90-95% and 40 patients had oxygen level of more than 95%.

Table 1: Distribution of Patients as per Comorbidities

Comorbidities	Number of Patients	Percentage (%)
Diabetes	23	22.3
Hypertension	20	19.4
IHD	5	4.9
COPD	3	2.9
Hypothyroidism	2	1.9
CA Oral	2	1.9
HIV	1	1
Asthma	1	1
Pregnancy	1	1
WPW	1	1

As per Table 1, highest number of patients (n = 23; 22.3%) had diabetes, followed by hypertension (n = 20; 19.4%) and IHD (n = 5; 4.9%). Further, 40 patients (38.8%) were in mild COVID staging, 27 patients (26.2%) were in moderate COVID staging and 36 patients (35.0%) were in severe COVID staging. Chest X-Ray showed that 26 patients (25.24%) had a normal chest x-ray and 77 patients (74.75%) had an abnormal chest x-ray. The average HRTCT score was 10.92 with 12 patients (11.7%) having upper HRCT level, 63 patients (61.2%) having middle HRCT level and 89 patients (86.4%) with lower HRCT level. CBC findings show that 1 patient was anaemic and 33 patients had lymphocytosis.

Table 2: Blood Investigation

Blood Investigation	Mean	Standard Deviation
CRP (mg/L)	43.314	30.1567
D Dimer (ng/mL)	883.82	1900.876
LDH (U/L)	342.92	226.651
Ferritin (µg/L)	247.51	199.846

The mean CRP for the patients was 43.31 mg/L (SD = 30.15), D Dimer was 883.82 ng/mL (SD = 1900.88), LDH was 342.92 U/L (SD = 226.65), and Ferritin was 247.51 µg/L (SD = 199.85).

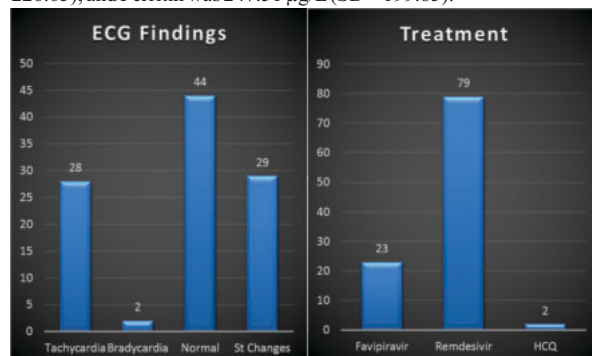


Figure 6: ECG Findings

Figure 7: Treatment

As per Figure 6, 44 patients had normal ECG findings, 29 had St. changes and 28 had tachycardia. Further, Figure 7 shows that 79 patients were treated with Remdesivir, 23 with Favipiravir and remaining w with HCQ. Moreover, the average hospital stay of the patients was 9.11 days (SD = 5.24). Finally, 102 patients were discharged and 1 death was recorded.

DISCUSSION

There are different types of studies that have been conducted for analyzing the issues and developing drugs to protect people from the Covid-19 virus. As per the views of Bhandari et al., (2020) the most of the patient of Covid-19 were male (66.66%) and age 55 years and above. These patients are requiring oxygen support and more likely to have underlying comorbidities (75%) including either diabetes, hypertension, COPD and hypothyroid. In addition to this, the study has highlighted that the Covid-19 infected people were having a travelling history of foreign. The common symptoms of patients according to the study involve fever (75%) lung infection (68%) and (33.33%) were asymptomatic. According to a study by Saluja et al., (2020) Thrombocytopenia, Lymphocytosis, raised LDH was common (>35%, p<0.05). The patients were over the age of 60 years and ones having severe illness and more complications. Increased risk of cardiac involvement needs to be looked into. As per the study of Single et al., (2021) the 65.6% of the Covid-19 patients were male and the mean age was 37.4 years. The patients of covid-19 were having some disease before such as hypertension, cardiac, sugar and respiratory problems. The study shows a highly significant correlation with the patient with diabetes as more than 47% of the patients were facing issues of high sugar. In addition to this, 29% of patients were having respiratory issues. Apart from this, in the study of Asghar et al., (2020), the mean age of the most number of patients of Covid-19 was 53.58 with the most frequent symptoms are fever and dry cough. In addition to this, the most comorbidities are diabetes and hypertension. The bilateral lower zone patchy infiltrates are frequent chest pain radiography findings and admitted to ICU. The TLC count of patients (P=0.001), neutrophils and lymphocytes (P=<0.001) and monocytes (P=0.027). These are some major issues diagnose in the patients of Covid-19.

According to a study by Soni et al., (2020), SARS-CoV-2 is one of the most virulent pathogens causing severe respiratory illness along with the MERS and swine flu in human at the initial stage. The research has found that 81% of patients were found with respiratory distress and critical illness in five per cent with a case of fatality rate around 2.4%. The demographic and clinical pattern have been observed between countries and found that the profile of Covid-19 patients was all most same and numbers of male patients were higher than female. The study of patients is showing that 66% of patients were symptomatic and 33% were asymptomatic which were hard to find in society. In addition to this, 16.6% of patients were having a chronic disease and 14.9% were having diabetes. Similar findings were reported in studies across the world.

CONCLUSION

From the study, it can be considered that Radiological Presentation and Prognostic Predictors of Covid 19 Positive Patients in a Tertiary Care Hospital have highlighted the similar impact and the issues that influence the health of the patients. Most of the studies have highlighted the large numbers of male patients over the age of 55 years and above. The virus is hurting the respiratory system of human and

affecting the living condition as patients with cancer, diabetes and other critical illnesses are having a strong impact on the body and internal system. Therefore, consideration of protective measures and precautions defined by the government and leading health care organizations can help minimize the numbers of death across the world.

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