ORIGINAL ARTICLE

Epidemiological and clinical profile of Laboratory confirmed cases of COVID 19 admitted in Tertiary care Hospital Jammu, Jammu & Kashmir

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Abstract

Background: Three or more waves of COVID 19 pandemic have hit the different parts of world including India very hard, taking toll on the lives of people both in terms of morbidity and mortality. Keeping this in mind, the present study was conducted with an aim to determine the socio-demographic and clinical profile of laboratory confirmed COVID 19 cases and to determine their association with oxygen requirement and outcome of disease at the time of discharge. **Methods:** The present cross-sectional study was conducted on lab confirmed COVID 19 cases admitted in tertiary care hospital in Jammu from June-July 2021.Data was collected using convenient sampling method. The self-designed questionnaire used for data collection obtained information regarding socio-demographic characteristics of patients as well as clinical features of the disease. **Results:** Out of total 161 patients studied, 60.8% were males and 39.2% were females. Mean age was 51.2 ± 17.5 years. Comorbid conditions were present in 37.8% patients, with hypertension being the most common (36%). Cough, Fever, breathlessness and myalgia were the main presenting symptoms (90%, 81%, 57.7% and 56% respectively). The variables which were found to have statistically significant association with oxygen requirement and the outcome of disease at the time of discharge were age, gender and presence of co-morbidity ($p < 0.05$). **Conclusions:** Advancing age, male gender and presence of underlying co-morbidity were found to be significant risk factors for the requirement of oxygen and poor outcome of the disease.

Keywords

COVID 19; Epidemiology; Clinical Profile; Tertiary Care Centre

Introduction

Coronavirus disease 2019 (COVID-19) is defined as an illness caused by novel coronavirus called Severe Acute Respiratory Syndrome Corovirus-2 (SARS-CoV-2; formerly called 2019-nCoV), which was first identified amid an outbreak of respiratory illness cases in Wuhan city, Hubei province, China(1). It was initially reported to WHO on December 31, 2019. On January 30, 2020, WHO declared the COVID-19 outbreak a global health emergency (2). On March 11, 2020, WHO declared COVID-19 a global pandemic, its first such designation since declaring N1H1 influenza a pandemic in 2009(3).

Three or more waves of Covid -19 pandemic hit different parts of world including India very badly. This deadly virus is taking toll on the lives of people both in terms of morbidity and mortality. The first confirmed case in India was reported on January 30, 2020(4). On 9th of March

2020, UT of Jammu & Kashmir reported its first case, after which successive waves of pandemic affected the lives of millions of people. The severity of disease was more during the second wave, especially in those suffering from underlying co-morbid conditions, leading to increased hospitalization and increased mortality in these particular groups.

Patients with Diabetes mellitus, obesity and hypertension have increased morbidity and mortality rate. Coronary heart disease and other co-morbidities are also closely related to the death rate of COVID-19. Although some studies have revealed the correlation between gender and the prevalence, severity of disease and mortality of COVID-19 pneumonia (5,6), there is no detailed analysis on the underlying mechanism. Considering that many patients with COVID-19 are complicated with multiple co-morbidities (7-9), understanding co-morbidities and paying attention to the impact of different co-morbidities on the relevant clinical indicators and prognosis of patients with COVID-19, is of great significance for clinical guidance. India lacks basic and comprehensive epidemiological information such as socio-demography, risk factors, co-morbidities, clinical presentations, and clinical outcomes. So there is an urgent need to generate evidence in this aspect. Keeping this in mind, the present study was undertaken to describe the epidemiological and clinical profile of laboratory confirmed cases of COVID 19 admitted in tertiary care hospital in Jammu which will further help us in understanding of clinical course of disease.

Aims & Objectives

1. To study the socio-demographic characteristics and clinical profile of the lab confirmed cases of COVID 19.
2. To determine the association of socio-demographic variables and presence of co-morbidity with oxygen requirement and outcome of disease at the time of discharge of patient.

Material & Methods

Study settings and Study population: The present cross-sectional study was conducted on lab confirmed cases of COVID- 19 admitted in Government Medical College and Hospital, Jammu, UT of J&K from June-July 2021.GMCH is a dedicated COVID care hospital at Tertiary level, providing diagnostic and therapeutic services to COVID cases including isolation facilities, high dependency unit and ICU monitoring.

Ethical Consideration: The permission from Institute Ethics Committee (IEC) was taken (IEC/GMC/Cat C/2021/524) prior to the start of study. All participants were informed about the objectives of the study and their willingness to participate or not in the study was sought. The informed written consent was obtained from all voluntary participants or their relatives. In case, the subject was less than 18 years of age, the consent was taken from parents/guardian and assent was taken from subject.Full confidentiality of respondent's information was maintained and information was used only for research purpose.

Study procedure: Data was collected using convenient sampling method, because of limited access to COVID wards and limited availability of attendants of the patients from whom the details of patients might be taken. All the voluntary lab confirmed cases of COVID-19 admitted in different wards of hospital dedicated to COVID, during the study period constituted our study population. A self-designed, pre-tested questionnaire was used for data collection from patients. Information was obtained from the patient or his/her attendant and also from the patient records available from the ward which included details regarding socio-demographic characteristics of the patient like age, gender, residence, marital status and occupation. Details of clinical features of the disease as well as presence of any co-morbidity were also recorded. Outcome of the disease at the time of discharge of patient was recorded as recovered, improved or died.

Laboratory confirmed case: A person with laboratory confirmation of COVID-19 infection, irrespective of clinical signs and symptoms.

Inclusion Criteria

1. Laboratory confirmed symptomatic cases of COVID-19 admitted in GMCH Jammu during the study period.
2. Patients who provided informed written consent.

Exclusion Criteria

1. Asymptomatic cases of laboratory confirmed COVID-19 who are under observation at hospital or at home isolation.
2. Patients who did not provide informed written consent.

Statistical Analysis: The data was entered into Microsoft Excel and exported to IBM SPSS-23 trial version software for analysis. Normality of the data was tested by Shapiro–Wilk test. Normally distributed data was presented as mean ± standard deviation (SD) for Quantitative variables and skewed data as median (interquartile range). Qualitative data was reported in form of proportions. Chi Square test/Fisher exact test were employed to find out the statistical significance of any apparent association. A p- value of less than 0.05 was taken to be statistically significant.

Results

A total of 161 patients were studied, out of which, 60.8% were males and 39.2% were females. Majority (45.34%) of study participants were in the age group of 41-60 years with the mean age of 51.2 ± 17.5 years. 14.28% of the total patients studied, were healthcare workers. 80.12% of the participants belonged to urban areas while 19.87% belonged to rural areas. 89.44% were married while as 10.55% were single or never married Table 1. A total of 23 (14.3.1%) patients had a recent travel history outside the

state whether at national or international level while local transmission comprised 138 patients (85.7%) in this study. Co-morbid conditions were present in 37.8% of patients with hypertension being the commonest (36%), followed by Diabetes (22.9%) and COPD (16.3%). Cough, Fever, breathlessness, and myalgia were the main presenting symptoms (90%, 81%, 57.7% and 56% respectively) as shown in Figure 1. Duration from onset of symptoms to admission in hospital ranged from 1-18 days with average time of 5.5 days. Median duration of hospital stay was 7.5 days with a range of 5-21 days.

When outcome of disease at the time of discharge of patients was analyzed, it was evident that out of 161 patients studied, 59.6% (96/161) recovered fully, condition of 35.4% (57/161) improved clinically while 8 patients died, giving a case fatality rate of 4.96%. Table 2 depicts the association of socio-demographic characteristics and presence of co-morbidity with oxygen requirement. Gender, age and co-morbidity were found to have statistically significant association with oxygen requirement. Also, these variables have statistically significant association with the outcome of disease at the time of discharge of patients. (Table 3)

Discussion

In the present study the mean age of respondentswas 51.2 years, with 45.3% of the respondents in the age group of 41-60 years. 60.8% of the total study population was comprised by males. Tambe MP et al reported results similar to the current study wherein majority of the respondents were between 31-60 years of age with slight male predominance (10). However, Ahmad M et al and Wang R et al reported a median and mean age to be 34 years and38.76 years (SD ± 13.79) respectively in their studies (11,12). A study by Kumar N et alreported that majority of symptomatic cases were between 31-65 years of age and majority of asymptomatic cases were between 16 and 45 years (13).

The results further revealed thatco-morbid conditions were present in 37.8% of the patients with Hypertension, Diabetes Mellitus and COPD found in 36%, 22.9% and 16.39% respectively. Patients with diabetes are prone to serious complications during COVID-19 as high levels of blood glucose favours viral growth, impairs immune functions, thus promoting secondary bacterial and viral co infections.Verma P et al(14), reported Hypertension (26.7%) as the most common co-morbidity followed by DM (20.7%) and COPD (14%) in her study. Also, Ahmad M et al and Mi J et al in their respective studies reported Hypertension, DM and CVS conditions as common co-morbidities in the COVID 19 patients (11,15). Richardson S et aldid a study on 5700 patients hospitalized with COVID 19 in the New York city area and the most common co-morbidity was found to be hypertension (56.6%) , which was in line of agreementwith the results of the present study(16).

The common symptoms reported by the respondents in the current study were cough (90%) , fever (81%) , breathlessness (57.7%) and myalgia (56%). These results are in agreement with those reported by Verma P et al(14). However Ahmad M et al reported fever (86.6%) as the most common presenting symptom followed by cough and fatigue(11). Likewise, Grant M C et al did a systemic review and meta-analysis of 148 studies from 9 countries. The results revealed that most prevalent symptom was fever (78%) in 138 studies , similarly cough (57%) was the common symptom in 138 studies and lastly fatigue (31%) was the common symptom in 78 studies(17).

In current study 14.3% of the patients had a history of recent travel while local transmission contributed to 85.7% of the cases and these results were congruent with those reported by Russel TW et al where imported cases accounted for 10% of total incidence (18).In our study total case fatality rate was found to be 4.96% . However, Dessie Z G et al , did a systemic review and meta-analysis of 42 studies and 423,117 patients and the results showed that the pooled prevalence of mortality among hospitalized patients with COVID 19 was 17.42% which is in contrast from the results of our study (19).

In the present study, the oxygen therapy was required in 81.98% of the respondents while in contrast, Ni YN et alreported that oxygen therapy was required in 63.1% respondents which is lower than when compared with our study (20).. Age, gender and co-morbidity were found to be statistically significantly associated with oxygen requirement and outcome of disease at the time of discharge. These results are in consonance with those reported by Mi Jun et al(15).

The outcome analysis of patients at the time of discharge revealed that 59.6% of the respondentsrecovered fully, 35.4% improved clinically but were left with some residual effect of the disease and 4.9% patients died. Davis H E et al carried out a 7 month study on the symptoms and their impact in an international cohort and they found that in majority of the respondents (> 91%), the time of recovery exceed 35 weeks.The most frequent symptoms after 6 months were fatigue, post-exertional malaise and cognitive dysfunction (21,22).

The results of the current study are likely to develop a response that may alleviate the sufferings of the future COVID-19 patients.

Conclusion

The present study concluded with the findings that advancing age, male gender and underlying co-morbidity were significant risk factors for oxygen requirement and unfavorable survival outcome. Adequate knowledge about risk factors helps in proper management of COVID-19 patients. It also helps in clinical monitoring of the disease progression in susceptible populations.

Recommendation

This study recommends that COVID-19 patients suffering from underlying co-morbidities, should be assessed clinically on regular basis by health experts for timely detection of any complications, treatment and better outcome.

Limitation of the study

The study being conducted in a single hospital setting and that too for a smaller study period are the main limiting factors as far as extrapolation (generalization) of the results is concerned. Authors recommend multi-centric studies with larger sample size for better generalization of results.

Relevance of the study

Results of this study should help the health care planners to evolve various strategies to focus on high risk factors in COVID-19 patients in order to have a positive impact on the prognosis.

Authors Contribution

AS: Conceptualization, Supervision, Data Cleaning, Data analysis, manuscript preparation. RK: Conceptualization, Data analysis, Manuscript preparation. RKG: Conceptualization, Overall supervision, Critical review of manuscript, Manuscript Finalization. BL: Conceptualization, Critical review of manuscript, Manuscript finalization. TZ: Conceptualization, Critical review of manuscript, Manuscript finalization. MTM: Conceptualization, Critical review of manuscript, Manuscript finalization

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Tables

TABLE 1 SOCIO-DEMOGRAPHIC CHARACTERISTICS AMONG THE STUDY POPULATION (N=161)

Characteristics	Number	Percentage
Age		
<20 years	4	2.48%
21-40 years	36	22.36%
41-60 years	73	45.34%
>60 years	48	29.81%
Gender		
Male	98	60.86%
Female	63	39.13%
Residence		

Characteristics	Number	Percentage
Urban	129	80.12%
Rural	32	19.87%
Marital status		
Married	144	89.44%
Unmarried/Single	17	10.55%
Occupation		
Housewife	35	21.73%
Healthcare worker	23	14.28%
Other govt employees	18	11.18%
Student	16	9.93%
Businessman	21	13.04%
Others	48	29.81%

TABLE 2 SOCIO-DEMOGRAPHIC & PRESENCE OF CO-MORBIDITY WITH OXYGEN REQUIREMENT

Characteristic	Oxygen Requirement				P value
	Nil(29)	Low Flow(58)	High Flow (55)	Bipap/Ventillator (19)	
Age (years)					
<20	3 (75%)	0 (0%)	1 (25%)	0 (0%)	
21-40	21 (58.33%)	10 (27.77%)	5 (13.88%)	0 (0%)	0.000
41-60	4 (5.47%)	36 (49.3%)	27 (36.98%)	6 (8.21%)	
>60	1 (2.08%)	12 (25%)	22 (45.83%)	13 (27.08)	
Gender					
Males	13 (13.26%)	38 (38.77%)	31 (31.63%)	16 (16.32%)	0.037
Females	16 (25.39%)	20 (31.74%)	24 (38.09%)	3 (4.76%)	
Co-morbidity					
Absent	26 (26%)	42 (42%)	28 (28%)	4 (4%)	0.000
Present	3 (4.91%)	16 (26.22%)	27 (44.26%)	15(24.59%)	

TABLE 3 ASSOCIATION OF SOCIO-DEMOGRAPHIC CHARACTERISTICS AND PRESENCE OF CO-MORBIDITY WITH OUTCOME AT THE TIME OF DISCHARGE

Characteristic	Outcome at the time of discharge			P value
	Recovered (96)	Improved (57)	Died (8)	
Age(years)				
<20	4 (100%)	0 (0%)	0 (0%)	
21-40	34 (94.44%)	2 (5.55%)	0 (0%)	0.000
41-60	42 (57.53%)	28 (38.35%)	3 (4.10%)	
>60	16 (33.33%)	27 (56.25%)	5 (10.41%)	
Gender				0.681
Males	57 (58.16%)	35 (35.72%)	6 (6.12%)	
Females	39 (61.90)	22 (34.92%)	2 (3.17)	
Co-morbidity				0.000
Absent	77 (77%)	20 (20%)	3 (3%)	
Present	19 (31.14%)	37 (60.65%)	5 (8.19%)	

Figures

FIGURE 1 PRESENTING SYMPTOMS AMONG STUDY POPULATION