Section: Respiratory Medicine

Original Research Article

CLINICO-DEMOGRAPHIC STUDY OF ADULT COVID 19 SURVIVORS IN FIRST AND SECOND WAVES IN A TEACHING NORTH-EAST INDIAN HOSPITAL: A RETROSPECTIVE STUDY

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Abstract

Background: There is paucity of studies on the clinic-demographic profile especially from North East part of India. The study was done to have a view of the characteristics of patients who came out of the COVID wards and post COVID ICUs, alive to Respiratory Medicine Ward. The study aimed to explore the clinic-demographic profile of COVID survivors who were referred alive to the Department of Respiratory Medicine, JNIMS from the COVID ward of the same institute. It also aimed to determine association between period of stay and important clinico-demographic variables. **Materials and Methods:** This hospital record-based retrospective study of COVID survivors was conducted from November 2020 to July 2021 covering parts both the first and second waves in the state of Manipur. Both the unvaccinated and the partially vaccinated patients were included in the study. All cases who were initially admitted in COVID ward based on positivity in RAT or RTPCR or TRUENAT or COVID antibody and later referred to the Department of Respiratory Medicine during the study period were included in the study. **Result:** The mean (SD) age of the patients was 53.98 (14.92) years. A majority of the patients had a sign and symptom of a combination of cough, fever, shortness of breath and myalgia (39%). Some patients had some kind of co-morbidity, notably diabetes mellitus (17) and hypertension (13). A majority of the patients (39) was on NRBM. This was followed by simple coro-nasal mask (25) and 11 each on NIV and no oxygenation device. Ivermectin was the most commonly used drug. A total of 30 patients have been administered with it. This was followed by a combination of Remdesivir and Baricitinib (15) and Remdesivir alone (08). The mean (SD) of hospital stay was found to be 17.68 (9.51) days. A total of 89 patients recovered and were discharged. Those patients whose diagnosis was made by Ag testing had significantly longer stay compared to Ab testing (p=0.02). Also, cases to whom no antiviral was administered had shorter hospital stay (p=0.028) **Conclusion:** The mean (SD) age of the patients was 53.98 (14.92) with values ranging from 29-86 years. Males outnumbered females (64:36). A majority of the patients had a sign and symptom of a combination of cough, fever, shortness of breath and myalgia (39%). Diabetes mellitus (17) and hypertension (13) were the common co-morbidities found. Those patients whose diagnosis was made by Ag testing had significantly longer stay compared to Ab testing (p=0.02). Also, cases to whom no antiviral was administered had shorter hospital stay (p=0.028). Tobacco or alcohol use had no significant association with period of hospital stay.

INTRODUCTION

The Coronavirus Disease (COVID-19) pandemic, first detected in Chinese city of Wuhan, caused by Severe Acute Respiratory Syndrome Coronavirus-2 (SARS-CoV-2), has high fatality rate especially in the first and second waves of 2020-21.[1] The first Indian vaccine was launched in early part of 2021 only.[2] To our knowledge there is paucity of studies on the clinic-demographic profile especially from

North East part of India. The study was done to have a view of the characteristics of patients who came out of the COVID wards and post COVID ICUs, alive to Respiratory Medicine Ward.

Aim & Objective

The study aimed to explore the clinic-demographic profile of COVID survivors who were referred alive to the Department of Respiratory Medicine, JNIMS from the COVID ward of the same institute. It also aimed to determine any association between important clinic-demographic variables and the period of stay in the hospital.

MATERIALS AND METHODS

This hospital record-based retrospective study of COVID survivors was conducted from November 2020 to July 2021 covering parts both the first and second waves in the state of Manipur, which is situated in the north-eastern part of India. It was conducted at Jawaharlal Nehru Institute of Medical Sciences, Imphal, Manipur, which is a teaching hospital. Both the unvaccinated and the partially vaccinated patients were included in the study. All cases who were initially admitted in COVID ward based on positivity in RAT or RTPCR or TRUENAT or COVID antibody and later referred to the Department of Respiratory Medicine during the study period were included in the study. Patients whose records were not complete were excluded from the study.

Data were collected by using a proforma which had sections on socio-demography including alcohol consumption and smoking habits, clinical manifestation, presence of co-morbidity(ies), oxygenation status, period of hospital stay and disease outcome. The outcome variable was the period of hospital stay before discharge or death. A period of stay ≤14 days was considered as short hospital stay, whereas staying >14 days was considered as long stay.

Data collected were entered and analysed by using IBM SPSSv.23. Only descriptive analysis was done and expressed as mean, standard deviation, proportion etc. To determine association between clinic-demographic variables chi-square or its modifications was used. A p-value of <0.05 was considered as statistically significant.

Approval for the study was obtained from the Medical Superintendent of JNIMS. No identifiers were used for the data collected and analysed. The data were kept confidential and were accessible only to the researchers.

All patients not requiring Oxygen but admitted for various risk factors were not given steroid or heparin or antivirals. Patients were discharged after 10 days of symptom onset and no longer needed Oxygen or afebrile for 03 days or became RTPCR negative after symptom resolution. Total hospital stay was taken as number of days from test positivity to discharge from or death at Respiratory Medicine Ward.

RESULTS

A total of 100 completed data-sets could be obtained during the study period. The mean (SD) age of the patients was 53.98 (14.92) with values ranging from 29-86 years. Males outnumbered females (64:36). The mean body weight (SD) of the patients was 58.81 (8.75) kg. A majority of the cases (93) was from the valley districts whereas the remaining seven patients were from the hilly districts of the state.

Majority of the patients were confirmed as COVID cases by RAT (40) which followed by RTPCR (34) [Table 1].

A majority of the patients had a sign and symptom of a combination of cough, fever, shortness of breath and myalgia (39%). This was followed by shortness of breath (31%) and a combination of cough, fever, shortness of breath, myalgia and diarrhea (8%) [Table 2].

Out of the 100 patients, 22 were smokers whereas 16 were alcohol drinkers. Two patients used to take both tobacco and alcohol.

Majority of them (37) did not have any co-morbidity. But, the rest of them had some kind of co-morbidity, notably diabetes mellitus (17) and hypertension (13) [Table 3].

Table 1: Distribution of patients by mode of diagnostic test.

Diagnostic test	Frequency	Percentage
RAT	40	40
RTPCR	34	34
Antibody testing	14	14
TRUNAT	12	12

Table 2: Distribution of patients by signs & symptoms

Signs & symptoms	Frequency	Percentage
Cough, fever, SOB and myalgia	39	39
SOB only	31	31
Cough, fever, SOB, myalgia and diarrhea	8	8
Fever only	7	7
Myalgia only	6	6
Cough only	5	5
Cough, fever, SOB, myalgia, diarrhea & anosmia	2	2
Diarrhea only	1	1
Anosmia only	1	1

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Table 3: Distribution of patients by presence of co-morbidities

Co-morbidities	Frequency	Percentage
Diabetes mellitus	17	17
Hypertension	13	13
Overweight/obese	10	10
COPD	5	5
Both DM & hypertension	5	5
DM + hypertension + COPD	3	3
HIV positive	1	1
Chronic liver disease	1	1
None	45	45

Table 4: Distribution of patients by oxygenation

Oxygenation device	Frequency	Percentage
NRBM	39	39
Simple coro-nasal mask	25	25
NIV	11	11
Nasal prong	8	8
Intubation	6	6
None	11	11

Table 5: Association between period of hospital stay and clinic-demographic variables

Clinico-demographic variable	Hosp. stay ≤14 days	Hosp. stay > 14 days	P value
Diagnostic tests			0.02
Antigen testing	29 (32.6)	60 (67.4)	
Antibody testing	9 (81.8)	2 (18.2)	
Tobacco/Alcohol use			0.10
Any substance used	10 (23.8)	32 (76.2)	
None	28 (49.1)	29 (50.9)	
Antiviral used			0.028
None	16 (45.7)	19 (54.3)	
Single antiviral	19 (44.2)	24 (55.8)	
Multiple antiviral	3 (13.6)	19 (86.4)	

Regarding oxygenation, a majority of the patients (39) was on NRBM. This was followed by simple coro-nasal mask (25) and 11 each on NIV and no oxygenation device [Table 4].

Regarding antivirals, Ivermectin was the most commonly used drug. A total of 30 patients have been administered with it. This was followed by a combination of Remdesivir and Baricitinib (15) and Remdesivir alone (08). Baricitinib alone (04) and a combination of Remdesivir and Ivermectin (03) were also given. Favipiravir alone and it combined with Ivermectin were also taken by one patient each [Figure 1].

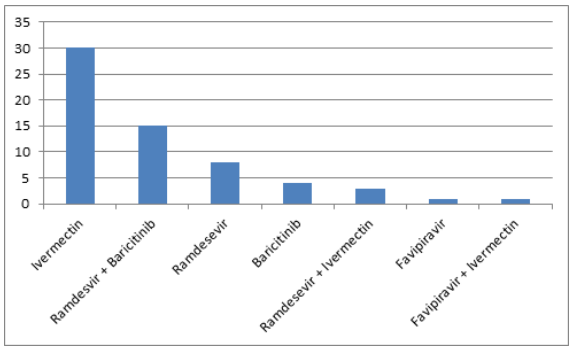

Figure 1: Distribution of patients by type of antiviral given

The mean (SD) of hospital stay was found to be 17.68 (9.51) days. A total of 89 patients recovered and were discharged days. It ranged from a minimum of 7 days to 60 days. Five patients developed post-COVID pulmonary fibrosis, three patients developed pneumothorax. Development of Tuberculosis and a combination of Deep vein thrombosis and pneumothorax was also seen (01 each). One patient who had a co-morbidity of diabetes mellitus succumbed after 15 days of hospital stay. Those patients whose diagnosis was made by Ag testing had significantly longer stay compared to Ab testing (p=0.02). Also, cases to whom no antiviral was administered had shorter hospital stay (p=0.028). Tobacco or alcohol use had no significant association with period of hospital stay [Table 5].

DISCUSSION

In the present study, the mean age of the COVID 19 survivors was 53.98 years. This was comparable with findings made by Aryal D et al in Nepal, Jain S et al in Western India and Xiowong Q in Yuhan, China.[3-5] But, Nadeem R et al, in their study in Saudi Arabia found younger age groups.[6] Regional differences might exist in the age-composition of the COVID 19 survivors. Males constitute 64% of the participants. Male predominance was also found by other scholars viz. Aryal D et al, Sachdeva MK et al, Tiwari L et al and Jain S et al.[2,4,7,8] It is seen in regions both inside the country and abroad.

A majority of the patients had a sign and symptom of a combination of cough, fever, shortness of breath and myalgia (39%). This was followed by shortness of breath (31%). Nadeem R et reported much higher proportion of survivors having signs and symptoms cough (78%) and fever (77.4%).[6] Fever and cough were also the common manifestations found out by

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Tiwari L et al.[8] A registry-based study by Kumar G et al also found majority of the survivors having multiple co-morbidities.[9]

Comorbidities like hypertension and diabetes could be seen in 17% and 13% of the survivors, respectively in the current study. Nadeem R et al from their study in Nepal, Tiwari L et al and Jain S et al found comparable results from their studies, although a little on the higher side.[8]

The mean (SD) of hospital stay was found to be 17.68 (9.51) days with a diverse range of 7-60 days. This is comparable with study findings made by Nadeem R et al in Dubai.[6]

Those patients whose diagnosis was made by Ag testing had significantly longer stay compared to Ab testing (p=0.02). This might be a chance finding because of the small sample used in the study. Also, cases to whom no antiviral was administered had shorter hospital stay (p=0.028). Usually, as per the institute's guidelines, antivirals are administered to more severe groups of patients. Hence, patients who had no taken antivirals may belong to clinically milder groups of patients. Thus, condition of the patient may influence the period of hospital stay. Tobacco or alcohol use had no significant association with period of hospital stay. A s rule, tobacco consumers are supposed to have worse-functioning lungs compared to non-smokers. So also, alcohol drinkers are more likely to have chronic liver disease implying that COVID 19 may manifest more severely among this group of patients. Yet, the habit of smoking and drinking was ascertained from what the participants reported, which may not be very accurate. Also, dose-response relationship for these substance abuse causing longer hospital stay was not analyzed.

The findings of the present study need to be inferred cautiously as the sample size was not large and regional variations may exist.

CONCLUSION

The mean (SD) age of the patients was 53.98 (14.92) with values ranging from 29-86 years. Males outnumbered females (64:36). A majority of the patients had a sign and symptom of a combination of cough, fever, shortness of breath and myalgia (39%). Diabetes mellitus (17) and hypertension (13) were the common co-morbidities found. Those patients whose diagnosis was made by Ag testing had significantly longer stay compared to Ab testing (p=0.02). Also, cases to whom no antiviral was administered had shorter hospital stay (p=0.028). Tobacco or alcohol use had no significant association with period of hospital stay.

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