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Study of an epidemiological profile of confirmed COVID-19 positive persons in district Kathua, Jammu and Kashmir

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ABSTRACT

Background: India recorded its first COVID-19 case on 30 January 2020. Though the early, extended nationwide lockdown of the country was implemented effectively, this alone was not sufficient to defeat the COVID-19 disease. Realizing the importance of the need to generate local epidemiological data through robust studies, this study was undertaken in a district Kathua of Jammu and Kashmir. The aim was to study the epidemiological profile of patients tested positive in district Kathua.

Methods: Retrospective observational study was done to find the spatial distribution of corona virus infection in the five blocks in district Kathua of Jammu and Kashmir. Data from the integrated disease surveillance project (IDSP) unit of district Kathua was screened and the epidemiological information from all the positive reports which included the total number of COVID-19 positive cases, address, travel history, contact history were extracted for the period of five months April 2020 to August 2020.

Results: 929 patients were found positive for COVID-19. Male outnumbered the females. More than 58.8% of males were of age group 21-40 years and the least number of positive male cases were seen in the age group >80 years. In our study 627 (67%) had a history of travel, 202 (21%) had a history of contact with a positive patient, 100 (10%) were positive with no history of travel or contact.

Conclusions: Kathua block of the district was maximally affected having the 58.7% largest number of COVID-19 positive cases with cure rate of 92.46% and case fatality rate of 0.5% was observed.

Keywords: COVID-19, Epidemiological, Kathua

INTRODUCTION

Several cases of pneumonia with unknown cause were reported in Wuhan, China during December 2019. It rapidly spread across the globe and the WHO gave the name COVID-19 for the disease and SARS-CoV-2 to the causative virus. It was declared global pandemic by WHO on 11 March 2020. This outbreak caused a major public health crisis worldwide and challenged healthcare systems across the globe. The virus and its resultant infection, corona virus disease (COVID-19), spread rapidly across the globe, leading the WHO to label the

outbreak a pandemic on 11 March 2020.³ Though most infected individuals exhibit mild symptoms including fever, upper respiratory tract symptoms, shortness of breath, and diarrhoea or were asymptomatic altogether, severe cases of infection can lead to pneumonia, multiple organ failure and death.³⁻⁵ During this pandemic situation of COVID-19, fatality rates in severe cases were less in women than men. Men were more susceptible to corona virus than women. Though the actual specific reason was not clear yet, some gender-related risk factors were vastly responsible for these differences.⁶⁻⁹ Many of the epidemiological features vary from countries to countries or are not known. Therefore, there was a need to generate

evidence on this aspect in peripheral setting as knowing the epidemiological features of COVID-19 will help to make more accurate decisions and control the epidemic. This study had been planned to describe the epidemiological characteristics of the outbreak in India from a peripheral district setting in Jammu and Kashmir, used for isolation of suspected cases and thereafter management of COVID-19 positive patients.

METHODS

The present study was a retrospective observational study, inspecting the spatial distribution of corona virus infection in district Kathua of Jammu and Kashmir. There were five blocks in district Kathua including Kathua, Billawar, Basholi, Hiranagar and Bani. Information of all suspected covid patients was compiled in the office of IDSP, Kathua. Permission to use data from the IDSP unit of district Kathua was taken from CMO office Kathua and institutional ethical clearance was taken vide letter no.: IEC/GMCK/35/. Data from IDSP was screened and without using any sampling technique the entire laboratory confirmed positive cases were extracted from April 2020 to August 2020. The relevant epidemiological information was collected from data which included the total number of COVID-19 positive cases, address, travel

history, contact history, number of deaths. Data was analysed using MS office excel. The results were presented in the form of proportions. Mean and standard deviation were calculated where ever necessary.

RESULTS

The total number of individuals tested positive for COVID-19 in the district were 929 (Figure 1). Out of all the COVID-19 positive patients, in the study 86.2% were male and 13.8% were female (Figure 2).

The first COVID-19 case in district Kathua was reported on 21 April 2020 from Hiranagar block, over the next months there was a steady increase in the number of cases to about 399 (42.9%).

Majority of the cases among males were found to be in the age group 21-40 years (58.8%) and minimum in age group of above 80 years (0.4%), whereas in females the maximum (cases were seen in the age group 21-40 years (6.5%). Minimum cases were found in age group of 80 years (0.2%) and above (Table 1).

Table 1: Age and sex wise distribution of COVID-19 patients in district Kathua.

Age group (in years)	Male, N (%)	Mean±SD	Female, N (%)	Mean±SD
0-20	69 (7.4)	16.03±5.970	19 (2.0)	11.58±6.580
21-40	471 (58.8)	30.57±5.416	60 (6.5)	28.63±5.224
41-60	231 (24.9)	48.76±5.245	38 (4.1)	51±0.040
61-80	24 (2.6)	67.50±5.387	9 (1.0)	70.11±6.353
>80	4 (0.4)	86±3.367	2 (0.2)	88.50±4.950
Total	797 (86.2)	35.97±13.064	132 (13.8)	36.59±18.436

Table 2: Block wise distribution of cases in district Kathua.

Months	Kathua (546) N (%)	Billawar (117) N (%)	Basholi (92) N (%)	Hiranagar (161) N (%)	Bani (13) N (%)	Total (929)
April	-	-	-	1	-	1
May	20 (25.6)	17 (21.7)	21 (26.9)	16 (20.6)	4 (5.2)	78
June	53 (34.6)	30 (19.6)	17 (11.2)	50 (32.7)	3 (1.9)	153
July	222 (74.5)	26 (8.7)	18 (6.0)	29 (9.8)	3 (1.0)	298
Aug	251 (62.9)	44 (11.0)	36 (9.0)	65 (16.2)	3 (0.9)	399

Table 3: Clinical profile of patients tested.

Sr. No.	Health status	Male (797) N (%)	Female (132) N (%)	Total (929)
1	Asymptomatic	52 (5.6)	11 (1.1)	63
2	Cured	744 (80.3)	114 (12.3)	858
3	Death	2 (0.2)	3 (0.3)	5
4	Home Isolation	1 (0.1)	2 (0.2)	3

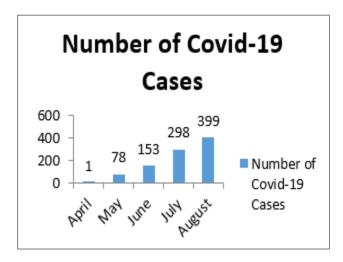


Figure 1: Number of COVID-19 cases.

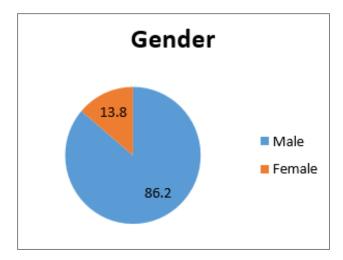


Figure 2: Gender.

Out of the five blocks in district Kathua, maximum number of cases 546 (58.7%) were from block Kathua while minimum number of cases 13 (1.3%) were from Bani block. There was significant rise in COVID-19 positive cases from May to August in district Kathua whereas such trend was not observed in other blocks of Kathua. In this study 627 (67%) had a history of travel, 202 (21%) had a history of contact with a positive patient, 100 (10%) were positive with no history of travel or contact.

Five were deaths recorded from the district, 2 males and 3 females. Block Kathua reported 2 deaths, 2 deaths were reported from block Basohli and 1 death was from Billawar. The case fatality rate was 0.5% and all deaths were in those above 60 years of age (Table 3).

DISCUSSION

The first case of COVID-19 was reported in district Kathua on 21 April 2020 from Hiranagar block. Our analysis showed a significant increase in the number of new COVID-19 cases in the district Kathua from the first

case reported. Since then, there was a steady increase in the number of positive cases over the next months to about a maximum of 399 (42.9%) reported in the month of August of this study.

The case fatality was 0.5% as 5 deaths were reported during this period this was relatively better than the rates of previous SARS-CoV and MERS-CoV, which reached 10% and 35%, respectively and was very low as compared to the national average figure of 3.2% (2293/70795 till 12 May 2020).^{8,9} Majority of the deaths were in the age group above 60 and 3 deaths were seen in females and 2 in males. The overall mortality rate was uncertain as the total number of cases (including undiagnosed persons) was unknown. Not much literature was published yet on this aspect of COVID-19 as far as Indian situation was concerned.¹⁰

In the present study among all the COVID-19 positive 86.2% were male and 13.8% female. Study reported by Sun et al and other national and international studies also showed male preponderance. Majority of the cases among males were found to be in the age group 21-40 years (58.8%) and minimum in age group of above 80 years (0.4%), in females also the maximum cases were seen in the age group 21-40 years (6.5%). Another study done by Mathur et al reported majority of cases in the age group of 26 to 50 years. Also, most cases (63.42%) were male. This could be because of higher exposure in male members of the family in pursuit out of doors activities and travel.

In this study 627 (67%) had a history of travel, 202 (21%) had a history of contact with a positive patient, 100 (10%) were positive with no history of travel or contact. Interestingly the patients with a history of contact were observed from the month of July 2020 of this study indicating possibility of start of community transmission from this period in district Kathua from patients with travel history.

Out of the five blocks in district Kathua, maximum number of cases 546 (58.7%) were from block Kathua which was the most populated and centre place of the district, while minimum number of cases 13 (1.3%) were from Bani block which was a remote and far flung area.

During the start of this pandemic in the month of May maximum number of cases was reported from Basholi block (26.9%) whereas minimum from Bani block (0.05%). Later on in June maximum number of cases was reported from Kathua block (34.6%). In July number of cases in Kathua block was (74.4%) and in August (62.9%) were reported. We also observed a high recovery rate in Kathua district as 859 (92.46%) were cured. Due to the small sample size results cannot be generalized. We recommend more such studies from peripheries to get better understanding of the COVID-19 cases.

CONCLUSION

COVID-19 has impacted the world in a way that no one could have predicted. Its rapid expansion globally and in such a short period of time, delineates its high infective potential. The corona pandemic in district Kathua is being controlled by strict surveillance as per guidelines issued by the ministry of health and family welfare (MoHFW) from time to time. It also harbours Lakhanpur toll post, the port of entry into UT of Jammu and Kashmir by road on the national highway of India. Quarantine, testing and isolation have been the main stay in the containment of COVID-19. Adopting precautionary regulations as physical distancing, increasing sanitation with facial masks has proved to be beneficial in controlling the virus. Although this virus has affected many countries and populations, there is still a lot to be known regarding its pathogenicity and viral characteristics. More research and studies need be conducted to help fight off this virus. Further research needs to be conducted to help discover therapeutic modalities and improve outcomes.

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Ethical approval: The study was approved by the

Institutional Ethics Committee

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