Epidemiological and Clinical Profile of COVID-19 cases attending Rural Health Training Centre of one of the Medical Colleges of Ahmedabad, Gujarat, India

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Abstract:

Introduction : Understanding the epidemiological and clinical profile of COVID-19 cases and pattern of disease is very much required for future preparedness. **Objective :** To assess the epidemiological and clinical profile of cases of COVID 19 **Method :** Cross sectional descriptive study was carried out at a Rural Health Training Centre (RHTC). All cases reported in the month of January 2022 were included in the study. The information about the epidemiological and clinical profile was collected from RHTC records by conducting telephonic interview. **Results :** Total 83 cases were reported. Among them, 43 (54.4%) cases were in age group 20-39 years. Male: Female ratio was 1.37:1. There was one death and patient had ovarian cancer as co-morbidity. Total 71 patients could be contacted for telephonic interview. Fever was most common symptom and was presenting symptom on first day followed by cough/cold and sore throat. None had shortness of breath or chest pain. Hospitalization rate was 5.63% and none required oxygen supplementation or intensive care. Recovery period was 3-5 days. Out of total, 90% cases were fully vaccinated and 95.8% had knowledge of CAB. Diabetes and hypertension were most common co-morbidities and were statistically significantly more in age > 40 years. **Conclusions :** The COVID-19 cases in the beginning of year 2022 had clinical presentation different than the earlier waves. Periodic situational analysis can guide in policy making for handling this pandemic in future.

Keywords: COVID-19, Co-morbidities, COVID vaccination, Surveillance, COVID Appropriate Behaviour (CAB)

Introduction:

An outbreak caused by a novel coronavirus, severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), was reported in Wuhan, China in late December 2019.[1] COVID-19 was declared as pandemic by WHO on 11 March 2020.[2,3]The COVID-19 pandemic has risen to a global health crisis across the globe. This novel virus outbreak has challenged India's economic, medical and public health infrastructure. The Ministry of Health and Family Welfare of India (MOHFW) has taken numerous measures to raise awareness on COVID-19 and the necessary actions to control the spread of the virus. The central and state governments are formulating several wartime protocols to achieve this goal. The MOHFW has implemented and updated the clinical management and testing protocol for COVID-19 from time to time. Besides, the Ministry of AYUSH has also provided guidelines to use conventional preventive and treatment strategies to enhance immunity.

Since, there is no specific drug effective against COVID-19 infection, exploring every possible option for prevention and treatment is of great importance.Further, the clinical presentation and outcomes of patients with COVID-19 have been variable in different countries during the earlier waves of disease. [2-9] Also the clinical presentations have been different during the different waves of the disease during this pandemic. COVID vaccination was also introduced from 16 January 2021 in India and by now it has been received by large proportion of the population of our country. The disease had now its presence in rural areas also unlike the earlier waves when the cases were to large extent, restricted to urban areas.

In view of all the above facts, the present study was carried out to study the epidemiological and clinical profile of COVID -19 cases reported at RHTC during the month of January 2022, the same can be taken as a prototype for presentation of COVID in rural Gujarat.

Method:

The descriptive cross-sectional study was carried out at Primary Health Centre, Jetalpur which is the Rural Health Training Centre (RHTC) affiliated to AMC MET Medical college, Ahmedabad. The population of PHC is 44,206 and during the month of January 2022, 8636 Rapid Antigen Test (RAT) and 12,541 RTPCR tests were conducted in the RHTC areas as a part of surveillance activities. The test positivity rate was 0%. All the cases which were reported from the RHTC were tested positive at government and private laboratories located in Ahmedabad city and other peri-urban areas which are in close proximity of the RHTC. All cases reported during the month of January 2022 were included in the present study. The information about the socio-demographic profile, symptoms, secondary cases, duration of disease, COVID vaccination, environment at home, treatment received,prognosis, co-morbidities and knowledge about CAB was collected. Information was collected from the records and additional information from the patient regarding the present COVID episode was collected by telephonic interview using a pre-designed and pre-tested proforma. Pilot study was carried out amongst 10 patients and thereafter the data collection was started. The data so collected were analysed using Microsoft excel, t test and z test were applied to test the significance.

Results :

Total 83 cases were reported from the RHTC area during the month of January 2022. The age wise distribution of cases showed that maximum i.e. 43 (54.4%) cases were from the age group 20-39 years. Male: Female ratio of cases was 1.37:1. However mean age of cases was 37.94 ± 17.48 years. Mean age of males was 37.4 ± 16.3 years and mean age of females was38.69 ± 19.18 years. There was no significant difference in gender wise age profile of cases (t=0.185, p=0.8535)(Table1)

Telephonic interview of patients was carried out in order to obtain the information as per the proforma. Alternate telephone numbers were obtained through FHWs and ASHAs where the telephone number provided was not contactable. 71 out of 83 i.e. 85.54% patients could be contacted and detailed information could be obtained from them. There was one death out of total 83 cases giving CFR of 1.4%. She was a 43 years old female who was a ovarian cancer patient on chemotherapy.

Total 45 (63.3%) cases suffered from fever of varying intensity and it was the most common symptom during the illness followed by sore throat which was present amongst 41 (57.7%) cases. Third most common symptom was cough and cold which was present in 37 (52.11%) cases. However 28 (39.43%) cases had malaise and one patient had dizziness. None of the cases had shortness of breath and chest pain throughout the illness. Information about chronology of appearance of symptoms was obtained from all the cases. Fever was presenting symptom on first day amongst 28(39.4%) patients followed by cough and cold which was the first symptom to appear amongst 22 (31%) of cases. Sore throat was first symptom amongst 15 (21.1%) cases and malaise in 11 (15.5%) cases. (Figure1)

Around 67 (94.36%) patients received treatment and had taken medicines prescribed to them. Only 4 (5.63%) cases needed hospitalization during their illness and none of them required oxygen administration throughout the illness. The

Table1: Age and Gender wise distribution of COVID -19 cases (N=83)

Variables	n (%)
Age (Years)	
0-9	4 (4.8)
10-19	3 (3.6)
20-29	21(25.4)
30-39	24 (29)
40-49	10 (12)
50-59	8 (9.6)
60-69	10 (12)
70-79	2 (2.4)
>80	1 (1.2)
Gender	
Male	48 (57.84)
Female	35 (42.16)

Table2: Details of treatment and prognosis of COVID cases

Variables	n (%)
Treatment received	
Yes	68 (95.78)
No	3 (4.22)
Hospitalization	
Yes	5 (7.05)
No	66 (92.95)
Oxygen administration required	
Yes	0 (0)
No	71 (100)
Recovery period (days)	
0-2	12 (16.90)
3-5	40 (56.34)
6-8	15 (21.13)
>8days	4 (5.63)

Figure 1 : Chronology of Appearance of Symptoms among the cases of COVID 19
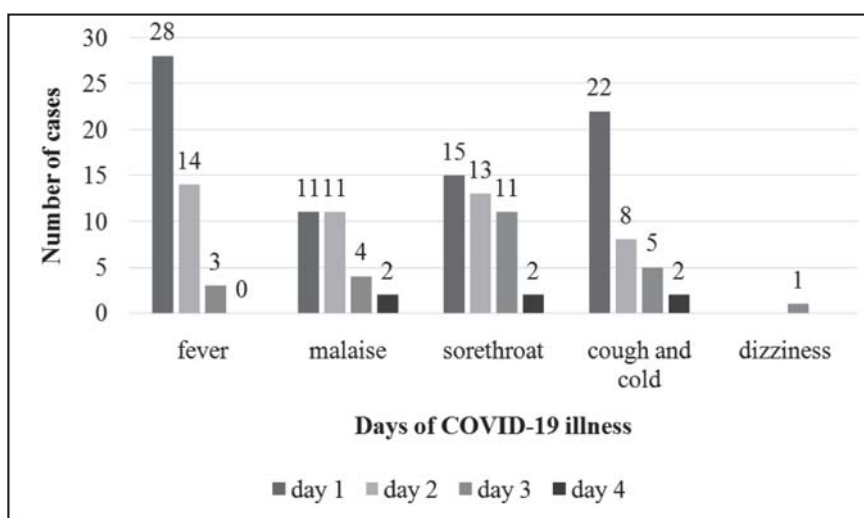
duration of illness was from 3-5 days in 40 (56.33%) patients. In 4 (5.63%) cases the duration of illness was more than 8 days. (Table2)

Total 8.5% cases had travel history, 36.6% had history of contact with positive case and 17% had history of attending social gathering in last 14 days which is the maximum incubation period of the disease. Four cases (5.6%) had history of COVID during the first/ second wave of the disease whereas 21 (30%) had history of COVID in the family member of the same household during the first/ second wave of the disease. 64(90%) of the cases were vaccinated and had received one dose of vaccine. 62 (87.3%) had received two doses of vaccine. Knowledge of the CAB was assessed amongst all cases and it was observed that 68 (95.8%) had knowledge that hand hygiene, wearing of mask and social distancing of two meters can prevent COVID. The average number of secondary cases was 0.50 ± 1.18 cases. (Table3)

Table 3 : Details about the contact, vaccination and COVID Appropriate Behaviour

Variables	n (%)
Travel history	
Yes	6 (8.5)
No	65 (91.5)
Contact with positive case	
Yes	26 (36.6)
No	45 (63.4)
History of attending any social gathering	
Yes	12 (17)
No	59 (83)
Past history of COVID	
Yes	4 (5.6)
No	67 (94.4)
History of COVID in family member of same household	
Yes	21 (30)
No	50 (70)
COVID Vaccination	
No	7 (10)
Yes	64 (90)
Number of Doses of Vaccine	
First dose	64 (90)
Second dose	62 (87.3)
Precaution dose	0 (0)
Number of secondary cases following this case	
0	57 (80.3)
1	3 (4.2)
2	6 (8.5)
3	0 (0)
4	4 (5.6)
5	1 (1.4)
Knowledge of CAB	
Yes	68 (95.8)
No	3 (4.2)

Overall, 18 (21.68%) cases had either diabetes or hypertension or both or other conditions as co-morbidities. The proportion of the cases with co-morbidities was higher in age group 40 years and above. Difference in proportion of co-morbidities between age group less than 40 years and more than

Table 4: Age and gender wise co-morbidities

Variable	Diabetes	Hypertension	Diabetes and Hypertension	Others	Total	Z Value	P Value
Age (Years)							
0-20 (n=7)	0	0	0	1	1 (14.2)	0.4608	0.6455
21-39 (n=45)	1	4	1	1	5 (11.1)	1.488	0.1362
40-59 (n=18)	4	4	2	1	7 (38.8)	1.533	0.1260
>=60 (n=13)	2	3	1	1	5 (38.4)	1.3176	0.1868
Gender							
Male (n=48)	1	4	0	0	5 (10.4)	1.6336	0.1031
Female (n=35)	6	7	4	4	13 (37.1)	1.7425	0.0818

40 years was statistically highly significant (z=2.9056, p=0.0036) with more number of cases of diabetes and hypertension in the age group above 40 years. However, when the overall proportion of co-morbidities was compared with co-morbidities in each age group, the difference was statistically not significant.

Proportion of co-morbidities was 10.4% and 37.1% in males and females respectively, and was more in females. Difference in gender wise distribution of co-morbidities was statistically significant (z =2.9177, p=0.0035). When the overall proportion of co-morbidities was compared with gender wise co-morbidities, the difference was statistically not significant.

As far as other co-morbidities are concerned, one patient in age below 20 years was suffering from TB meningitis, one patient in age group 20-39 years had dyslipidaemia. One patient in age 40-59 years had cancer and one patient in age more than 60 years had cardiac ailment. All the co-morbidities other than diabetes and hypertension were present in females. (Table 4)

Discussion:

The present study was carried out to study the profile, symptomatology, treatment needs and prognosis of patients of COVID-19 during third wave

of the pandemic at a RHTC of Gujarat. The incidence of the disease during the current wave was calculated as 1.8 cases /1000 population. The test positivity rate of the surveillance activities at the PHC was 0% however all the cases were diagnoses at the laboratories located in nearby urban areas. Such observation can be the common pattern in the rural areas which are located very close to the urban areas. Maximum number of cases belonged to age group 20-40 years with mean age of 37.94+17.48 years. However there are no study data available for age profile of cases during third wave for comparison but study by Mohan et al reported mean age of 40.1+13.1 years during the initial wave of COVID-19. [10] Another study by Kayina et al reported mean age of 50.7+15.1 years. [11] In the present study 57.3% of the cases were males. In study by Kayina et al 68.1% cases were males whereas in study by Mohan et al males were 93.1%. [10, 11] Median age of cases was 54.5 years and 59.3% were males in a study by Agrawal et al. [12] In another study by Bhandari et al 66.66% cases were males.[13]

In the present study 63.3% cases suffered from fever of varying intensity and it was the most common symptom. In study by Kayina et al 68.1 suffered from fever, in study by Agrawal et al 68% had fever whereas in study by Mohan et al fever was present only in 17.4% cases. [10-12] Fever was the most common symptom followed by sore throat, cough /cold and malaise in the present study. None of the patient had shortness of breath and chest pain during the current wave of COVID-19. In study by Kayina during the earlier wave of COVID-19, shortness of breath was the most common presenting symptom.[11] Similarly in study by Agrawal et al 75% patients were categorized as having pneumonia at the time of admission during the earlier wave. [12] Cough was reported as most common symptom in study by Bhandari et al and Geehan et al. [13-14] Fever was most common presenting symptom on first day of illness as reported in the present study followed by cough/cold, sore throat and malaise as a presenting symptom on very first day of start of the disease.

Rate of hospitalization was 5.63% and none of the patient required oxygen administration during the stay in hospital in the present study indicating that the disease was restricted to upper respiratory tract and pulmonary functions were not compromised in the patients. Duration of illness in present study was 3-5 days in majority of cases. This was similar to the duration observed by other studies. [10,11] Contact history with positive case was present in 36.6% cases in present study. 90% cases had received at least single dose of COVID vaccine and 87.3% were fully vaccinated. Average number of secondary cases was 0.5 cases amongst the close contacts who got clinically evident infection. 19.71% cases had diabetes, hypertension or both conditions as co-morbidities. 5.63% cases had other co-morbidities in the present study. 14.28% cases had co-morbidities in a study by Sudhir Bhandari et al.[13] Diabetes and hypertension were the most common co-morbidities as observed in other studies. [11,12,14]

There was a single death of COVID positive patient during the current wave and that was of a 43 years old female ovarian cancer patient who was on chemotherapy. The CFR was 1.4% in the present study. The knowledge of CAB was good amongst all patients. This was similar to findings of other study. [15]

Conclusions and Recommendations:

The COVID cases in beginning of year 2022 had clinical presentation different than the earlier waves as fever, cough/cold and sore throat being the main presenting symptoms. The rate of hospitalization was low and none required oxygen therapy or intensive care during their stay in hospital. This can be attributed to high rate of vaccination and good knowledge of CAB amongst the cases. There is need for sustaining the same. The proportion of cases with co-morbidities was significantly higher in age group more than 40 years and the single death which occurred in the PHC area was also having cancer as co-morbid condition. In view of this there is need to control of co-morbid conditions by regular treatment and follow-up amongst the general population. The

present study which was carried out in the population of PHC can be taken as prototype of the disease pattern in the rural areas of Gujarat during the beginning of year 2022 during the current wave of pandemic. Also, the active surveillance data may not be truly indicative of the disease situation in the rural areas having geographical proximity to nearby urban areas where the patients may go for testing and receiving the health services. In view of this role of ASHA and FHW of the PHC in keeping a close watch of the disease situation in the area covered by them is very important to know the actual disease situation. Further, periodic assessment of the situation and pattern of the disease can guide in making policy for handling this pandemic in near future.

Declaration:

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Conflict of Interest: Nil

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