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Original Research Article

Eligibility for home care of asymptomatic COVID-19 patients: challenges from a low resource setting in Central Kerala, South India

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ABSTRACT

Background: As a large spectrum of COVID-19 disease is asymptomatic, there came a need for home based management of asymptomatic cases, which can ensure efficient utilisation of resources for care of severe cases. On 7th August 2020, Kerala government came up with advisory for home care of asymptomatic cases. The study was done to assess eligibility for home care among patients then admitted to COVID First Line Treatment Centres in Palakkad and to identify the challenges, to aid in further planning and decision making about home care.
Methods: A cross sectional study was conducted among 133 laboratory confirmed COVID-19 cases admitted to CFLTCs during 08 August 2020 to 12 August 2020. Semi-structured questionnaire was administered over telephone, after getting oral informed consent from patients. Analysis was done using Statistical package for social sciences (SPSS) 20.
Results: 28.31% of asymptomatic cases were eligible for home care. The challenges were. lack of separate room with attached bathroom and ventilation (29%), absence of facility to separate vulnerable persons at home (18.5%), lack of healthy caretaker (15.9%) and being unaware about co-morbidity status (27%). Significant associations were found between socioeconomic status and availability of separate room with attached bathroom as well as separate facility to accommodate vulnerable persons.
Conclusions: Major factors limiting eligibility for home care were lack of facility to self isolate and to separate vulnerable persons away from home. Both factors were common among patients from BPL families. 27.4% of asymptomatic patients were unaware of co-morbidity status. This reinforces importance of screening for non communicable diseases in the community.

Keywords: Eligibility, Home care, COVID-19, Kerala

INTRODUCTION

Kerala reported India's first COVID-19 case on 30 January, 2020. Since then, the state has 10,72,436 total confirmed cases with 95.51% recovery and 0.4% mortality rate as reported on 06 March 2021.[1] Built on decades of investment in public health, the state is handling the COVID-19 crisis in a commendable way with large support from the community. To trace, quarantine, test, isolate and treat is mentioned as state's strategy to fight against COVID-19. The state had developed a three tier system for treatment of patients in the initial stages of the disease outbreak. The three tiers being 1) COVID Care Centres for quarantining exposed individuals, 2) COVID First Line Treatment Centres for treatment of asymptomatic/ mildly or moderately symptomatic patients 3) COVID Hospitals for treatment of severe and critically ill patients.[2]

A large spectrum of diseases is asymptomatic cases. To meet the potential surge of patients, and its impact on health system, Government of Kerala has later come up with advisory on home care of asymptomatic positive patients. This advisory came published on 7th August 2020 in the website of Directorate of Health Services, Kerala. According to the advisory, when to initiate the Standard Operating Procedure for home-based management of asymptomatic COVID-19 cases shall be decided by the district administration, considering the prevailing epidemic situation in the district. 70% bed occupied in First Line Treatment Centres shall be the trigger point for deciding to manage all asymptomatic patients at home because at the point of epidemic, system will have to take care of symptomatic patients. By the time, call centres, telemedicine services, and transportation availability in decentralized way in district should be fully functional.[3]

According to the state advisory, patients have to satisfy certain criteria for eligibility to be treated at home. These include clinical as well as social eligibility criteria.

Clinical eligibility criteria[3]

Patient to be positive by any of confirmatory tests. Needs to be asymptomatic. Patient doesn't have any major co-morbidities/uncontrolled co-morbidities/ vulnerable conditions (pregnancy/immediate postnatal/ immune-compromised). Psychologically fit and willing for room isolation. If patient is <12 years parent/guardian/care taker may be allowed to go jointly into room isolation

Social eligibility criteria (to be assessed by local self government and health authorities)[3]

The house has adequate road access and communication facilities (mobile/land phone). Facility for room isolation with attached bathroom, room should be well ventilated. The person or the materials used by the COVID-19 patient shall never come in contact with any vulnerable individual at home. It is advised that all vulnerable persons in the family shall be moved to a separate house in the neighbourhood or family.

Healthy members of the family who had been already exposed may choose to continue in the same household provided further exposure with COVID-19 patient can be avoided. An adult healthy and willing care taker should be identified by the family for providing care to the patient observing all safety precautions according to quarantine guidelines. The family has adequate community and social support.

Only people who meet the clinical and social eligibility criteria shall be permitted for home based care.

In this back drop, as per the recommendation from district level expert committee, the present study was conducted with the objectives: to assess the eligibility for home based care among the patients admitted in COVID-19 First Line Treatment Centres in Palakkad district of Kerala; to identify the challenges for initiation of home care, so as to aid in further planning and decision making.

METHODS

A cross sectional study was conducted across 3 COVID-19 First Line Treatment Centres in the district of Palakkad Kerala, South India (CFLTCs at Government Medical College Palakkad, Kerala Medical College Mangode, Sanskrit College Pattambi). Study participants were laboratory confirmed (by RTPCR/Rapid Antigen Testing) cases of COVID-19, admitted to the CFLTCs on dates 08 August 2020 to 12 August 2020 (5 days, immediately following issuance of advisory for home care treatment by Government of Kerala, on 07 August 2020). Those patients who were not willing to participate in the study were excluded.

There were a total of 486 new COVID-19 cases admitted to CFLTCs in Palakkad district over the period of 5 days. A pilot study was done among 10 cases from the newly diagnosed cases on 08/08/20, of which 4 (40%) were satisfying the clinical and social eligibility criteria for home based care.

Assuming the prevalence of eligible patients for home care as 40%, the sample size calculated using the formula $(Z\alpha)^2 PQ/d^2$ was 144, keeping 80% power and precision at 20%.

Contact numbers of the cases were available from District Medical Officer Palakkad.144 cases were selected from 5 days' case list by simple random sampling excluding 10 patients on whom pilot study was done. At the end of data collection, 11 cases were discarded due to lack of essential data, making the final sample size as 133 (response rate 92.4%).

The samples selected were individually interviewed over telephone after taking oral informed consent. Data regarding socio-demographic details, clinical and social eligibility criteria were collected using a semi-structured questionnaire. Asymptomatic patients satisfying all the criteria were defined eligible for home care.

Collected data were coded and entered in MS excel and analyzed using Statistical package for social sciences (SPSS) version 20. Quantitative and qualitative data were summarized as Mean±SD and percentage values respectively. Chi-square test was done to find out associations.

RESULTS

Baseline characteristics

Mean age of the study participants was 36.02±13.64, and majority was males (66.9%). 70.31% were Above Poverty Line. Among the total 133 patients interviewed, 113

(84.9%) were asymptomatic. The base line characteristics of all the patients studied is given in Table 1. Majority of the patients were between 20-39 years of age. The distribution of patients in age group is given in Figure 1.

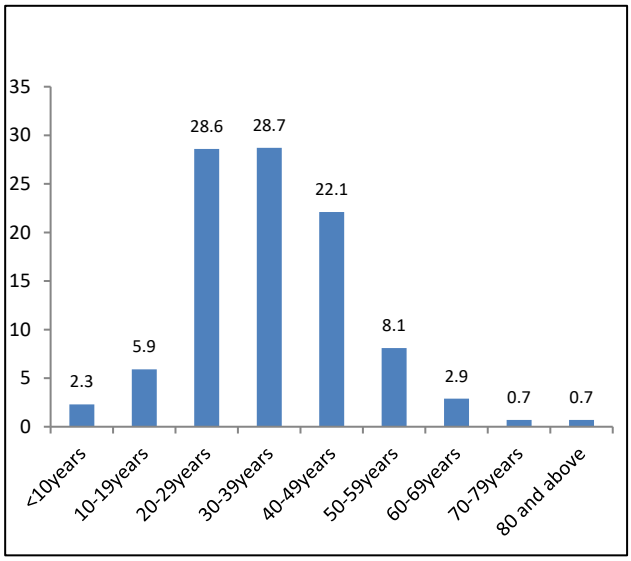

Figure 1: Distribution of patients according to age groups (%) (n=133).

Table 1: Baseline characteristics of the patients (n=133).

Variables	
Age (years)	
Mean age	36.02±13.64
Median	34
Age range	4-90
Gender	
Female	44 (33.1%)
Male	89 (66.9%)
Socio-economic status (n=128)	
APL	90 (70.31%)
BPL	38 (29.69%)
Residence	
Panchayath	98 (73.68%)
Municipality	35 (26.32)
Family	
Average family size	4.67
2 members	20 (15%)
3-5 members	78 (58.6%)
>5 members	35 (26.3%)
Symptoms	
Present	20 (15.1%)
Absent	113 (84.9%)

Table 2: Criteria for home care of COVID-19 patients.

Criteria	Yes (%)	No (%)	Don't know (%)
Diagnosis by any confirmatory test	133 (100)		
Presence of symptoms	20 (15)	113 (85)	
Clinical and social Eligibility criteria for asymptomatic cases (n=113)			
Criteria: presence of	Yes	No	Don't know/ non-response
Major comorbidity/ uncontrolled co-morbidity/vulnerable condition	14 (12.3)	68 (60.1)	31 (27.4)
***willing for room isolation**	96 (85)	16 (14.2)	1(9)
Road access	108 (95.6)	4 (3.5)	1 (0.9)
Tele communication facility	108(95.6)	2 (1.8)	3 (2.7)
Separate room with attached bathroom and ventilation	80 (70.8)	32 (28.3)	1(0.9)
No vulnerable persons at home / facility to separate vulnerables available	88 (77.8)	21(18.5)	4(3.5)
Adult healthy and willing caretaker	94 (83.2)	18(15.9)	1 (0.9)
****Adequate community and social support**	112 (99.1)	0	1(0.9)

*Psychological fitness of the patient could not be assessed through telephonic interviews. ** As informed by the patient

Eligibility for home based care

The results of clinical and social eligibility criteria for home care treatment are shown in Table 2. On further analysis for eligibility for home care treatment, 32 patients out of 113 asymptomatic patients (28.31%) were found to satisfy all the criteria for home care.

Major challenges for home care among asymptomatic cases

Lack of separate room with attached bathroom and ventilation (28.3%), presence of vulnerable persons who could not be separately accommodated (18.5%), lack of healthy adult caretaker (15.9%) were identified as major challenges for initiation of home care. 27% of the people were not aware of presence of co-morbidities and its severity. Further investigation may bring an improvement

in the eligibility status once they are known to be devoid of co-morbidities.

Table 3: Association between Socioeconomic status and availability of separate room with attached bathroom for self isolation of asymptomatic cases

Socio Economic Status	Separate room available	Separate room not available	Total
BPL	19 (57.6%)	14 (42.4%)	33
APL	58 (78.4%)	16 (21.6%)	74
Total	77	30	107

Chi-square = 4.89, p= 0.027, OR =2.6 (1.1-6.4)

Table 4: Association between socioeconomic status and availability of facility to separate vulnerable at home.

Socio Economic Status	Separate facility available	Separate facility not available	Total
BPL	10 (50%)	10 (50%)	20
APL	38 (77.6%)	11 (22.4%)	49
Total	48	21	69

Chi-square =5.09, p= 0.024, OR=3.4 (1.1-10.4)

Associations

Chi-square tests gave significant association between socioeconomic status and availability of separate room with attached bathroom (p=0.027) as well as separate facility for accommodation of vulnerable persons at home (p=0.024). Patients belonging to low socioeconomic status were lacking the facilities for self isolation (78.4% patients among Above poverty line had separate room when 57.6% of patients among below poverty line had the same facility) as well as separating vulnerable persons at home to another place (77.6% of patients above poverty line had facility for separate accommodation, when only 50% of patients below poverty line had the same facility) (Table 3, 4).

DISCUSSION

Among the 133 patients admitted in COVID-19 First Line Treatment Centres, 84.9% were asymptomatic. These results are in line with many other researches published globally where proportion of asymptomatic COVID-19 is more than 50%.[4-6] Kumar et al reports 91% of asymptomatic cases in descriptive epidemiology of SARS Cov 2 infection in Karnataka.[7] WHO Q and A suggests 80% of infections are mild or asymptomatic.[8]

From the study, it is evident that more than 1/4th of the asymptomatic cases of COVID-19, who were admitted in COVID-19 First Line Treatment Centres in Palakkad district, were eligible for home based management. The proportion should be fairly high in other parts of the state, with better socio-economic development. Home isolation can be envisaged as a course to self reliance in COVID-19 care in India. When people with COVID-19 can be cared for at home, there is no justification for institutionalising those with mild or no symptoms.[9]

Socio economic status of the families found to affect the eligibility for undergoing home care treatment .Patients from families below poverty line were unable to self isolate at their homes due to lack of separate room with attached bathrooms and lack of facility to separate other family members who were vulnerable. Socio-economic status may be considered as a tool that helps to screen the patients who are in need of an institutional care in first line treatment centres. Local body settings with high proportion of poor families have to find adequate facilities for providing institutional care to COVID-19, where home isolation is not possible.[9] Dharavi sets a replicable model in the management of COVID-19 cases in low resource settings.[10] This pandemic could be an opportunity for policymakers to make the poor and marginalised people more inclusive and resilient in the long run.[10]

Lack of healthy adult care taker at home, calls for more intensified health promotional activities in the communities, for better control of communicable and non-communicable diseases. This is also evidenced by the fact that 27% of the people were not aware of presence of co-morbidities and its severity. Screening for hypertension and diabetes may be made mandatory as a person tests for COVID-19 as those with underlying health conditions or co morbidities, has an increasingly rapid and severe progression, often leading to death.[11] Health care system must give thrust to Non communicable Diseases Control Program during the pandemic. This will help in better control of morbidity and mortality due to COVID 19; along with efficient allocation of resources.

Limitation

Telephonic interview could have resulted in some information bias.

CONCLUSION

28.31% of asymptomatic COVID-19 cases were eligible for home based treatment. The major challenges limiting the eligibility were lack of separate room with attached bathroom and inability to separate vulnerable persons at home, both of which were higher among the BPL families. This indicates that socio-economic status may be considered as a screening tool to assess the eligibility for home care treatment during the current pandemic. The finding also calls for a long term visionary to be kept by the policy makers to improve the living conditions of the poor for strengthening of public health system. The study also identified unawareness regarding co-morbid status as a reason which creates an uncertainty to decide on home based care. This calls for enhanced screening for non communicable diseases in the community and screening to be made mandatory at time of diagnosis of COVID-19. The investigators expect these evidences generated may be

of help in local decision making with regard to home care treatment of COVID-19 cases in any other developing region.

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