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### **Sharing Experience and Patient Outcomes of Covid-19 Home Care**

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#### **ABSTRACT:**

COVID-19 pandemic has impacted the whole world in a big way, especially India. With rising number of cases, it is imperative to shift to home-based care for patients without severe illness. Objective of our study was to describe patient characteristics, clinical severity, outcomes of patients enrolled under home care packages. It is a descriptive study involving all COVID-19 patients enrolled in our home care packages between 23 June and 15 August 2020. 123 patients received home care by our team including 67 patients with moderate illness. 14 patients required admission while under home care. None of the patients had severe residual morbidity and there was no mortality. With rising number of COVID-19 cases, home care is the need of the hour. Home care can avoid unnecessary hospitalization, reduce financial burden on patient and save beds for the severely ill patients in a resource limited setting. With a structured home care program and proper supervision via virtual consultations, patient outcomes can be very good.

**KEY WORDS:** COVID-19 home care, clinical experience, outcomes

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## **INTRODUCTION:**

Corona virus disease 2019 (COVID-19) is undoubtedly the worst pandemic affecting mankind in the last one century! World has been caught unaware and we are still in learning process about this deadly disease. In the beginning, patients with COVID-19 were hospitalized even if they were asymptomatic and gradually focus was shifted to home care for patients with mild to moderate illness also.<sup>1</sup> We were one of the first among to offer home care services in state of Telangana to COVID-19 patients and this article is to share our experience and also discuss advantages and disadvantages of home care.

## **OBJECTIVES:**

To describe patient characteristics, clinical severity, outcomes of patients enrolled under home care packages from 23 June 2020 to 15 August 2020.

## **METHODOLOGY:**

It's a descriptive study of all COVID-19 patients enrolled in our home care packages between 23 June 2020 to 15 August 2020. Our hospital is a tertiary level private sector hospital in state of Telangana, South India. Patient clinical characteristics, comorbidities, severity of COVID-19 and outcomes were analyzed. Patient data was collected retrospectively from the clinical data sheets used for patients with COVID-19 which was documented by the clinician and nurse coordinator as part of routine care. A standardized clinical data sheet and prescription format was used by the clinician and the nurse coordinator during their interaction with patients enrolled in the home care package. Patients were contacted over phone in second week of September 2020 to enquire their health status. Data was entered in Excel spread sheet and analyzed.

Home care package: Home care package was offered to proven COVID-19 patients, suspect COVID-19 patients and COVID-19 patients for follow up care after discharge from hospital. Out home care package included

1. a kit with pulse oximeter, thermometer, N95 masks, sanitizer and disposable gloves to the patient
2. daily virtual consultation with nurse coordinator and monitoring of patient wellbeing including oxygen saturation (SpO<sub>2</sub>) under supervision of a physician for 2 weeks
3. physician consultation once in 2 to 3 days as required
4. video consultation with dietician and physiotherapist

Once enrolled into a home care package, patient would have a video consultation with physician to classify the severity of illness and advice to continue home care or need for hospitalization was given. Patients were explained to watch for warning symptoms and signs like shortness of breath, SpO<sub>2</sub> <94%, chest pain, drowsiness etc. Patients were asked to monitor SpO<sub>2</sub> at rest and after walking for 6 minutes at least twice daily. Nurse coordinator educated them regarding home isolation precautions, infection prevention measures to prevent infection to other family members including surface disinfection etc.

Severity of illness was categorized into mild, moderate and severe illness.<sup>2,3,4</sup> Severe infection was diagnosed if patient had SpO<sub>2</sub> less than 94%, shortness of breath or respiratory rate more than 30/min, altered sensorium or more than 50% of lung involvement on radiological evaluation.<sup>2,3,4</sup> If patient did not have any features to suggest severe infection, no comorbidities which predispose to severe infection and no radiological abnormalities, he or she was diagnosed to have mild illness. If patient had no features to suggest severe infection but had comorbidities or radiological abnormality, he or she was diagnosed to have moderate illness. Elderly patients are at risk of developing severe infection. Comorbidities which are considered risk factors for severe illness are diabetes, hypertension, obesity, smoking, chronic lung disease, chronic liver disease, chronic kidney disease, cardiovascular disease, HIV with CD4 count less than 200, patients with active cancer and patients on immunosuppressive therapy.<sup>2,3,4,5</sup>

## **RESULTS:**

A total 123 patients with confirmed COVID-19 were enrolled. Patient demographic details including severity of illness are depicted in table I. 109 out of 123 patients were discharged from home care after 2 weeks of enrollment, 14 people required hospitalization during follow up under home care (all as advised by our home care team) for suspected severe illness or other complications. All 14 hospitalized patients were discharged in stable condition subsequently. There were no deaths at follow up after 1.5 to 2 months. At 1.5 to 2 months follow up (telephonic), 8 patients had significant residual symptoms like cough or some shortness of breath.

**Table 1: Demographic features and clinical severity**

Patient characteristic	Number of Patients
Sex-Female	32
Sex-Male	91
Age 20-40 years	42
Age 40-60 years	61
Age above 60 years	17
Severity of illness – mild	55
Moderate	67
Severe	1

**Table 2: Patients with risk factors for severe illness**

Risk factor for severe illness	Number of Patients
Diabetes	28
Hypertension	38
Coronary artery disease	5
Obesity	32
Smoking	2
Chronic kidney disease	0
Active cancer	0
Moderate to severe asthma	5
Chronic liver disease	0
Acquired immunodeficiency Syndrome	1
Immunosuppressive therapy	1

## DISCUSSION:

In the early stages of pandemic, from end of March to early June 2020, complete lockdown was announced all over the country to slow down the infection transmission and to ramp up health care infrastructure to care for COVID-19 patients.<sup>6</sup> Initially it was mandatory to hospitalize even asymptomatic patients and patient with mild infection.<sup>1,6,7</sup> As the pandemic progressed, with the increase in number of patients, it was practically not feasible to hospitalize all patients and it was a huge financial burden for patients opting for admission to private sector hospitals.<sup>6,7,8,9</sup> Hence focus was shifted to home care for asymptomatic and mild symptomatic patients.<sup>1,6</sup>

We are still on a learning curve as far as management of COVID-19 is concerned. It was a learning process for us as well when we started COVID-19 home care services. Government (both central and Telangana state) issued guidelines for home care around the same time. Our home care included video consultations, included pulse oximetry monitoring, dietician consultation and assistance for hospital transfer if required. For severely ill patients, delayed treatment may result in poor outcomes. Many patients with SpO<sub>2</sub> less than 94% may not have significant shortness of breath and patients presenting with shortness of breath usually have very low oxygen saturation levels. It is generally assumed that younger patients do not usually develop severe illness but in India a significant proportion of patients below 60 years age and without coexisting co-morbidity developed severe illness.<sup>7</sup> Hence close monitoring of patients irrespective of age and presence of co-morbidity is important in order to detect people developing severe illness or other complications like thrombo-embolic events without delay. Structured home care program with supervision via video/teleconsultations and monitoring with pulse oximetry is likely to help detect worsening of illness or other complications early. If we only go by patient's symptoms like shortness of breath, we may be detecting severe illness late when SpO<sub>2</sub> is critically low (less than 90%). We also encouraged our patients to check SpO<sub>2</sub> both at rest and after brisk walking for 6 minutes which is more sensitive in detecting worsening of lung function compared to checking SpO<sub>2</sub> at rest alone.

Other advantages of home care are avoidance of unnecessary hospitalization, cost saving, saving beds for the patients who truly deserve hospitalization in a bed shortage scenario etc.<sup>8,9</sup> Disadvantages of home care are inability to offer tests as patients are supposed to be in home isolation and not supposed to visit diagnostic centers, chances of delay in detection of thromboembolic events, delay in transfer to hospital in case of sudden worsening etc. If any patient developed shortness of breath or SpO<sub>2</sub><94%, chest pain or altered mentation, he or she was advised admission to hospital. Many authors recommend thromboprophylaxis for all hospitalized patients with moderate to severe Covid-19 illness.<sup>10</sup> Thromboprophylaxis may be considered for patients with very high D-dimer values, we felt it was necessary to offer serial blood testing for patients with moderate illness. However, there is no recommendation for thromboprophylaxis for COVID-19 patients managed at home based on D-dimer level.<sup>11</sup> Some clinicians offer low dose steroids if inflammatory markers are very high though guidelines recommend steroids only for hypoxic patients.<sup>12,13</sup> Inability to offer blood tests to home care patients was one of the limitations of home care but later on, home collection of blood sampling became available for even COVID-19 infected patients where many diagnostic centers started home collection

of samples with protection to concerned technicians with appropriate PPE (personal protective equipment).

Some of the challenges we faced during teleconsultations were poor internet connectivity on patient side for video consults, a few patients did not have a smart phone and some of them were not well versed with video calls (we used either whatsapp video call, Zoom app or go-to meeting app). It is important to measure SpO<sub>2</sub> with pulse oximeter in correct manner and some patients with low education level required repeated instructions regarding correct way of using pulse oximeter. Patients expressed better satisfaction with video consultations compared to plain audio consultations. It is important to be accessible round the clock as patients have high level of anxiety and tend to approach us at odd times as well and sudden worsening due to thromboembolic events in COVID-19 is well known.

There was no severe residual morbidity or mortality in our patient series. We were able to detect patients who progressed to severe illness promptly and advise hospitalization and provide necessary assistance for the same. Our series included a good number of elderly patients and patients with comorbidities (more than 50% of patients) with risk of progression to severe of illness. Pulse oximetry is an important component of assessment of clinical status.<sup>14</sup>

## **CONCLUSION:**

Home care for COVID-19 patients with mild to moderate illness under supervision of a medical team is the need of the hour, avoids unnecessary hospitalization, reduces cost burden and available hospital beds can be utilized for patients with severe illness.

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