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A STUDY ON POST ACUTE COVID-19 SYNDROME OF FIRST WAVE OF COVID PANDEMIC IN A TERTIARY CARE TEACHING HOSPITAL IN RURAL PART OF SOUTHERN MAHARASTHRA

Dr. Anita Basavaraj[1], Dr. Dharshan P.[2*], Dr. Yagnesh Doshi[3], Dr. Shirish Shinde[4], Dr. Shabnum Mulani[5]

[1]Professor and Head, Department of Medicine, Government Medical College, Miraj. Maharasthra. India
[2,3]Junior Resident, Department of Medicine, Government Medical College, Miraj.
[4,5]Asst. Prof., Department of Medicine, Government Medical College, Miraj.

***Corresponding Author: Dr. Dharshan P.**

Junior Resident, Department of Medicine, Government Medical College, Miraj.

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ABSTRACT

Objectives: This study was done to recognize the various post covid symptoms in patients previously diagnosed with covid 19. **Methods***:* Study was conducted in patients attending post-covid out patient services in tertiary care hospital. First 250 patients were observed in this study. **Results***:* In this study it was noted that 68.8% of them were males; 44% patients were in the age group of 40-60 years. Breathlessness was the most common complaint amongst these patients was i.e. 64 patients (25.6%) and weakness was the second most common complaint in about 60 patients (24%). About 34.8% of patients had some comorbidity in the form of diabetes mellitus or hypertension or ischemic heart disease. **Conclusion***:* Through this study it was noted that the symptoms of covid 19 such as breathlessness, weakness, psychiatric disturbances and others persist well beyond 2 weeks sometimes to even months. Prolonged course of steroids and anti-fibrotic agents like pirfenidone are tried to reverse lung fibrosis however the results are quite variable as of now. Anticoagulation, antifibrotic therapy along with adequate rest, gradual increase in activity and good nutrition including balanced diet with adequate micronutrient supplementation holds the key to improving fatigue. It helps in reversing the catabolic process associated with covid-19 illness. Psychotherapy and counseling can be very helpful in tiding over the psychosocial issues related to post-COVID syndrome.

INTRODUCTION

The first case of COVID-19 was reported in Wuhan, China, in December 2019. COVID-19 is caused by a novel coronavirus, named severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2 or 2019-nCoV)[1] There is a misconception that all patients with COVID-19 may recover within two weeks; this is not always the case.[2] The long-term consequences of COVID-19 infection are not well understood. In addition, prolonged recovery of symptoms has been described even in patients who had mild symptoms and did not require hospitalization.[3] This manifestation was termed post-acute COVID-19 syndrome or 'long COVID'. It is an illness described among patients who have recovered from COVID-19 but still have ongoing symptoms or among those who continued to have symptoms for longer than normally expected.[4]

Early reports suggest residual effects of SARS-CoV-2 infection, such as fatigue, dyspnoea, chest pain, cognitive disturbances, arthralgia and decline in quality of life. Potential mechanisms contributing to the pathophysiology of post-acute COVID-19 include: (1) virus-specific pathophysiologic changes (2) immunologic aberrations and inflammatory damage in response to the acute infection; and (3) expected sequelae of post-critical illness.[4] This study tries to reveal post covid manifestations in previously diagnosed COVID 19 patients.

METHODOLOGY

Patients infected with SARS-CoV2 and completed treatment were called after 14 days of their discharge from hospital for follow up in a tertiary care centre Post Covid out patient Department with an aim to study the clinical profle. Patients were evaluated with regards to previous complaints and new onset complaints if any. The study is conducted after approval by Institutional Ethics Committee .Follow up cases of covid 19 patients was done in post covid opd. First 250 patients were considered in this study from october 2020 to December 2020.

General and Systemic examination was done and evaluated accordingly. Various parameters were noted-age, sex, blood group, respiratory rate, pulseoximeter saturation, Respiratory system examination, chest roentgenogram/ chest computed tomography findings,

etc. Co-Morbidities if any were investigated and managed accordingly. Patients were advised relevant investigations and followed up accordingly. As per clinical profile they were advised symptomatic/specific treatment/physiotherapy/oxygen therapy and further follow up.

RESULTS

Of 250 patients evaluated and managed at post covid opd 172(68.8%) were males and 78(31.2%) were females. 3 patients were below 20 yrs of age, 83(33.2%) patients were in age of 20-40, 110(44%) patients in the age group 40-60 and 54(21.6%) patients were of above 60 years of age. It was noted that about 195(78%) of follow up patients were still symptomatic in some or other form with the remaining being asymptomatic. The most common complaint amongst these patients was breathlessness 64 patients(25.6%), weakness in 60 patients(24%), cough in about 50 patients(20%), fever in 13 patients(5.2%) , chest pain in 10 patients(4%) and no specific upper respiratory tract infection symptoms was present in about 7 patients. 34 patients(13.6%) were asymptomatic at follow up. Mental health issues like anxiety, depression, insomnia were present in 5 patients. It was noted that 29 patients (11.6%) had a spo2<94 and remaining other 221 of patients (88.4%) had a spo2> 94.

It was noted that comorbidities were present in form od diabetes in 25cases (10%), hypertension in 25casesa (10%), 31 had both diabetes melitus and hypertension ,6 (2.4%) had history of ischemic heart disease.

Table 1: Demographic distribution of subjects.

Characteristics	**n**	
AGE		
Below 20 years	3	1.2%
20-40 years	83	33.2%
40-60 years	110	44%
Above 60 years	54	21.6%
SEX		
Male	172	68.8%
Female	78	31.2%

Table 3: Spo2 distribution of subjects.

Chief complaints	**n**	
Asymptomatic		
Yes	34	13.6%
No(symptomatic)	216	86.4%
Breathlessness		
Yes	64	25.6%
No	186	74.4%
Weakness		
Yes	60	24%
No	190	76%
Cough		
Yes	50	20%
No	200	80%
Fever		
Yes	13	5.2%
No	237	94.8%
Chest Pain		
Yes	10	4%
No	240	96%
Psychiatric Complaints		
Yes	5	2%
No	245	98%

Cold		
Yes	7	2.8%
No	243	97.2%
Sore Throat		
Yes	5	2%
No	245	98%
Headache		
Yes	2	0.08%
No	248	99.2%

Table 4: comorbidities distribution.

Comorbidities	**n**	
Diabetes Mellitus		
Yes	25	10%
No	225	90%
Hypertension		
Yes	25	10%
No	225	90%
DM + HTN		
Yes	31	12.4%
No	219	87.6%
Ischemic Heart Disease		
Yes	6	2.4%
No	243	97.6%

Table 2: Symptom distribution of subjects.

SPO2 LEVELS	**n**	
Less than 94 %	29	11.6%
More than 94 %	221	88.4%

Chart 1: Symptoms distribution among subjects.
Chart 2: Various comorbidities among subjects.

DISCUSSION

A unique feature of acute COVID-19 illness is persistence of symptoms beyond the initial phase of 2 weeks, and at times taking months to resolve. These patients have been given variable names like "long haulers", "Post-acute COVID-19 illness", "and post – COVID illness", "long-COVID". The spectrum of manifestations seen in post-covid illness is variable and it may encompass symptoms localized to a single organ system or multiple organ systems. Post-COVID-19 fatigue, body ache, cough, lung fibrosis, bronchiectasis, myocarditis, coronary ischemia, pulmonary thromboembolism, stroke, micro vascular coagulopathy, cognitive dysfunction, anosmia sleep disturbances, secondary bacterial and fungal infections etc. have been observed.

The frequency of post-COVID-19 syndrome could vary from 10% to as high as 70%. The exact frequency is difficult to state as majority of COVID-19 infections are asymptomatic and so the true denominator is not known to calculate the true prevalence. Of 250 patients recruited it was noted that about 78.04 % (n=195) of follow up patients were still symptomatic in some or other form with the remaining being asymptomatic.

The most common complaint amongst these patients was breathlessness or dyspnea (25.6% of patients). It was observed that moderate or severe COVID-19 patients, especially those suffering from diabetes, heart disease or morbid obesity, continued to remain oxygen dependent even after 3-4 weeks of symptoms onset. These patients had to be discharged on domiciliary oxygen therapy with home pulse oximetry monitoring.

In patients with post-COVID-19 lung fibrosis, prolonged course of steroids and anti-fibrotic agents like pirfenidone are tried to reverse lung fibrosis. Serious interstitial lung disease is rare in patients who are not hypoxic, but it may be too early to comment upon the pulmonary involvement and spontaneous reversibility of fibrosis. However, the experience with influenza-associated pulmonary fibrosis and the previous corona

virus illnesses (SARS and MERS) indicates that residual damage at 1 or 2 years may not be that alarming.[9] What sequelae will post-acute COVID-19 syndrome leaves behind are yet not known, but symptoms do improve over time and presently symptoms have been documented to persist for as long as 6 months.

Generalized weakness and body ache being the second most common complaint was present in 24% of patients. Post-COVID-19 fatigue with or without myalgia or arthralgia is more common presenting symptom in post-covid 19 opd and is associated with decreased capacity to perform activities of daily living. Similarly, most patients lose weight indicating that COVID-19 is severe catabolic stress on the body. Many mild covid-19 patients who joined after quarantine period were unable to do even 6-hour desk work and had to be advised rest again. Analgesics can help get rid of body aches, headache, arthralgia, myalgia and low-grade fever.

Cough was the third most common complaint in 19.6% of patients. Although persistent dyspnea was more frequently associated with moderate and severe COVID-19 patients, persistent cough was seen across all severities including mild cases. Deep breathing exercises and steam inhalation help tackle persistent cough, antitussives may also be prescribed.

Psychological stress, mood disorders and sleep disturbances have been witnessed in many patients. This may be attributed to the illness, delayed return to normal health, loss of job and financial losses incurred. Antidepressant medications like amitriptyline, fluoxetine and duloxetine are used to overcome depression and body ache. Neurological symptoms associated with COVID-19 getting noticed are headache, loss of concentration, cognitive dysfunction, Guillain-Barre syndrome and increase in cases of stroke. Atypical symptoms like ageusia and anosmia have also been noted to persist for months.[9-10]

The severe inflammatory reaction witnessed in acute COVID-19 illness can lead to a deregulated innate immune response, ciliary dysfunction, cytokine storm, thrombo-inflammation and immune exhaustion. This can lead secondary bacterial and fungal infection especially diabetic patients, critically ill patients, patients on steroid and anti-interleukin therapy, patients on mechanical ventilation and also when there is breach in asepsis protocols. A rise in cases of Covid-19 associated pulmonary aspergillosis and invasive mucormycosis (rhino-orbito-cerebral) has bought attention of treating physician managing COVID-19 and post-acute COVID-19 patients.[11] There were couple of mild cases past middle-age, who were discharged after the requisite isolation period, but died during sleep around 3rd or 4th week of symptom onset. Sudden cardiac deaths are probably due to myocardial infarction or arrhythmias triggered by the inflammatory processes in the coronaries/myocardium.

Lastly effect of covid-19 on various tuberculosis control program should be looked. Delayed tuberculosis diagnosis and treatment might substantially increase mortality in future. Globally, lockdown and treatment restrain might result in additional 6.3 million cases between 2020 and 2025; additional 1.4 million deaths is estimated to be due to tuberculosis during this time. Global Tb incidence and deaths in 2021 would increase to levels last seen in between 2013 and 2016 respectively- implying a setback of at least 5 to 8 years. To recover the gains made over last years measures like ramped-up active case-finding,intensive community engagement and contact tracing using digital technology and other tools and securing access to an uninterrupted supply of quality treatment and care for every single patient should be assured.

CONCLUSION

The persistence of symptoms can be witnessed irrespective of the initial severity of COVID-19 illness. “post-acute COVID-19 syndrome” is commonly seen following moderate to severe COVID-19 illness, compared to mild COVID-19 illness and is commoner in at-risk groups (diabetes, hypertension, obesity, heart disease and preexisting lung disease). Treating physician should be very attentive and actively seek for the symptoms, so also outline this syndrome and its behavior overtime. Specific treatment strategies like prolonged anticoagulation, antifibrotic therapy can be planned after determining individual patient needs. Rest, gradual increase in activity and good nutrition including balanced diet with adequate micronutrient supplementation holds the key to improving fatigue, weight loss and helps in reversing the catabolic process associated with covid-19 illness. Psychotherapy and counseling can be very helpful in tiding over the psychosocial issues related to post-COVID syndrome.

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