



**ORIGINAL RESEARCH PAPER**

**Pulmonary Medicine**

**LONG COVID- 'THE MYSTERY YET TO REVEAL'**

**KEY WORDS:**

**Dr Karthik Mallikarjun Tuppad\***

Post Graduate\*Corresponding Author

**Dr Archana B**

Hod & Professor

**Dr. Parinita S**

Associate Professor

**Dr Georgin Shaji**

Post Graduate

**Dr. Chitteddi Akhila**

Post Graduate

**ABSTRACT**

**Introduction:** The first case of covid19 in India on January 31,2020. India has presently achieved over 90% recovery.9.5 million cases recovered out of 10 million reported as of December 19, 2020. However, as the cohort of survivors expands, it is now being realized that a parallel epidemic of the post-COVID syndrome/long COVID is emerging. **Aim:** To identify and manage long covid more efficiently. **Objective:**To record follow up data of covid 19 survivors. **Materials & Method:** This is the prospective cohort study including 150 patients of, all confirmed hospitalized patients who were discharged during 2nd wave of COVID 19 from RRMCH, Bangalore, patients were contacted by telephone. Duration for 6 months April 21 to October 21. **Results:** Patients were found to have a direct correlation with days of hospitalization (p=0.0001, R=0.773) presence of co morbidities(p=0.0001) and history of smoking(p=0.006) with Chalder fatigue score. Patients with vaccination were found to have proportionately lower CFS scores thereby indicating the importance of vaccination in prevention of Long Covid complications. **Conclusion:** This study makes it evident that of those who survived COVID-19 illness a significant proportion is likely to experience a post-COVID syndrome up to 6 months after the active illness.

**INTRODUCTION:**

- The first case of COVID-19 in India was reported on January 31, 2020. Since then, most of the resources so it is mainly focused on arresting the spread of the disease and treating patients with the disease. The respiratory tract is the site of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) entry and infection, COVID-19 is a complex systemic disease, affecting multisystem such as the cardiovascular, renal, hematologic, gastrointestinal and central nervous systems. A plethora of symptoms persist in patients surviving with moderate to severe COVID19, and a long COVID syndrome has been proposed. (1)
- The severity and duration of symptoms remain unknown. Chronic fatigue occurred after SARS infection in 2003, and it is well known in the aftermath of a spectrum of infectious diseases. Before the SARS-CoV-2 pandemic, patient management in intensive care with viral pneumonia was frequently associated with mental and physical decline, and this could explain long COVID in patients with severe illness. (2)
- It is now being realized that an epidemic of the post-COVID syndrome/long COVID is emerging in many aspects. This can be defined as a syndrome encompassing the chronic noncommunicable, often debilitating sequelae of COVID-19. The available literature suggests that up to 88% of COVID-19 survivors may have this syndrome. (3)

**METHODS & METHODOLOGY**

- This is the prospective cohort study, all confirmed hospitalized patients who were discharged during 2nd wave of COVID 19 from Rajarajeswari medical college and hospital, Bangalore.
- 150 patients were selected using consecutive sampling technique, were inclusion and exclusion criteria; patients above 18 years, willing to be involved in research subjects

by signing the written consent form after explanation and patients who were diagnosed to have moderate to severe covid 19 pneumonias.

- Duration of the study 6 months from April 2021 to October 2021.
- All the patients were tested COVID 19 by RT-PCR on presenting to emergency.
- All study subjects were also subjected to descriptions of clinical and demographic characteristics based on gender, age, smoking history.
- All the patients were contacted via telephone call and enquired about health status and called back for follow up to our OPD.
- SOP was followed on follow up visits and during telephone call by set of standard questioners.

**Statistical Analysis:**

- Data was entered into Microsoft excel data sheet and was analyzed using SPSS 22 version software.
- Independent t test, Chi-square test or Fischer's exact test was used as test of significance for qualitative data.
- The correlation analysis was carried out using the Spearman correlation test, where  $p < 0.05$  was statistically significant.

**Toolkit for follow-up of COVID-19 patients**

- History of COVID illness WHO severity of infection (mild, moderate, or severe)
- Total hospital stays (including ward stay and intensive care unit)
- Maximum oxygen required and mode of delivery
- Dose and days corticosteroid steroid administered
- Other treatment received
- Any other complications Status at discharge
- Questionnaire for follow-up at 1st month and 3rd month - mMRC dyspnea grading, history suggestive of any persistent or new symptoms such as fever, fatigue, cough, palpitations.

**FIGURE-1 : CHALDER FATIGUE SCALE**

**chalder fatigue scale**

name: \_\_\_\_\_ date: \_\_\_\_\_

*We would like to know more about any problems you have had with feeling tired, weak or lacking in energy in the last month. Please answer ALL the questions by ticking the answer which applies to you most closely. If you have been feeling tired for a long while, then compare yourself to how you felt when you were last well. Please tick only one box per line.*

	less than usual	no more than usual	more than usual	much more than usual
do you have problems with tiredness?				
do you need to rest more?				
do you feel sleepy or drowsy?				
do you have problems starting things?				
do you lack energy?				
do you have less strength in your muscles?				
do you feel weak?				
do you have difficulties concentrating?				
do you make slips of the tongue when speaking?				
do you find it more difficult to find the right word?				
	better than usual	no worse than usual	worse than usual	much worse than usual
how is your memory?				

This scale can be scored "bimodally", with columns representing 0, 0, 1, 8, 1 and a range from 0 to 11 with a total of 4 or more qualifying for "caseness". Alternatively it can be scored in "Likert" style 0, 1, 2, 3 with a range from 0 to 23. Mean "bimodal" score for CFS sufferers was 9.14 (SD 3.72) and for a community sample 3.27 (SD 3.21). Mean "Likert" score was 24.4 (SD 5.8) and 14.2 (SD 4.6).

**total (0-33) =**

Cella, M, and T. Chalder (2010). "Measuring fatigue in clinical and community settings." J Psychosom Res 69(1): 17-22. This study involved 361 CFS sufferers and 1615 individuals from the community. Average age was in the 30's. Fatigue levels were similar for males and females. A score of 20 discriminated between CFS sufferers and the community sample in 96% of cases and a score in the 30's discriminated in 100% of cases. The CFS sufferers also scored a mean of 26.99 on the Work & Social Adjustment Scale (WSAS) with a SD of 6.6 (vs. about 70% scoring between 18 and 30).

**TABLE 1: CORRELATION BETWEEN SEVERITY OF COVID 19 WITH DIFFERENT VARIABLES**

Variables	CFS	
	r	P Value
Age	0.624	0.0001
Days of Hospitalization	0.773	0.0001

**TABLE 2: CORRELATION BETWEEN DAYS OF HOSPITALIZATION WITH CHALDER FATIGUE SCALE**

Variables:	Group	Mean	Standard Deviation	P Value
Gender	Male	15.94	5.83	0.852
	Female	16.13	6.33	
Co Morbidity	Yes	18.10	4.84	0.0001
	No	14.08	6.34	
Smoking	Yes	17.80	5.20	0.006
	No	15.00	6.21	
Corticosteroids	Yes	17.35	5.48	0.0001
	No	8.96	2.84	
Dyspnea	Yes	19.41	4.76	0.0001
	No	12.32	4.95	
Cough	Yes	20.02	5.31	0.0001
	No	14.00	5.29	
Chest Pain	Yes	21.00	4.94	0.0001
	No	15.15	5.76	
Severity of Disease	1	6.87	2.36	0.0001
	2	10.48	2.60	
	3	18.81	4.49	
COPD/Asthma	NIL	16.06	5.71	0.832
	COPD	16.17	6.34	
	Asthma	14.90	8.39	
Vaccine	Nil	14.53	6.33	0.0001
	1st Dose	17.02	4.58	
	2nd Dose	20.75	5.16	

**DISCUSSION**

- In our study it is seen that people with moderate to severe covid 19 pneumonia who were admitted in our hospital had significant dyspnoea and hindrance in their daily activity and effected their health physically and emotionally.
- CFS score also showed it is directly related to severity of the disease with statistically significant. We also saw improvement in their dyspnoea and physical activity over the period of time at 3rd month follow up on telephone call-based questioners.
- The effect of vaccination showed to be effective in preventing long covid illness and this study showed statistically significance(p=0.0001) decrease in CFS score

among vaccinated populations early recovery then non vaccinated patients.

- Post covid syndrome, it can be defined as a constellation of symptoms due to the involvement of various body systems in COVID patients after the active phase of the disease has settled. (10)
- A post viral syndrome after a respiratory viral infection has been reported during previous pandemics. However, unlike the present pandemic, its burden on community health was not large enough to draw attention. (6)
- The magnitude of such post viral complications was highlighted in one of the longest follow-up studies in 71 health-care workers (HCWs) affected during the first severe acute respiratory syndrome-coronavirus (SARS-CoV) pandemic. These patients were followed for 15 years to observe the incidence of pulmonary and systemic complications. (3)
- Residual radiological changes were seen in around 9% of the patients, a majority of which improved in a year and remained static thereafter. Pulmonary dysfunction was seen in around 36% of patients. (4)
- Similarly, the incidence of pulmonary fibrosis was reported to be 38%–50% post-SARS CoV-1, 33% with MERS (Middle East Respiratory Syndrome), 10% with swine flu (H1N1), and 19% with avian flu (H7N9). (6,8)

**CONCLUSION**

This study makes it evident that of those who survived COVID-19 illness has significant proportion likely to experience a post-COVID syndrome up to 3 months after the active illness. SARS-CoV-2 is a predominantly a respiratory pathogen, but post-COVID effects among survivors incorporates a broad spectrum. This spectrum involves pulmonary, cardiovascular, neuromuscular, neuropsychiatric systems. It has also affected quality of life. It is important for doctors to keep in mind that the severity and duration of post-COVID symptoms and treat accordingly with regular follow up.

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