

Post COVID-19 Syndrome- A Long Hauling Journey Ahead

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To cite this article:

Ruqia Asna Rabah, Farqana Qushnood, Gurulingappa Basalingappa Doddamani. Post COVID-19 Syndrome- A Long Hauling Journey Ahead. *American Journal of Internal Medicine*. Vol. 9, No. 5, 2021, pp. 244-247. doi: 10.11648/j.ajim.20210905.15

Received: September 30, 2021; **Accepted:** October 18, 2021; **Published:** October 28, 2021

Abstract: *Background:* COVID -19 pandemic is the most important public health problem of recent time. Tens and thousands of people have suffered with COVID-19 in last one and half year. Most people who have suffered with COVID-19 recover completely within a few weeks but majority of patients continue to have varied symptoms after initial recovery. *Objective:* To assess the prevalence of Post COVID symptoms, to assess requirement of treatment and to make recommendation for Post COVID syndrome care. *Methods:* Present cross-sectional study was done among patients who recovered from COVID-19 in GIMS Hospital of Kalaburagi district. Mobile numbers of COVID patients were collected from records. Total 100 randomly selected patients were contacted and information regarding post COVID symptoms in between 6 weeks to 12 weeks after recovery from COVID-19 was collected. *Result:* 87%patients developed one or more post COVID symptoms. Weakness was reported to be most common problem (55%), followed by body ache (26%) and neuropsychiatric symptoms such as difficulty in concentration and insomnia (22%). Every fifth patient reported that symptoms persisted for more than 1 month. Though most of the respondents classified their symptoms as mild and moderate (52.5% and 37.9% respectively), 47% of the symptomatic patients have to take some treatment for these symptoms. *Conclusion:* Post COVID symptoms are common but usually less severe. Many of patients required conservative management with medications. Many patients required lot of counselling. Almost one in five patients reported that symptoms persisted for more than one month. The results highlight the need for post COVID care for COVID recovered patients.

Keywords: COVID-19 Disease, Cross-sectional Study, Post COVID Syndrome, Post COVID Management

1. Introduction

COVID-19 pandemic is the most important public health problem of recent time. It is the disease caused by a novel corona virus called SARS-CoV-2. Corona viruses are a large family of viruses which may cause illness in animals or humans. In humans, several corona viruses are known to cause respiratory infections ranging from the common cold to more severe diseases such as Middle East Respiratory Syndrome (MERS) and Severe Acute Respiratory Syndrome (SARS). The most recently discovered corona virus causes corona virus disease COVID-19 [1]. WHO first learned of this new virus on 31 December 2019, following a report of a cluster of cases of 'viral pneumonia' in Wuhan, People's Republic of China. Since then it has spread to all over the world. [2] Most people who have coronavirus disease 2019 (COVID-19) recovered completely within a few weeks. But some people even those

who had mild versions of the disease continue to experience symptoms even after their initial recovery. These people sometimes describe themselves as "long haulers" and the condition has been called postCOVID-19 syndrome or "long COVID-19." [2] Older people and people with many serious medical conditions are the most likely to experience lingering COVID-19 symptoms, but even young, otherwise healthy people also have felt the hauling symptoms for weeks to months after infection. The most common signs and symptoms that linger over time include: -Fatigue, Shortness of breath, Cough, Joint pain, Chest pain, Insomnia, Anxiety, Depression, Palpitations, Uncontrolled rise in blood pressure and blood sugars. Other long-term signs and symptoms may include: - Muscle pain or headache, Fast or pounding heartbeat, Loss of smell or taste, Memory, concentration or

sleep problems, rash and hair loss [3]. The latest study by the Journal of American Medical Association (JAMA) shows that a rare multisystem inflammatory illness could be developed in some of the COVID-19 survivors. This could turn into a major challenge for public health across the world. [4] An overwhelming majority (94.9%) experienced at least one post-COVID-19 symptom, with fatigue (82.9%) being the most prevalent post-discharge manifestation. [5] Over past one year we have progressed in many aspects of COVID prevention and treatment. India has come up with extensive developed health care system and maintained a large infrastructure for successful treatment of patients suffering from COVID-19. We have also progressed extremely well in field of vaccination, but post COVID care is still lacking at many places. To provide care for post COVID symptoms it is very important to understand actual magnitude and severity of problem. This study has been planned and conducted to decide actual need of post COVID care.

2. Aims & Objectives

1. To assess the magnitude of Post COVID -19 Symptoms, its prevalence and severity.
2. To assess the treatment possibilities required.
3. To recommend measures for Post COVID-19 care.

3. Material & Methods

Present cross-sectional study was conducted at GIMS Kalaburagi. Sample size was calculated assuming prevalence of post COVID symptoms as 50%, 10% allowable error and 95% confidence interval using the formulae $N = (1.96)^2 PQ/D^2$. Sample size thus calculated came out to be 96. However, this is rounded about to 100. The list of patients with their mobile number was collected and 100 patients were selected by using simple random sampling. All positive patients (RT-PCR, TRUNAT Positive and Rapid Antigen positive patients) were included. Both hospital admitted and home isolation patients were taken. Information was collected from those patients who recovered from COVID. Criteria for recovery was taken as either RTPCR negative or completed 14 days isolation and no symptoms. Post COVID symptoms are considered as those symptoms which develop after recovery from COVID. All the selected candidates were contacted telephonically and explained in detail about study and information regarding their post COVID symptoms was collected. Information regarding various aspects of COVID and post-COVID problems, treatment behaviour and illness behaviour was collected.

4. Results

In present study total 100 patients were interviewed. Out of these 60% were males and 40% were females. Among various age group 17% patient belong to 20-40 age group, 35% belong to 40-60 age group and 48% were 60 years and above. No respondent was below 20 years of age. When enquired about the possible source of infection 70%

thought that they contacted infection from their place of work, another 10% received infection from home, 12% got infection while travelling or shopping and another 6% from neighbourhood and friends. 2% were not able to comment regarding their probable source of infection. (Table 1) All the patients were interviewed whether they suffered any health issue after being declared as recovered from COVID-19 illness. Out of total 89% of study subjects developed post COVID symptoms. Generalized weakness following COVID was found to be most common symptom and was observed in 56% of patients. Next common symptom was body-ache including muscle and joint pain. 26% followed by neuropsychiatric symptoms such as Insomnia, Loss of concentration 21%. 20% patients were having restlessness and giddiness, while 18% patients observed respiratory symptoms such as running nose, sore throat, chest tightness and breathlessness etc. Headache and palpitation were another common symptom (15% and 14% respectively). Some patients also reported loss of taste and smell (9% and 7% respectively). Fever, chest pain and rise in Blood pressure and rise in blood sugar were reported only in 3% of respondents. 11% of the respondents did not develop any symptom at all. Out of these 89 patients, 42 patients (47%) were having only one symptom and most common being weakness and body ache. 30 (33%) patients reported to have 1-3 symptoms, 18 (20%) were having 3-5 symptoms while 10 patient (11%) had more than 5 health problems as a sequelae to COVID. (Table 2) Patients who reported post COVID symptoms were asked to grade about their perception regarding severity of symptoms. 53.9% classified these symptoms as mild symptom, 38.2% perceived their problems as of moderate severity, while only 6.7% perceived their symptoms as severe while only 1% perceived it as very severe. (Figure 1) When inquired regarding duration of symptoms among those who had symptoms in post COVID recovery phase 48.2% had symptoms for less than 15 days, 39.7% had for 15-30 days while 12.1% experienced symptoms persist for more than one month. (Figure 2) Patients who developed some symptoms in post COVID recovery phase when enquired regarding need of treatment, 54% reported that they have not taken any treatment at all and their symptoms improved on their own without any treatment, while 46% of them had taken treatment. Out of those who took any type of treatment it was observed that people preferred multiple treatment options simultaneously. Allopathic medicines were preferred while home remedies being second choice. Few took ayurvedic medicine while few had also taken homeopathic medicine.

Table 1. Prevalence of post COVID symptoms.

Type of symptoms	No. and% (n=100)
1. Weakness	56
2. Body ache	26
3. Neuropsychiatric symptoms	21
4. Restlessness and giddiness	20
5. Respiratory symptoms	18

Type of symptoms	No. and% (n=100)
6. Hair fall	14
7. Head ache	15
8. Palpitations	15
9. Loss of taste sensation	09
10. Loss of smell sensation	07
11. Chest pain and high B. P	03
12. Raised blood sugars	03
13. No symptoms	11

Table 2. Patient perception regarding severity of post COVID-19 symptoms.

Severity of post COVID symptoms	No (%)
1. Mild	48 (53.9)
2. Moderate	34 (38.2)
3. Severe	06 (7.8)
4. Very severe	01 (1.1)
5. Total	89 (100)

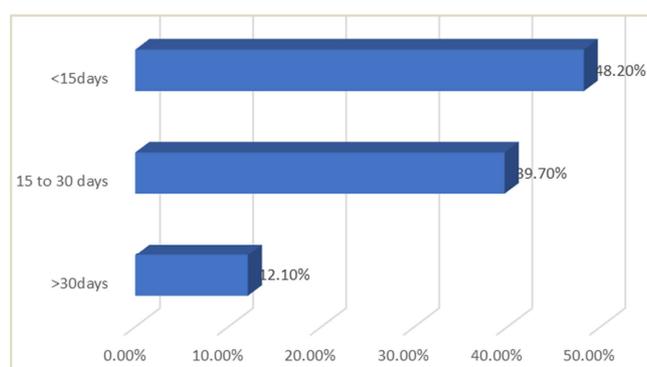


Figure 1. Post COVID-19 symptoms.

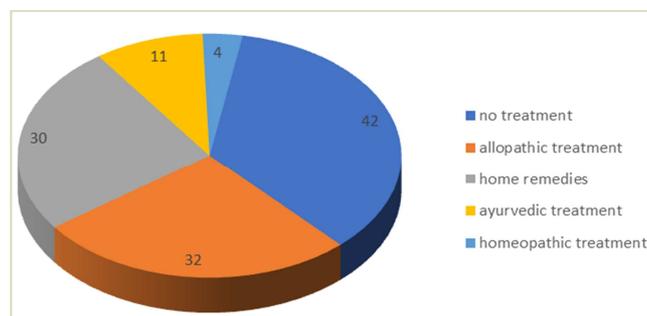


Figure 2. Preference of treatment among patients who developed post COVID-19 symptoms (multiple response).

5. Discussion

Out of total study participants 60% were males and 40% were females. While in a study done by Helpin SJ *et al* [5] males were 54% and females were 46%. Huang C *et al* [6] also observed that male were 52%. [7] Among various age group 57% patient belong to 20-40 age group, 35% belong to 40-60 age group. When it was compared with corona virus cases in India as of July 9, 2020, it was observed that maximum patients belonged to 60-74 years age group and 45-59 years age group (40.2% and 35.1% respectively). Median age was found to be 57 years by Huang C *et al*. Workplace was found to be most probable place of infection as 3/4th of total patients acquired infection from their workplace highlighting the need

of workplace etiquettes for preventing spread of COVID and also other respiratory illnesses as workplace are usually close and overcrowded places. Also, strictly following social distancing and use of mask is need of the hour as market and neighbourhood are also a common place where peoples usually got infection. In present study 89% of study subjects developed post COVID symptoms. More than half of recovered patients developed generalized weakness following COVID, another common symptom being body-ache including muscle and joint pain. This is in accordance with study done by Helpin SJ *et al* in UK where they reported fatigue, breathlessness, and psychological distress at 7 weeks after discharge from hospital with a clinically significant drop in the quality of life of many individuals. Fatigue as a symptom was observed in 60% ward admitted and 72% in ICU admitted patients. They also recommended rehabilitation care for COVID - 19 survivors. In another study from Oslo Norway by Knut Stavem, Waleed Ghanima [8] in 2020 has shown that persistent fatigue (46%) is common from 1.5–6 months after COVID19 in a non-hospitalized population. In present study neuropsychiatric symptoms such as Insomnia, Loss of concentration was observed in 22%, almost similar findings were observed by Huang C *et al*. they observed sleep difficulty in 26% while anxiety and depression were observed in 22%. 17% patients observed respiratory problems in present study while Helpin SJ observed 50% patients developed breathlessness. [9] 15% of the respondents also reported to have headache in post COVID recovery phase. Palpitation in form of tachycardia was also reported by Suet-Ting Lau *et al* in Hong Kong [10]. Vaira LA *et al* in a study in Italy in 2020, they recorded that at the end of the observation period (observation time 6, 60 days after symptom onset), 5.8 per cent patients had moderate to severe olfactory dysfunction while 4.3 percent patients had a significant taste disorder [11]. Another problem reported was hair fall (16%). Hair loss is very common after any acute illness, probable cause may be compromised nutrition of patients and decreased immunity. As almost 80% patients considered their post COVID symptoms as mild to moderate, so there is very less need of hospitalization for post COVID care, but appropriate medication is required for improving quality of life in these patients. Even 20% patients feel some problems more than one month after recovery, further highlighting need of appropriate treatment. Patients who developed some symptoms in post COVID recovery phase when enquired regarding need of treatment, 54% reported that they have not taken any treatment at all and their symptoms improved on their own without any treatment, while 46% of them had taken treatment. Though allopathic medicine was preferred by patients, there is need for appropriate treatment guidelines.

6. Conclusion

Majority of COVID-19 patients suffered one or another problem even after recovery from COVID. Multisystem involvement of CNS, respiratory system and CVS was also

observed along with generalized weakness and joint pains. Though usually symptoms were mild to moderate and 4 in 5 patients recovered by the end of a month after recovery from COVID, but 25% patients are having health issues even long time after recovery from acute illness.

7. Recommendation

It was observed that almost 89% patient developed post COVID symptoms, it is recommended to study further these issues on a large sample and for a longer duration of time to understand them better. There should be follow up of patients at monthly interval for 3 months. Role of diet and yoga also seems to be important and need to be studied. There is need to develop dedicated post COVID care clinics for better recovery of patients. It is need of hour to develop some guidelines for patients regarding when they should seek medical care.

8. Limitations of the Study

The study is conducted in a small group of population and needs to be conducted on large scale to implement any recommendations.

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