

Persistent post-COVID-19 symptoms in a sample of Iraqi patients: Cross sectional study

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Abstract

Background: Despite the total absence of symptoms from patients with confirmed recovery (negative PCR), significant number of patients continues to suffer from symptoms for a long period of time. Actually 55 long term effects have been reported by a recent meta-analysis. There is generally poverty in Iraqi literatures dealing with the problem of long term post-COVID manifestation despite the clinical experience of such problem in Iraq.

Aim of study: The current study was designed and conducted in order to evaluate post-COVID-19 long term clinical manifestation in a sample of Iraqi patients.

Patients and methods: The current cross sectional study was carried out in Al-Diwaniyah Province, Iraq in the department of Medicine/ Al-Diwaniyah Teaching hospital in addition to a private clinic of medicine from April 2021 to January 2022. Ethical consideration included verbal consent being obtained from each participant, the explanation of the objectives behind such study for all enrolled patients and approval being issued by the ethical approval committee belonging to the teaching hospital.

Results: The most common long term post COVID-19 symptom was fatigue which was recorded in 120 (80.0 %), followed by shortness of breath in 78 (52.0 %), dry irritant cough in 48 (32.0 %) and then chest pain in 24 (16.0 %). These long term manifestations were significantly more encountered in severe cases than in mild to moderate cases ($p < 0.05$). It was commonly to see patients with more than one symptom and most frequently fatigue with other symptom.

Conclusion: The most common long term post COVID-19 symptoms in order of frequency were fatigue, shortness of breath, dry irritant cough and chest pain.

Key words: post-COVID-19, symptoms, Iraq

Introduction

An emerging new coronavirus appeared in late 2019 in China has resulted in a serious respiratory illness with significant morbidity and mortality (1, 2). The virus was then named as Severe Acute Respiratory Syndrome-Corona virus-2 (SARS-Cov-2); however, it was initially called novel corona virus (2019-nCoV) by WHO and the disease caused by the virus was named "Corona virus disease -19 or COVID-19 (3-5). The virus has been known for its high rate of transmission and spread leading to a pandemic with relatively high rate of deaths reaching hundreds of thousands. Indeed, mortality rates reported globally was as low as

0.3 % in Bahrain to as high as 13.1 % in Italy (6). Actually, the common is to have mild symptoms in as far as 80 % of cases; however, significant proportion of patients develops lower respiratory tract involvement with respiratory distress and failure justifying admission to intensive care unit (7-9). It has been shown that the severity of disease is correlated to age of patients since elderly individuals are more liable to develop severe disease in comparison with young adults and children (10), besides, patients with comorbidities are more prone to severe clinical manifestations (11, 12). Moreover, severity of disease is affected by duration of disease as longer duration is a predictor of more severe

disease (13). The principal way by which the virus is transmitted from person to person is direct contact, since aerosol and exhaled air are the main vehicles for the virus (14, 15). The main diagnostic aids are the polymerase chain reaction (PCR) test, complete blood count, assessment of inflammatory markers such as d-dimer, C-reactive protein (CRP) and serum ferritin in addition to imaging represented by CT-scan of the chest (16-18).

In summary, mild cases need follow up with supportive treatment including fluid, antipyretics, antibiotics, trace elements and vitamins, while in severe cases with respiratory distress oxygen is required with or without mechanical support (19-21). None of tested anti-viral agents has proved its superiority despite of a lot of clinical trials (22). In severe cases anti-inflammatory steroid agents have been used in addition to symptomatic treatment in mild and moderate cases (23). Despite the total absence of symptoms from patients with confirmed recovery (negative PCR), significant number of patients continues to suffer from symptoms for a long period of time (24). Actually 55 long term effects have been reported by a recent meta-analysis (24).

The poverty of Iraqi literatures dealing with the problem of long term post-COVID manifestation and based on our clinical experience of such problem in Iraq, the current study was designed and conducted in order to evaluate post-COVID-19 long term clinical manifestation in a sample of Iraqi patients.

Patients and methods

The current cross sectional study was carried out in Al-Diwaniyah Province, Iraq in the department of Medicine/ Al-Diwaniyah Teaching hospital in addition to a private clinic of medicine from April 2021 to January 2022. Ethical consideration included verbal consent being obtained from each participant, the explanation of the objectives behind such study

for all enrolled patients and approval being issued by the ethical approval committee belonging to the teaching hospital.

The study included 150 patients with an age range of 18 to 65 years. Data about the severity of the disease, age, BMI and comorbidities were evaluated and the data were transformed into an 2010 Excel sheet and an SPSS (statistical package for social sciences) version 16.0 for purpose of statistical presentation. Qualitative data were outlined as number of percentage while quantitative data were expressed using range, mean and standard deviation. Independent samples t-test was used to compare means of numeric variables between severe COVID-19 cases and mild to moderate cases; whereas, chi-square test was used to study association between qualitative variables. The level of significance was based on a p -value of ≤ 0.05 .

Results

The Demographic characteristics of COVID-19 patients participating in this study are shown in table 1. The mean age of all enrolled patients was 39.02 ± 7.39 years with a range of 18 to 65 years and there was significant difference in mean age between patients with severe disease and patients with mild to moderate disease ($p < 0.05$) in such a way that the mean age in severe cases was higher than that of mild to moderate cases.

The study included 81 males accounting for (54.0 %) and 69 females accounting for (46.0 %). The proportion of males with severe presentation was significantly more than that of females, 72.4 % versus 49.6 %, respectively ($p < 0.05$).

The mean body mass index (BMI) of all enrolled patients was 26.03 ± 7.91 kg/m² with a range of 19.29-34.31 kg/m² and there was significant difference in mean BMI between patients with severe disease and patients with

mild to moderate disease ($p < 0.05$) in such a way that the mean BMI in severe cases was higher than that of mild to moderate cases.

The long term post COVID-19 clinical manifestations in association with severity of disease are shown in table 2. The most common long term post COVID-19 symptom was fatigue which was recorded in 120 (80.0 %),

followed by shortness of breath in 78 (52.0 %), dry irritant cough in 48 (32.0 %) and then chest pain in 24 (16.0 %). These long term manifestations were significantly more encountered in severe cases than in mild to moderate cases ($p < 0.05$). It was commonly to see patients with more than one symptom and most frequently fatigue with other symptom.

Table 1: Demographic characteristics of COVID-19 patients participating in this study

Characteristic	Total <i>n</i> = 150	Severe COVID-19 <i>n</i> = 29	Mild to moderate COVID-19 <i>n</i> = 121	<i>p</i> -value
Age (years)				
Mean ±SD	39.02 ±7.39	45.81 ±4.51	36.72 ±9.01	< 0.05 I *
Range	18-65	35-65	18-63	
Gender				
Male, <i>n</i> (%)	81 (54.0 %)	21 (72.4 %)	60 (49.6 %)	< 0.05 C *
Female, <i>n</i> (%)	69 (46.0 %)	8 (27.6 %)	61 (50.4 %)	
BMI (kg/m²)				
Mean ±SD	26.03 ±7.91	30.94 ±5.08	23.81 ±8.18	< 0.05 I *
Range	19.29-34.31	23.62 -34.31	19.29-26.91	

n: number of cases; **SD**: standard deviation; **BMI**: body mass index; **I**: independent samples *t*-test; **C**: chi-square test; *: significant at $p \leq 0.05$

Table 2: Long term post COVID-19 clinical manifestations in association with severity of disease

Characteristic	Total <i>n</i> = 150	Severe COVID-19 <i>n</i> = 29	Mild to moderate COVID-19 <i>n</i> = 121	<i>p</i> -value
Fatigue	120 (80.0 %)	28 (96.6 %)	92 (76.0 %)	< 0.05 C *
Shortness of breath	78 (52.0 %)	20 (69.0 %)	58 (47.9 %)	< 0.05 C *
Cough	48 (32.0 %)	18 (62.1 %)	30 (24.8 %)	< 0.05 C *
Chest pain	24 (16.0 %)	14 (48.3 %)	10 (8.3 %)	< 0.05 C *

Data were expressed as number (%); *n*: number of cases; **C**: chi-square test; *: significant at $p \leq 0.05$

Discussion

The issue of prolonged clinical manifestations in patients recovered from COVID-19 based on PCR and discharge from hospital was raised in a number of previous reports all over the world (24). In the current study, the most common long term post COVID-19 symptom was fatigue which was recorded in 120 (80.0 %), followed by shortness of breath in 78 (52.0 %), dry irritant cough in 48 (32.0 %) and then chest pain in 24 (16.0 %). These long term manifestations were significantly more encountered in severe cases than in mild to moderate cases ($p < 0.05$). It was commonly to see patients with more than one symptom and most frequently fatigue with other symptom.

Checking for hospital release or testing negative for SARS-CoV-2 or positive for antibodies should be more developed than recovering from COVID-19 (25). In one recent systematic review and meta-analysis it was found that after two weeks, 80 percent (95 percent CI 65–92) of people with a confirmed COVID-19 diagnosis continue to have at least one overall effect (24). “Fatigue, anosmia, lung dysfunction, abnormal chest XRay/CT, and neurological diseases” were the most common of the 55 sequelae, which included symptoms, signs, and laboratory data. In the later review, the majority of the symptoms were identical to those that appeared during COVID-19's acute phase. However, it's possible that there are other consequences that haven't been discovered yet. Based on this review, fatigue (58%) was the most prevalent symptom, followed by headache (44%), concentration disturbance (27%), hair loss (25%), and dyspnea (24%) (24).

The most prevalent symptom of protracted and acute COVID-19 infection is fatigue (58 percent) (26). It can be found even 100 days after the onset of acute COVID-19 symptoms (26). There are several conditions, such as acute respiratory distress syndrome (ARDS), in which more than two-thirds of

patients report clinically significant fatigue symptoms after a year (27). The symptoms seen in post-COVID-19 patients are similar to those seen in chronic fatigue syndrome (CFS), which includes severe incapacitating fatigue, pain, neurocognitive disability, sleep disturbances, autonomic dysfunction symptoms, and worsening of global symptoms in response to minor increases in physical and/or cognitive activity (28). Currently, myalgic encephalomyelitis (ME) or chronic fatigue syndrome (CFS) is a complex and contentious clinical illness with no known causes, and 90 percent of ME/CFS cases are undiagnosed (29). Viruses, immunological dysfunction, endocrine-metabolic dysfunction, and neuropsychiatric variables are all possible causes of CFS. Epstein-Barr virus, CMV, enterovirus, and herpesvirus have all been linked to CFS infections (30). It's tempting to think that SARS-CoV-2 will be added to the list of viral agents that cause ME/CFS.

Previously, dyspnea and cough were discovered in 24% and 19% of patients, respectively (24). Furthermore, abnormalities in CT lung scans were still evident in 35% of patients 60–100 days after the initial presentation. Radiographic abnormalities persisted in approximately two-thirds of COVID-19 patients 90 days after discharge in a follow-up study conducted in China among non-critical cases of hospitalized patients with COVID-19 (31). Although the majority of the studies don't contain baseline pulmonary dysfunction or radiographic abnormalities, the results show that abnormal CT findings improve or disappear. Previous evidence from patients who had recovered from other types of viral pneumonia (32), shown that persistent radiographic abnormalities existed. According to Lopez-Leon *et al*, abnormalities in pulmonary function, such as decreased carbon monoxide diffusion capacity, were found in 10% of patients (14). The reasons for these differences could be different follow-up periods, definitions of pulmonary dysfunction,

or patient population characteristics. Although these findings are not as high as other available studies of survivors with COVID-19 or SARS, where the estimate of lung dysfunction is 53 percent and 28 percent, respectively (33), the reasons for these differences could be different follow-up periods, definitions of pulmonary

dysfunction, or patient population characteristics.

Conclusion: The most common long term post COVID-19 symptoms in order of frequency were fatigue, shortness of breath, dry irritant cough and chest pain.

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