

Original article

Persistence of Post- COVID-19 Symptoms in Patients Attending Maitiga Preventive Medicine Center in Tripoli, Libya

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ABSTRACT

Background and aims. Post-acute sequelae of COVID-19 is being diagnosed in patients who developed severe acute COVID-19, but occasionally also in patients who experienced mild or asymptomatic disease. The purpose of this study was to describe the presenting post-COVID-19 characteristics, persistence symptoms and risk factors of COVID-19 patients admitted to and/or visited Maitiga preventive medicine hospital in Tripoli-Libya during the period from November 2020 to November 2021.

Methods. A cross sectional study was conducted, and included 935 patients had a confirmed diagnosis of COVID-19 by real time PCR, and aged 14 to 100 years. Data were collected manually from Maitiga Preventive Medicine Center records between 17th of November 2020 to 30th November 2021 included both inpatient and outpatient departments. Data were extracted by excel and further analyzed using SPSS. **Results.** The most frequently reported persistence post-COVID-19 symptoms were cough (26.3%); fatigue (24.3%) and dyspnea (24%). The most common prevalent comorbidities were diabetes mellitus (25.9%) followed by hypertension (11.9%) then cardiac diseases (4.2%). **Conclusion.** Diabetic patients were most frequent to be affected by COVID19 infection than other patients with chronic illness. Post COVID-19 persistence respiratory symptoms including cough and dyspnea are common to suffer by COVID-19 infected patients followed by fatigue.

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INTRODUCTION

Coronavirus disease 2019 (COVID-19), the viral illness caused by the novel coronavirus SARS-CoV-2 has resulted in significant morbidity and mortality across the world since the first cases were identified in Wuhan China, in December 2019. Although the majority of COVID-19 patients are asymptomatic or have mild to moderate disease, 5 to 8% of infected patients develop hypoxia, bilateral lung infiltrates, and decreased lung compliance, necessitating non-invasive ventilation (NIV) or mechanical ventilator support [1]. COVID-19 infection is primarily managed on a supportive basis. Although many therapeutics such as antiviral drugs, monoclonal antibodies, anti-inflammatory drugs, immunomodulatory agents are available under Emergency Use Authorization (EUA) for the management of COVID-19 [2]. The utility of these treatments varies based on the timing and severity of illness and/or certain risk factors [3].

The most recent data have revealed that, some patients continue to experience symptoms related to COVID-19 after the acute phase of the infection. However, currently there is no clear delineated consensus definition for the condition; terminology has included "long COVID-19, post-COVID-19 syndrome and post-acute COVID-19 syndrome". among the lay public, the phase "long haulers" is also being used.

The current available literature on "post-acute COVID-19 syndrome" have observed that, the severity of the disease is related to age and presence of comorbidities in infected subjects; the elderly is usually affected with the need for ICU admission [4]. The severity of symptoms is also related to their duration; mild cases may have symptoms for two weeks, while severe cases may have persistence symptoms for up to three to six weeks [5]. Post-recovery manifestations were also studied following the 2003 SARS attack, reflecting the persistence of many symptoms experienced by study subjects such as fatigue, myalgia, depression, and weakness. Some of these manifestations were chronic, lasted for a long time and

required long-term monitoring [6]. Additionally, a mild hypo-activation of the hypothalamic-pituitary-adrenal axis was also reported [7].

Post-acute sequelae of COVID-19 is being diagnosed in patients who developed severe acute COVID-19, but occasionally also in patients who experienced mild or asymptomatic disease. Some patients meet the diagnostic criteria for myalgic encephalomyelitis/chronic fatigue syndrome (ME/CFS) – a neuro-inflammation-linked condition characterized by a range of debilitating chronic symptoms including severe fatigue, musculoskeletal pain, and post-exertional malaise [8]. The purpose of this study was to describe the presenting post-COVID-19 characteristics, persistence symptoms and risk factors of COVID-19 patients admitted to and/or visited Maitiga preventive medicine hospital in Tripoli, Libya.

METHODS

Study design and setting

An observational cross sectional study was conducted, and included 935 patients. Data were collected manually from the post-COVID-19 patient's registry records at Maitiga Preventive Medicine Center in Tripoli- Libya, after getting hospital administration's consents.

Data collection procedure

The study included patients who were either admitted or those who attended the COVID-19 outpatient departments, over a period of one year from November 2020 to November 2021. Included patients were those who had a confirmed diagnosis of COVID-19 by real time PCR, and aged 14 to 100 years. Patients who did not match the selected age group and those who did not have any post-COVID-19 complications even with positive PCR were excluded.

Statistical analysis

Data were extracted using Microsoft excel tool and further analyzed by using the SPSS version 21.

RESULTS

The total number of included patients was 935; of whom, 443 (47%) were males and 492 (53%) were females; about 2% (19 patients) were non-Libyans. Most of the included patients were primarily admitted to Maitiga hospital, only 75 patients (8%) were referred from other hospitals.

The total number of post-COVID19 visits was 1,215 visits from all of the included 935 patients, and the average period of visit was up to 4 weeks post discharge. The follow-up visits were more commonly reported among patients in the age group of 40- 80 years with a mean age of 62 years, and the highest number of follow up visits was in December 2020, and February 2021. (Figure 1). The most frequently reported persistence post -COVID19 symptoms by the included patients were cough (246, 26.3%); fatigue (227, 24.3%) and dyspnea (226, 24%).

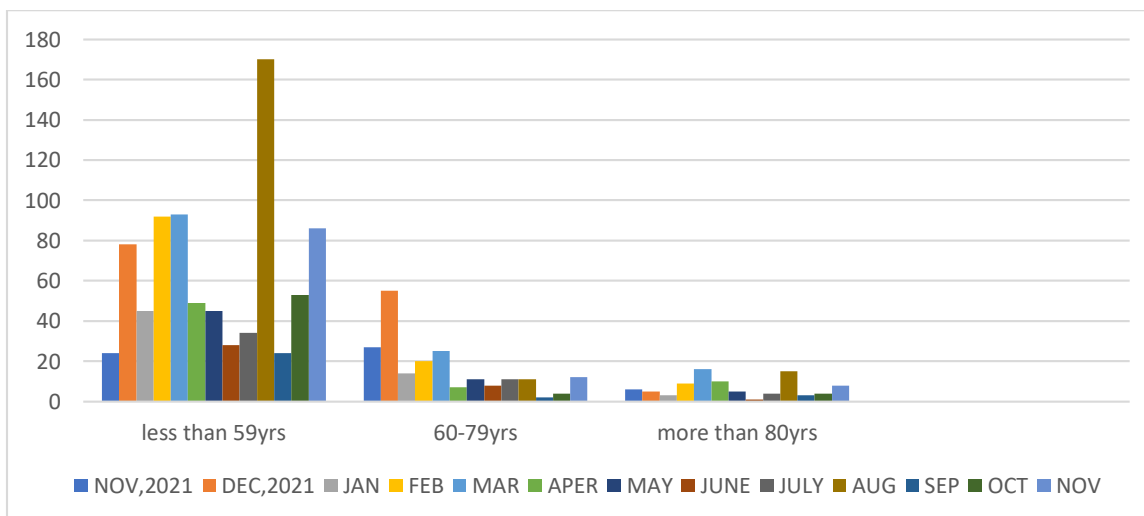


Figure 1. The relationship between number of visits and time with age.

Among the included 492 female patients, 20 females were pregnant, five of them were at their full term of pregnancy (defined as more than 37 weeks of gestational age). Of whom, two women were delivered by emergency caesarian section because of fetal distress, two were delivered by planned caesarian section and one patient delivered vaginally. The other 15 pregnant women completed their follow up without any complication.

Regarding the presence of comorbidity, about 50% of the study population has comorbid conditions including: 242 patients (25.9%) have diabetes mellitus, of whom, 28 patients (~3%) have post-COVID19 newly diagnosed diabetes mellitus. 112 patients (~12%) were hypertensive, of whom, 6 patients (~0.6%) have post-COVID19 newly diagnosed hypertension. About 4.2% of the included patients have cardiac diseases, 3.7% have chronic kidney diseases, and 0.5% have morbid obesity (Table 1).

Table 1: The frequency of different comorbidities among the study population.

Comorbidity	Frequency (%)
Diabetes Mellitus	242 (25.9%)
Post-COVID19 Diabetes Mellitus	28 (2.99%)
Hypertension	112 (11.9%)
Post-COVID19 Hypertension	6 (0.6%)
Neuropsychiatric diseases ¹	21 (2.2%)
Cardiac disease ²	39 (4.2%)
Chronic renal disease ³	35 (3.7%)
Asthma	19 (2%)
Obesity	5 (0.5%)
Hematological diseases	15 (1.6%)
Chronic liver disease	2 (0.2%)
Inflammatory bowel disease	2 (0.2%)
Rheumatoid arthritis	2 (0.2%)

¹Including: 14 new cases of CVA, 3 cases of epilepsy and 4 cases of other psychiatric disorders.

²Including: 23 cases of IHD, 11 cases of CMP, 2 new cases of MI, and 3 cases of atrial fibrillation.

³Including: 30 cases of CRF-(13 cases on HD) and 5 cases of renal transplant.

DISCUSSION

In this study, the most common comorbidities were diabetes (~26%) with about 3% newly diagnosed cases, followed by hypertension (~12 %) with about 0.6 % newly diagnosed cases, cardiac diseases (4%), and CKD (3.7%), neuropsychiatric diseases (2.2%), asthma (2%), hematological diseases (1.6%), and morbid obesity (0.5%). The explanation of elevated systolic blood pressure in COVID-19 survivors is that, COVID-19 pandemic has the potential to increase fear, anxiety, socioeconomic burdens, mental disorders, and reduced physical activity. As a result, it may threaten blood pressure control. The current results were in agreement to study done in Switzerland on 200 patients, found that the most common comorbidities were hypertension (57%, n = 56), CKD (28%, n = 28) and obesity (27%, n = 27) [9].

Although COVID-19 is associated with a pro-thrombotic state, there is currently no agreement on the benefit of outpatient Venous Thromboembolism Prophylaxis (VTE). However, current CHEST guidelines recommend anticoagulation therapy for a minimum duration of 3 months in COVID-19 patients who develop proximal deep vein thrombosis or pulmonary embolism [10].

Viral injury, inflammatory and immunologic damage contribute to post-acute COVID-19 endocrine manifestations; isolated cases of DKA, Subacute, and Hashimoto thyroiditis have been reported weeks after acute COVID-19 symptoms have resolved [11].

The majority of studies reported symptoms similar to those seen in acute COVID-19 infection (i.e., sensory impairment and respiratory symptoms) yet, the data suggested a larger spectrum of symptoms, evidenced by >100 reported symptoms. Symptom prevalence varied significantly and was not explained by data collection approaches, study design or other methodological approaches, and may be related to unknown cohort-specific factors [12].

Available evidence has suggested that, the respiratory symptoms are the most common (55%) to persist after recovery (mainly shortness of breath and cough), followed by fatigue about (35%). According to previous study, elderly and people

with many serious medical conditions are most likely to experience persistent COVID-19 symptoms. But even young healthy people can feel unwell for weeks and months after the infection. Common signs and symptoms that persist over time include: fatigue, shortness of breath, cough, joint pain, chest pain, memory, concentration or sleep problems, muscle pain or headache, palpitation, loss of smell or taste, depression or anxiety, fever, dizziness, worsening symptoms after physical or mental activities [13].

For most patients, the goal of medical management of post-COVID-19 conditions is to optimize function and quality of life. Ideally, healthcare professionals should develop a comprehensive management plan based on their patients' symptoms in consultation with the appropriate specialists, underlying medical and psychiatric conditions, personal and social situations, and their treatment goals [14]. In Egypt, the most common symptom reported was fatigue (72.8%), more critical manifestations like stroke, renal failure, myocarditis and pulmonary fibrosis were reported in few patients. The presence of other comorbidities was related to the severity of the disease. Furthermore, the severity of post-COVID-19 manifestations was related to the severity COVID-19 manifestations [15].

In another study, the majority of people (94.9%) experienced at least one post-COVID-19 symptom, with fatigue (82.9%) being the most prevalent post-discharge manifestation. With a significant correlation of post-COVID-19 symptoms with gender, age, and time. The long-COVID syndrome is similar to the post-discharge manifestations of SARS and MERS survivors from previous pandemics [16].

Post-intensive care syndrome (PICS) Up to 80% of ICU patients who survive acute respiratory failure after receiving mechanical ventilation report cognitive (e.g., memory loss, attention deficit), physical (e.g., muscle wasting and weakness, diaphragm dysfunction), and mental health impairments (e.g., anxiety, depression, PTSD) as well as somatic symptoms such as sleep disturbances and chronic fatigue syndrome/myalgic encephalomyelitis that last after discharge, a condition known as post-intensive care syndrome (PICS) [17]. In a 5-year follow-up study of 196 patients with ARDS admitted to the ICU, 38%, 32%, and 23% of patients reported prolonged anxiety, depression, and PTSD, respectively [17].

The current study emphasis on acute care and in-hospital management of complications. Health care providers involved in the ICU care of COVID-19 patients should be educated on the role of multidisciplinary rehabilitation in preventing complications and reducing long-and short-term PICS-related disabilities [18].

This study had some limitations, that some missing data due to work overload as Maitiga center is the only center that deals with and treats patients with post-COVID-19 with a huge number of patients seeking medical advice against limited number of health workers.

CONCLUSION

In Maitiga center, diabetic patients are most frequent to be affected by COVID19 infection than other patients with chronic illness followed by hypertensive patients, patients with other cardiac diseases and chronic kidney diseases. Post-COVID19 persistent respiratory symptoms -including cough and shortness of breath- were frequently reported by COVID19 infected patients followed by the fatigue. Multi-disciplinary rehabilitation teams, healthcare workers, and the general population should recognize the need for systemic assessment of their recovery. Moreover, the survivors of COVID-19 require rehabilitation focusing on cardiopulmonary and psychological sequelae, and fatigue.

Disclaimer

The article has not been previously presented or published, and is not part of a thesis project.

Conflict of Interest

There are no financial, personal, or professional conflicts of interest to declare.

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