

Research Article
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Improvement of Patients with Long COVID 19

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ABSTRACT

Introduction: The term "long-term Covid" is commonly used to describe signs and symptoms that persist or develop after acute Covid-19. Recovery time for these patients may vary depending on other comorbidities and the severity of the disease, severely ill patients are more likely to have a longer course than those with mild or moderate disease.

Objective: The purpose of the study is the management of patients with post-Covid-19 complications, with the aim of early treatment of these complications, so that patients can return to their previous lives.

Materials and Methods: This is an observational study. Data were collected from the medical records of 60 patients hospitalized in "Shefqet Ndroqi" hospital, Tirana, in the internal pathology ward, where post-Covid 19 patients are treated, were reviewed. Their demographic, clinical, physiological, laboratory and imaging data were collected. These patients were followed in the period, March 2022-June 2022.

Results: From the 60 patients who were clinically followed for 10 weeks, it was found that at the end of the 10th week, 25.6% of the patients had a significant improvement, 64% of the patients had a slight improvement, and 10.4% of these patients had no improvement. no improvement, compared to their previous condition.

Conclusion: The elderly and those with severe symptoms during the acute phase are at greater risk of moderate and severe sequelae, which require multidisciplinary management, according to the patient's condition.

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Introduction

Histologically, patients with COVID-19 present three main pulmonary changes: I. epithelial with reactive epithelial changes and diffuse alveolar damage (DAD) [1]. (II) vascular with microvascular damage, acute fibrinous and organizational pneumonia and (III) fibrotic with evidence of interstitial fibrosis [2]. The presence of persistent symptoms in patients with Covid-19 has been called prolonged Covid or post-Covid-19 syndrome [3]. The cytokine storm in Covid-19 is characterized by an exaggerated inflammatory response to SARS-CoV-2, which is mediated by immune system dysregulation [4]. Systemic cytokine profile in SARS-CoV-2 mediated cytokine storm shows increased interleukin (IL)-6, IL-7, tumor necrosis factor (TNF), inflammatory cytokines such as CCL2, CCL3 and CXCL10 [5]. Since the cytokine profile is similar to that observed in the macrophage activation system, disruption of mononuclear phagocyte division has been suggested to play a role in the inflammation associated with COVID-19 [6]. Pulmonary fibrosis is a progressive, incurable disease with a lower survival rate than most cancers. Due to the rapid increase in deaths following SARS-CoV-2 infection, evidence of a link between viral infection and the development of pulmonary fibrosis in patients with Covid-19 present with degrees of fibrotic change ranging from fibrosis, to disseminated fibrotic disease after severe

acute lung injury [7]. This set of symptoms, originally called Long-Covid, is now called PASC (Post-Acute Consequences of Covid-19, Post-Acute Consequences of Covid-19). One of the main differential diagnoses on CT due to infection by Covid-19 is a pattern of non-specific interstitial pneumonia, both in the cellular and fibrotic phases of the disease [8]. The term fibrosis is often used to include post-Covid findings, such as parenchymal and subpleural bands that may represent only areas of focal atelectasis, abnormalities and reticular thickening, rather than diffuse fibrosis [9]. In post-Covid-19 patients, cardiac complications are observed in response to the release of cytokines secondary to systemic inflammation, Macrophages play an important role in the process of inflammation and regeneration [6]. In cardiac tissue samples from patients with Covid-19, increased phagocytosis and the presence of cellular antigens on T lymphocytes have been observed [10]. Quantitative study of the cellular immune response, done in samples from patients with this disease, shows a significant increase in CD68+ cells. Beyond lung damage, we have systemic involvement, with central nervous system involvement and clinical manifestations, such as cognitive impairment [11]. Among the manifestations associated with prolonged Covid-19 syndrome are fatigue, weight loss, headache and arterial hypotension [12]. Other conditions that may persist after recovery from COVID-19 may include: kidney damage, liver lesions, endocrine disorders, diabetes, kidney failure), gastrointestinal symptoms (diarrhea, weight loss, malnutrition), dermatological (alopecia, lesions of

the skin, decubitus ulcers), and sleep disorders [13].

Materials and Methods

The medical records of 60 patients, hospitalized at the “Shefqet Ndroqi” hospital, in the internal pathology ward, where post-Covid 19 patients were treated, were observed. Their demographic, clinical, physiological, laboratory and imaging data were collected. Of the patients who were observed, 6 patients were on respirators, 14 patients were on 3 sources of oxygen, 20 patients were on 2 sources of oxygen, 8 patients were on 1 source of oxygen and 12 patients were without oxygen. The participants in the study are patients who are hospitalized to be treated for post-Covid 19 complications.

Statistical analysis. The data were entered into Excel and then analyzed statistically, using the Ch Square program. The statistical analysis of the data is presented in the form of graphs. The variables are presented in %, deriving the results, based on the data obtained.

Results

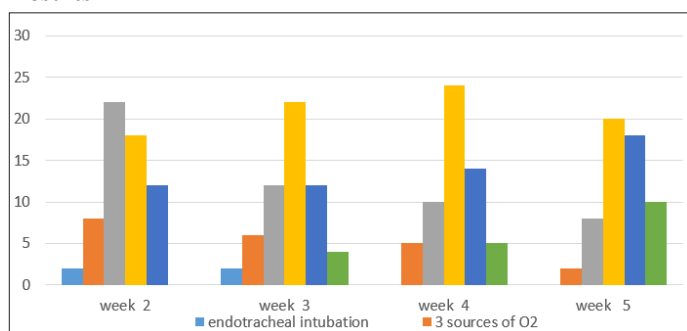


Figure 1: Oxygen Needs and Related Complications

This chart presents a general assessment of these patients included in the study, assessing their oxygenation needs and related complications.

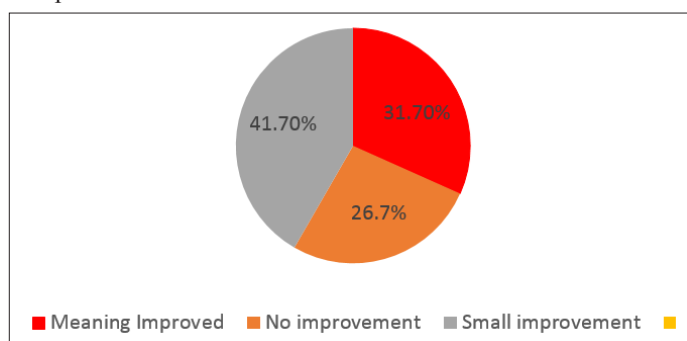


Figure 2: Improvement of Patients

According to the above data, at the end of the 5th week, 31.7% of these patients had a significant improvement, 41.7% of these patients had little improvement and 26.7% of these patients had no improvement, in the report with their previous state.

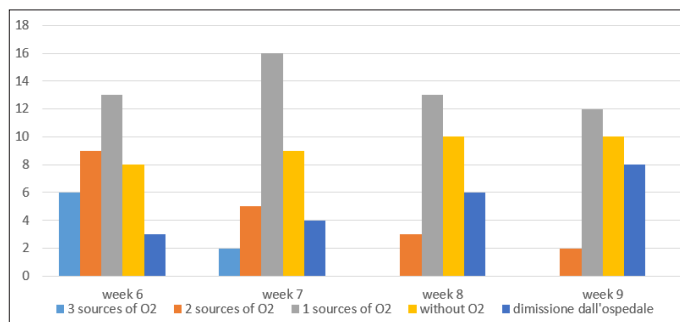


Figure 3: Sources of O2

This figure shows the patients’ progress over the next 5 weeks and their gradual improvement in reducing oxygen needs. At the end of the 5th week, of the 60 patients who were enrolled in the study, 2 patients died in the 2nd week, 19 patients were discharged from the hospital, (exactly 10 of them no longer needed oxygen and 9 with oxygen therapy in home). 39 patients who were still hospitalized at the end of the 5th week, we continued to follow clinically for the next 5 weeks.

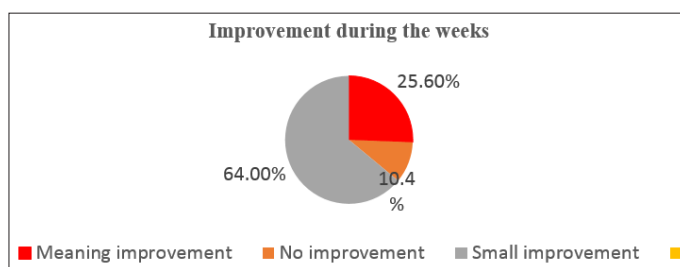


Figure 4: Improvement During the Weeks

At the end of the 10th week, we observe that 25.6% of patients have had a significant improvement, 64% of patients have had small improvements and 10.4% of these patients have not had any improvement, compared to their previous condition.

Discussion

According to our study, there is a direct relationship with the increased oxygen needs of these patients and the complications they present. This is confirmed in other studies, which also show the importance of timely management of these complications, according to, it is said that: cardiac complications are more frequent in patients with respiratory and with 3 sources of oxygen [14]. Even according to it turns out that patient with ventilators and those with 3 sources of oxygen present greater pulmonary damage and cardiovascular complications such as arterial fibrillation and heart failure are more frequent in these patients, compared to others [15]. In our study, it was observed that even patients with 2 oxygen sources and those with 1 oxygen source may suffer complications such as sudden hemoptysis. These occur especially when patients are very stressed by a cough that can be dry, characteristic of fibrosis, or even with secretions, especially in patients with overlapping bacterial infections, this is also stated in the study of [14]. Numerous studies have proven that the development of pulmonary fibrosis occurs as a result of the “cytokine storm” from the immune system’s response against the SARS-CoV-2 virus. In particular, the most frequent cytokines are IL-1 β , IL-6, IL-7, IL-8, tumor necrosis factor- α (TNF- α) and TGF- β , a cytokine considered crucial in the initiation and progression of fibrosis [16]. In the study of, it is said that in this case it is not so much about “pulmonary fibrosis” as about “fibrotic tissue” after pneumonia, according to the authors [17]. The essential difference between them lies

in the fact that, while pulmonary fibrosis, whether idiopathic or non-idiopathic, represents an interstitial pathology, which often leads to a progressive deterioration of the patient's respiratory condition, according to the study of: [18]. Based on other studies, according to, scarred fibrotic tissue, on the other hand, represents simple lung scarring, often non-evolving and therefore without the possibility of causing a progressive damage to pulmonary [16].

Conclusion

To reduce the risk of developing PCPF (Pulmonary Fibrosis post Covid), it would be advisable to identify patients with the most severe respiratory symptoms, in order to continue with effective drug therapy (minimizing the factors implicated in persistent lung injury and prolonged inflammatory response, Thus avoiding a worsening of the clinical condition and consequently the development of pulmonary fibrosis [19-23].

For the Management of These Patients it is Very Important:

- The importance of calculating and controlling O2 concentration.
- Drug therapy, based on the doctor's prescription.
- Patient comfort. Patient movement.
- Improving the way of breathing.
- Conservation of energies.
- Chest physiotherapy and postural drainage.
- Improving food intake. Nutrition assistance
- Anxiety reduction, psychological intervention.
- Physiotherapy for final rehabilitation and gaining autonomy of movement in these patients.

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