The prevalence of long COVID symptoms in Indonesia: a cross-sectional study in Aceh

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INTRODUCTION

The first Coronavirus Disease 2019 (COVID-19) case was reported in December 2019 until COVID-19 was declared a pandemic in 2020. It is becoming increasingly clear that COVID-19 is a long-term illness for many people. COVID-19 was detected in people who experienced mild or moderate initial infection and those hospitalized with more severe conditions. A previous study suggests that approximately one in five and one in 10 COVID-19 patients will have symptoms that last more than a month. Initial investigations by the National Institute of Health Research of the United Kingdom suggest that four syndromes such as permanent damage to the lungs and heart, post-intensive care syndrome, post-viral fatigue syndrome, and continued COVID-19 symptoms could be the reason for long-term COVID-19 symptoms. A study in November 2020 concluded that COVID-19 survivors are thought to be at higher risk of psychiatric sequelae, with 20% of those infected being diagnosed with a psychiatric disorder within 90 days, with anxiety, depression, and insomnia being the most common. Systematic reviews also have confirmed a high incidence of persistent long COVID symptoms among survivors. Up to 80% of those hospitalized have severe illness and experience long-term problems such as fatigue and shortness of breath (dyspnea). Post-intensive care syndrome is more likely to occur in patients with severe initial infections, especially those who require mechanical ventilation to assist them in breathing. Generally, most COVID-19 patients recover within a few weeks. However, people with mild versions of the disease continue to experience symptoms after their initial recovery. The elderly with many severe medical conditions will likely experience persistent COVID-19 symptoms. The most common signs and symptoms that persist over time are fatigue, cough, shortness of breath, headache, and joint pain. Although COVID-19 has been determined to impact the lungs mainly, it may also damage several other organs. Thus, damage to the organ could increase the risk of long-term health problems. In addition to clinical symptoms or long-term health problems, social disorders also have long-term consequences in patients confirmed positive for COVID-19. The public attitude of COVID-19-positive patients is thought to cause prolonged psychological disturbances for these patients. Complications or long-term effects experienced by COVID-19 patients currently become an issue worldwide. It might be a problem if not handled or a follow-up study is not conducted. Therefore, the participation of an interdisciplinary group of researchers is crucial to assess the characteristics of the long-term consequences experienced by COVID-19-positive patients. The aim of this study was to conduct a survey of or investigate the long-term effects in...
COVID-19-positive patients in Aceh Province, Indonesia after COVID-19. The findings of this study are expected to improve the care for positive COVID-19 patients in hospitals who have long-term consequences of COVID-19.

METHODS

The objects in this study were COVID-19 patients in Aceh Province, Indonesia. A minimum of 300 respondents was randomly selected from various districts representing the Province of Aceh, Indonesia. This study was conducted to investigate the long-term consequences experienced by patients after being confirmed positive for COVID-19. A total of 303 patients from our Laboratory of Infectious Diseases Dr. Imai Indra, Universitas Syiah Kuala, were contacted after a diagnosis of COVID-19 at least after the first 14 days to 90 days after an adverse real-time reverse transcriptase polymerase chain reaction (RT-PCR) result.

The survey was conducted using an online survey software tool with a questionnaire method. We included patients who were ≥ 17 years of age until 62 years, presented to our dedicated COVID-19 clinic with mild or heavy symptoms, and tested positive for COVID-19 with an RT-PCR test between June 2020 and September 2021. Ethical clearance was obtained before the start of the study from the Institutional Ethics Committee of the Faculty of Medicine, Universitas Syiah Kuala. Due to the ongoing pandemic, WhatsApp online and telephone consent was taken from the patient.

This study was conducted for eight months, with the research method used being the cross-sectional method, where the research data were collected at once and were the result of one shot at a particular time. Information from respondents was collected directly. In this study, the results of interviews with COVID-19 patients were further analyzed by clinical factors caused by COVID-19. This study also identified a series of suspected COVID-19 risk factors such as age, gender, and inherited diseases of the patient. The descriptive analysis of the clinical factor was used for all the studies, which is a long-term consequence in COVID-19 patients who were confirmed cured.

RESULTS

Long COVID can occur in all COVID-19 patients and has been observed across a diverse spectrum of COVID-19 patients encompassing various age groups and a range of symptom severities. Findings from an extensive survey involving 303 participants revealed that 31% of individuals exhibited post-COVID-19 symptoms persisting from two weeks up to fifteen months following the initial infection, while the remaining 69% remained asymptomatic. Prevalent clinical presentations reported by the cohort comprised fatigue (9.9%), headaches (8.7%), and joint and muscle pain (8.1%). Concurrently, other symptoms felt by the patient included symptoms of COVID-19, such as polyneuropathy and shortness of breath (7.4%), sleep disturbances (7.4%), cough (6.9%), hair loss (6.9%), heart palpitations (6.6%), symptoms of COVID, namely runny nose and stuffy nose (6.5%), mental health disorders such as anxiety, impaired concentration, and depression (5.1%), fever (4.8%), decreased appetite (4.8%), sore throat or difficulty swallowing (4.5%), impaired sense of taste (3.0%), diarrhea and vomiting (2.7%), lost sense of smell (2.6%), skin rashes (2.4%), and alopecia or baldness (1.7%), as shown in Figure 1.

Figure 1. Symptoms of long COVID experienced by patients two weeks to 15 months after recovering.

The adult group experienced more prolonged COVID-19 symptoms, with a percentage of 74.5%, compared to the adolescent group (25.5%). The adolescent and adult groups felt excessive fatigue symptoms, exhibiting the highest rates, 11.1% and 9.5%. Other symptoms were also still regarded, such as polyneuropathy or shortness of breath, cough, runny nose and stuffy nose, anxiety or difficulty concentrating, loss of sense of smell, fever, joint or muscle pain, diarrhea and vomiting, sore throat, hair loss, difficulty sleeping, baldness, palpitations, decreased appetite, impaired sense of taste or taste, and skin rashes. Headaches, joint and muscle pain, and excessive fatigue were the most common symptoms of long COVID experienced by the adult group (Figure 2). Meanwhile, the symptoms of hair loss were mainly experienced by the adolescent group (Figure 3).

74.5% of respondents in the adult group who experienced long COVID symptoms, most of the patients with positive symptoms and positive SARS-CoV-2 test results in the adult group had no history of congenital disease or no comorbidities. However, they had a history of previous symptoms when they were confirmed positive for COVID-19. A total of 9.5% of respondents reported feeling excessively tired, 7.7% of respondents had polyneuropathy or shortness of breath, 6.9% had a cough and suffered from long COVID...
symptoms, such as runny nose and stuffy nose, 7.1% experienced palpitations, 4.7% experienced decreased appetite, 8.7% experienced headaches, 4.5% experienced anxiety, impaired concentration, and depression, 4.9% experienced fever, 2% experienced loss of sense of smell, 8.7% joint and muscle pain, 2.8% experienced diarrhea and vomiting, 5.1% had a sore throat and difficulty swallowing, 1.6% had alopecia or baldness, 2.6% had impaired taste and skin rash, and 6.5% had hair loss. In the adult group, headaches, joint and muscle pain, and excessive fatigue were the most common symptoms of long COVID two weeks to fifteen months after recovering from COVID-19 (Figure 3).

On the other hand, 303 respondents in the adolescent group with positive symptoms and positive severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) test results had no history of congenital disease or no comorbidities, 11.1% reported experiencing headaches and excessive fatigue, 8.8% experienced headaches, 8.2% experienced hair loss, 7% experienced cough, 7.0% experienced anxiety, 6.4% experienced polypnea or shortness of breath, 5.3% experienced palpitations, decreased appetite, and COVID-19 symptoms, namely, runny nose and stuffy nose, impaired concentration, and depression, 4.7% had a fever, 4.1% had a loss of sense of smell, 6.4% had joint and muscle pain, 2.3% experienced diarrhea and vomiting, 2.9% had a sore throat and difficulty swallowing, 1.8% had alopecia or baldness, 4.1% had taste disturbances, and 1.8% had skin rashes. In adolescents, excessive fatigue, headaches, sleep disturbances, and hair loss were also the most common symptoms of long COVID several months after recovering from COVID-19, with the percentages being 11%, 9%, 8%, and 8%, respectively (Figure 3).

**DISCUSSION**

This study was conducted to investigate the long-term consequences experienced by patients after being confirmed positive for COVID-19. An online questionnaire was distributed to patients via messages, including several questions the researcher prepared. The clinical course of COVID-19 is still uncertain because it is a relatively new disease, especially the possible long-term health consequences for patients after recovering from COVID-19.

The term “long COVID” describes the long-term effects of COVID-19 on people with confirmed COVID-19. COVID-19 syndrome consists of dyspnea, headache, fatigue, and anosmia and is more likely to be associated with increasing age, Body Mass Index (BMI), and females.
A limited study has been done to reflect the continued effects of COVID-19, namely Long COVID, its effects on the respiratory, cardiovascular, neurological, and other systems, and its implications on mental health. Our findings showed that fatigue and dyspnea were the most commonly reported symptoms after acute COVID-19. In a study conducted in Germany among 100 patients who recently recovered from COVID-19 disease, cardiac magnetic resonance imaging showed cardiac involvement in 78% of the patients and ongoing myocardial inflammation in 60%. Similar findings in Europe found that a post-acute outpatient service established in Italy (hereafter referred to as the post-acute Italian COVID-19 study) reported persistent symptoms, often known as long-avoid symptoms, in 87.4% of 143 patients who had been treated and discharged from hospital after recovering from acute COVID-19 with an average follow-up period of up to 60 days from the onset of COVID-19. The clinical evaluation should identify the pathophysiology, followed by appropriate remedial action. In people with long COVID symptoms but without a previous history of SARS-CoV-2 infection, serology can help confirm the diagnosis.

CONCLUSION

This study concludes that the symptoms of long-term COVID or the long-term consequences of COVID-19 are experienced by most of the positive COVID-19 patients in Aceh Province after recovering from COVID-19. The most common symptoms are headaches, excessive fatigue, and joint or muscle pain. At the same time, other symptoms that are also experienced after recovering from COVID-19 include polypnea or shortness of breath, cough, runny nose and stuffy nose, anxiety or difficulty concentrating, loss of sense of smell, fever, joint or muscle pain, diarrhea, and vomiting, sore throat, hair loss, difficulty sleeping, baldness, palpitations, decreased appetite, impaired sense of taste, and skin rashes. The study results stated that long COVID symptoms occurred in 31% of patients after recovering from COVID-19; the follow-up management of post-acute COVID-19 syndrome would be a clinical challenge.

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CONFLICT OF INTEREST

The authors declare no conflict of interest.

ETHICAL APPROVAL

The study protocol was approved by the ethical committee of study from the Faculty of Medicine, Universitas Syiah Kuala, Indonesia.

COMPETING INTERESTS

All authors declared no conflict of interest.

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AUTHORS CONTRIBUTION

MH contributed in concepting and designing the study, literature search, data collection, data analysis, manuscript preparation and editing. WES and AP were responsible in concepting and designing the study, contributed in intellectual content, manuscript editing and final editing.

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