1. Introduction

In December 2019, there were reports of the Coronavirus from the city of Wuhan, Hubei province, China. This virus has become a pandemic that has spread throughout the world until now. The name COVID-19 stands for coronavirus diseases 2019 or also known as SARS-CoV-2. While this research was being carried out, COVID-19 cases were increasing, reaching 96.2 million in the world 977 thousand positive cases in Indonesia and 13,599 thousand positive cases in South Sumatra. COVID-19 infection, both moderate and severe symptoms can cause pneumonia with an opaque appearance that can be detected on a chest CT scan, pulmonary edema, and accumulation of pleural fluid in the lungs. The genetic sequence of SARS-CoV-2 shows that COVID-19 belongs to the β-coronavirus genus, with 79% nucleotide identity to SARS-CoV and 51.8% identity to MERS-CoV. Inoculation with SARS-CoV-2 of human airway epithelial cells in vitro caused a cytopathic effect and cessation of ciliary movement of respiratory epithelial cells, similar to the cytopathic effect observed in SARS-CoV infection.

Clinical manifestations

Clinical manifestations of COVID-19 vary widely, ranging from asymptomatic/asymptomatic to very
severe respiratory distress. Both the body's immune response, both the natural body's immune response and the adaptive body's immune response, play a very important role in the course of COVID-19. Most patients infected with SARS-CoV-2 show symptoms of the respiratory system such as fever, coughing, sneezing, and shortness of breath. The most common symptoms are fever, dry cough, fatigue, and anosmia or ageusia. Other symptoms that can be found are productive cough, shortness of breath, sore throat, headache, myalgia/arthritis, chills, nausea/vomiting, nasal congestion, diarrhea, abdominal pain, hemoptysis, and conjunctival congestion. A study concluded that more than 40% of fevers in COVID-19 patients had peak temperatures between 38.1-39°C, while 34% had fevers over 39°C.

The course of the disease begins with an incubation period of about 3-14 days (median 5 days). At this time, leukocytes and lymphocytes are still normal or slightly decreased, and the patient is asymptomatic. In the next phase (early symptoms), the virus spreads through the bloodstream, presumably mainly in ACE 2-expressing tissues such as the lungs, gastrointestinal tract, and heart. Symptoms in this phase are generally mild. The second attack occurs four to seven days after the initial symptoms appear. At this time, the patient is still feverish and starting to have shortness of breath. The lesions in the lungs are getting worse. The lymphocytes are decreasing. Inflammatory markers begin to increase, and hypercoagulability begins to occur. If not resolved, the next phase of inflammation is increasingly uncontrolled. A cytokine storm occurs, which results in acute respiratory distress syndrome (ARDS), sepsis, and other complications.

**Physical examination**

The level of consciousness can be found from comatose mentis to decreased consciousness. Meanwhile, vital signs are: normal or decreased blood pressure, increased pulse rate, increased respiratory rate, increased body temperature, and oxygen saturation may be normal or decreased. On physical examination, the lungs may be asymmetrical, static, and dynamic, may be accompanied by retraction of the respiratory muscles, hardened fremitus of touch, dullness in the consolidation area, bronchovesicular or bronchial breath sounds, and coarse crackles.

**Supporting examination**

Swab collection on days 1 and 2 for diagnosis. If the examination on the first day is positive, there is no need for another examination on the second day. If the examination on the first day is negative, then an examination is required on the next day (second day). In hospitalized patients, a maximum of PCR examinations were only performed three times during treatment. For asymptomatic, mild, and moderate cases, PCR examination is not necessary for follow-up. Follow-up examination was only performed in severe and critical patients. For follow-up PCR in severe and critical cases, it can be done after ten days after taking a positive swab. For severe and critical cases, if, after clinical improvement, fever-free for three days but the PCR follow-up shows a positive result, there may be a persistent positive condition caused by the detection of inactivated virus fragments or particles. Consider the cycle threshold (CT) value to assess whether it is infectious or not by discussing between the doctor in charge of the patient (DPJP) and the PCR examining laboratory because the cut-off value varies according to the reagents and tools used.

Chest X-ray showed pneumonia in the form of infiltrates in one or both lung fields, hydropneumothorax, or bronchopneumonia (Figure 1). Ground-glass opacification infiltrates peribronchial thickening, focal consolidation, pleural effusion, and atelectasis. A chest X-ray is less sensitive than a CT scan. The sensitivity and specificity of chest CT are 94% and 37%, respectively.
Imaging may show bilateral opacities, subsegmental consolidation, lobar, lung collapse or nodules, and ground glass appearance. In the early stages, multiple small plaque shadows with marked interstitial changes are seen in the periphery of the lung and then progress to multiple ground-glass shadows and infiltrate in both lungs. In severe cases, “white-lung”.13

Leukocytes may be found to be normal or decreased; lymphocyte count decreased. LED and CRP increased. Blood gas analysis is generally impaired, likewise with liver function, kidney function, blood
sugar when, electrolytes, and procalcitonin abnormalities. Hemostasis physiology (PT, APTT, d-Dimer) is impaired.

**Definition of COVID-19 cases**

The definitions of COVID-19 cases described are suspected, probable, confirmed cases, and close contacts. A suspect case is a person who meets one clinical criterion and one epidemiological criterion, an individual with severe ARI symptoms, or a person without symptoms (asymptomatic) who does not meet the epidemiological criteria with a positive SARS-CoV-2 antigen rapid test result.

Clinical criteria consist of acute fever (≥ 38°C) / history of fever and cough, or there are three or more acute symptoms, namely fever/history of fever, cough, fatigue, headache, myalgia, sore throat, runny nose, shortness of breath, anosmia, ageusia, vomiting, diarrhea, loss of consciousness. Epidemiological criteria are in the last 14 days before symptoms appear, have a history of living or traveling in a country/territory of Indonesia that reports local transmission; or in the last 14 days prior to the onset of symptoms, have a history of living or traveling in a country/territory of Indonesia that reports local transmission; or in the last 14 days prior to symptoms appearing working in health services, medical services, and non-medical services, as well as officers carrying out investigations, case monitoring and contact activities.

A probable case is someone who has one of the following criteria. A person who meets the clinical criteria and has a history of close contact with a probable case; or confirmed; or relating to the COVID-19 cluster; suspected cases with radiological features suggestive of COVID-19; a person with acute symptoms of anosmia (loss of sense of smell) or ageusia (loss of sense of taste) with no other identifiable cause; and adults who died of respiratory distress and had a history of close contact with probable cases or confirmed, or in connection with the COVID-19 cluster.

A confirmed case is a person who has tested positive for the COVID-19 virus with the following criteria: a person with a positive RT-PCR result, someone with a positive SARS-CoV-2 rapid antigen result and meeting the criteria for a probable case definition or a suspected case; or a person without symptoms (asymptomatic) with a positive SARS-CoV-2 rapid antigen result and has a history of close contact with a probable or confirmed case.

Close contact cases are people who have a history of contact with probable or confirmed cases of COVID-19. The contact history in question includes face-to-face contact/adjacent to probable or confirmed cases within a radius of 1 meter and for a period of 15 minutes or more; direct physical touch with probable or confirmed cases (such as shaking hands, holding hands, etc.); people who provide direct care for probable or confirmed cases without using standardized PPE.

**Degree of COVID-19 cases**

Based on the severity of cases, COVID-19 is divided into asymptomatic, mild, moderate, severe, and critical. The asymptomatic condition is the mildest condition. The patient did not experience any symptoms. Mild COVID-19 is a patient with symptoms without evidence of viral pneumonia or without hypoxia. Symptoms include fever, cough, fatigue, anorexia, shortness of breath, and myalgia. Other non-specific symptoms such as sore throat, nasal congestion, headache, diarrhea, nausea and vomiting, loss of smell (anosmia), or loss of taste (ageusia) that occur before the onset of respiratory symptoms are also frequently reported. Elderly and immunocompromised patients have atypical symptoms such as fatigue, loss of consciousness, decreased mobility, diarrhea, loss of appetite, delirium, and no fever.

Moderate symptoms in adolescent or adult patients consist of clinical signs of pneumonia (fever, cough, shortness of breath, rapid breathing) but no signs of severe pneumonia, including SpO2>93% with room air. Moderate symptoms in pediatric patients include clinical signs of non-severe pneumonia (cough or difficulty breathing and rapid breathing and/or chest
indrawing) and no signs of severe pneumonia. The criteria for breathing according to age are for age <2 months, respiratory rate (RR) = 60x/minute; age 2-11 months, RR 50x/minute; age 1-5 years, RR 40x/minute; >5 years old, RR 30x/minute.

Severe symptoms/severe pneumonia in adolescent or adult patients are clinical signs of pneumonia (fever, cough, shortness of breath, rapid breathing) plus one of the following symptoms; respiratory rate > 30 x/min, severe respiratory distress, or SpO₂ < 93% in room air. Severe symptoms in pediatric patients i.e., patients with clinical signs of pneumonia (cough or difficulty breathing), plus at least one of the following symptoms; central cyanosis or SpO₂ <93%; severe respiratory distress (e.g., rapid breathing, grunting, very heavy chest indrawing); general danger signs in the form of inability to breastfeed or drink, lethargy or loss of consciousness, or seizures; rapid breathing/drawing chest wall/tachypnea: age <2 months, RR 60x/minute; age 2-11 months, RR 50x/minute; age 1-5 years, RR 40x/minute; >5 years old, RR 30x/minute.

Critical grade in COVID-19 patients if signs of acute respiratory distress syndrome (ARDS), sepsis, and septic shock are found. Symptoms of ARDS consist of mild, moderate, and severe. ARDS is mild, if PaO₂/FiO₂ ≤ 300 mmHg and more than 200 mmHg; with PEEP or CPAP ≥5 cmH₂O or without ventilation. Symptoms of ARDS are moderate if PaO₂/FiO₂ is more than 100 mmHg and ≤200 mmHg with PEEP ≥5 cmH₂O or without ventilation. ARDS is severe if the PaO₂/FiO₂ ≤ 100 mmHg with a PEEP of ≥5 cmH₂O or without ventilation.

Sepsis is the body's dysregulation of suspected infection or proven infection accompanied by organ dysfunction. Sepsis was defined as increasing the sequential organ failure assessment (SOFA) score ≥ 2 points. SOFA score, a score of 0-24 by assessing 6 organ systems, namely respiration (hypoxemia), hemostasis (thrombocytopenia), liver (increased bilirubin), cardiovascular (hypotension), central nervous system (Glasgow coma scale - GCS) and kidneys (decreased urine output). Or high creatinine.

Septic shock is persistent hypotension after adequate volume resuscitation, requiring vasopressors to maintain a MAP ≥ 65 mmHg.

2. Conclusion

The clinical manifestations of COVID-19 vary widely, ranging from asymptomatic to very severe respiratory distress. Both the body's immune response, both the natural body's immune response and the adaptive body's immune response, play a very important role in the course of COVID-19.

3. References