

CASE STUDY

THE ROLE OF CHLOROQUINE AND PSYCHOSOCIAL SUPPORT IN A PATIENT WITH COVID-19: A CASE REPORT IN INDONESIA

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Abstract

Background: COVID-19 is caused by the 2019 novel coronavirus (2019nCoV) which was identified on 7 January 2020 by the Chinese Center for Disease Control and Prevention (CDC) from the throat swab sample of a patient. This novel coronavirus is phylogenetically similar to the severe acute respiratory syndrome coronavirus (SARS-CoV) that caused SARS outbreak in 2002.

Objective: To describe a case of a COVID-19 patient in a hospital in Indonesia.

Case Report: A 55-year-old male was admitted to the Emergency Department of Arifin Achmad Hospital on 31 March 2020. He was transferred from a private hospital after three days of hospitalization. Previously, he came to another hospital complaining palpitation, cough, having difficulty of breathing, and intermittent fever. He then was advised to be admitted and tested for a COVID-19 test. At first, he did not admit to having traveled recently. After three days, the pharyngeal swab test was received confirming that he was contracted with COVID-19. The patient was then transferred to our hospital and hospitalized for ten days.

Discussion: The patient was fully recovered after ten days of treatment with antiviral drug namely Oseltamivir 75 mg orally twice a day and chloroquine phosphate 500 mg twice a day orally. The combination of both drugs showed an immune-modulating activity which might increase its antiviral effects. Therefore, the use of this agent in COVID-19 patients might be worthwhile. During hospitalization, reducing patient anxiety was also one of our main goals as many studies has found that anxiety is associated with poor immune system.

Conclusion: This case report demonstrated the current situation in Indonesia where people become reluctant to fully disclose their symptoms or travel history to the health care workers, which may put many others on the risk of being transmitted with the virus. Although the proven efficacy of chloroquine is still lacking, it has become the favorable choice at this moment as indicated in our study. Reducing the patient's anxiety towards the disease may help to speed the patient's recovery. Also, we need to educate public that COVID-19 might be a life-threatening disease but it is also a treatable disease.

KEYWORDS

covid-19; chloroquine; oseltamivir; coronavirus; psychosocial support; Indonesia

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BACKGROUND

The COVID-19 outbreak has caused devastated impacts on health as well as economic growth globally. As per 14 April 2020, 1,844,863 confirmed cases were reported by [World Health Organization \(2020\)](#) with 117,021 deaths which the highest number of the case were reported in the United States. The epidemic has been expensing to at least 201 countries including Indonesia, which has a significantly higher mortality rate about 10.9% in April 2020 ([Ministry of Health of the Republic of Indonesia, 2020](#)). Advanced age, or > 65 years old, and having comorbidities such as hypertension, diabetes mellitus and malignancy may increase the risk of deaths in COVID-19 patients ([Guan et al., 2020](#); [Wang et al., 2020a](#)). In Indonesia, the outbreak has been more devastating with the massive social stigma and discriminatory behaviors towards COVID-19 patients and people with

suspected corona virus infections. People become reluctant to fully disclose their symptoms or travel history even to the health care worker as they fear for rejection and discrimination. Stigmatization is common in newly identified infectious diseases or diseases associating with negative behaviors ([Rahmawati & Pertami, 2019](#)). We report a 55-year-old COVID-19 male who was fully recovered after 10 days of treatments. We aim to educate the public that COVID-19 might be a life-threatening disease but it is also a treatable disease.

CASE PRESENTATION

A 55-year-old male was admitted to the Emergency Department of Arifin Achmad Hospital on 31 March 2020. He was transferred from a private hospital after three days of hospitalization. Arifin Achmad

Hospital is the main referral hospital for COVID-19 cases in Riau province, Indonesia. Initially, he came to the private hospital complaining palpitation, cough, having difficulty of breathing, and intermittent fever. The physician then advised him to be admitted and tested for a COVID-19 test. At first, he did not admit to having traveled recently. After three days, the pharyngeal swab test was received, confirming that he was contracted with COVID-19, and then he admitted that he has just arrived from Jakarta several days earlier. Upon arrival at the referral hospital, the patient was slightly hypertensive with blood pressure 156/92 mmHg, heart rate 101 bpm, respiration rate 20 bpm, body temperature was normal 36.4°C, and oxygen saturation 96% while the patient was breathing ambient air.

INVESTIGATIONS AND TREATMENTS

At the Emergency Department, we received a chest-ray from the previous hospital (**Figure 1**) showing a bilateral diffuse shadow consistent with bronchopneumonia. A complete blood count was also received with unremarkable results except for low lymphocyte count

(17.5%), low hemoglobin level (9.8 g/dl), low hematocrit level (32.2%), and high thrombocyte level ($540 \times 10^3/\mu\text{l}$) (**Table 1**).

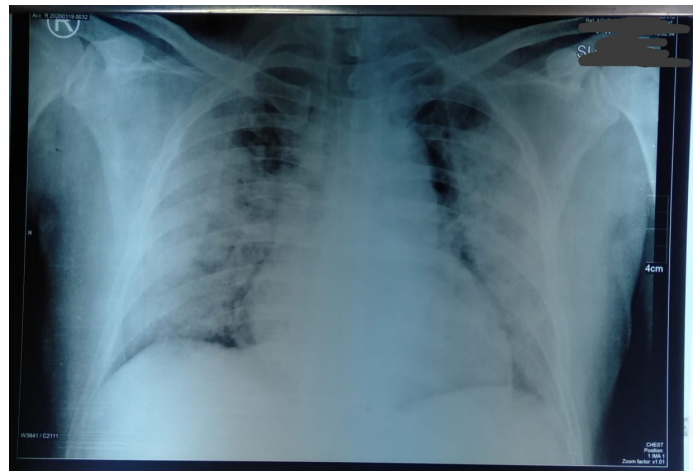


Figure 1 First X-ray Obtained Upon Arrival at the Emergency Department

Table 1 Laboratory Results

Measure	Normal Range	Hospital Day 1	Hospital Day 3	Hospital Day 9
Hemoglobin (g/dl)	13 - 17	9.8	10.6	11.6
Hematocrit (%)	45 - 52	32.2		
Thrombocyte ($10^3/\mu\text{l}$)	150 - 400	540	540	443
Leucocyte ($10^3/\mu\text{l}$)	4 - 11	9.3	8.93	
Basophil (%)	0.5 - 1%	0.4	0.4	
Eosinophil (%)	1 - 4	1.3	1.3	
Neutrophil (%)	40 - 60	69.9	69.9	
Lymphocyte (%)	20 - 40	17.5	17.5	
Monocyte (%)	2 - 8	10.5	10.2	

Table 2 Results of Real-Time Reverse-Transcriptase PCR Testing for the 2019-nCoV

PCR Testing	31 March 2020	2 April 2020	4 April 2020
Throat Swab	Positive C01.1477	Negative	Negative

The patient was given oxygen 4 liter/minute delivered via nasal cannula. The attending doctor prescribed ringer lactate 1500 ml for 24 hours, meropenem 2 x 1 g for 6 days, levofloxacin 1x750 mg for 6 days, omeprazole 2x 40mg, resfar in 100 cc of NaCl 0.9% over 2 hours. The patient was also prescribed vitamin C, oseltamivir 2 x 75 mg/PO, nitrokap 2x0.5 oral, and plavix 1x75 gr. The patient was located in a single-occupant *negative-pressure room* at the infectious disease department.

On Day 2, the patient complained of intermittent fever and dry cough. His blood pressure was still hypertensive with 149/100 mmHg. As the patient reported a decrease in dyspnea, we reduced the oxygen administration to 3 liter/minute. The highlighted treatment on day two is that the patient was started on Chloroquine phosphate 2 x 500 mg. The patient was also prescribed paracetamol 3 x 500 mg per oral, vitamin C reduced to 400 mg and IV fluid ringer lactate reduced to 1000 ml per 24 hours.

On Day 3, the hemoglobin level increased to 10.6 g/dl with other laboratory results was unremarkable (**Table 1**). As the patient complained of difficulty of sleeping during the night, the doctor

prescribed alprazolam. The patient was being swab again for COVID 19, which the result came back negative on 4 April 2020 (**Table 2**).

The hemoglobin kept increasing every next day, and the patient also experienced an increasing relief from dyspnea and had a good sleep at night. We performed a chest-x-ray on the patient which showed an improvement (**Figure 2**).

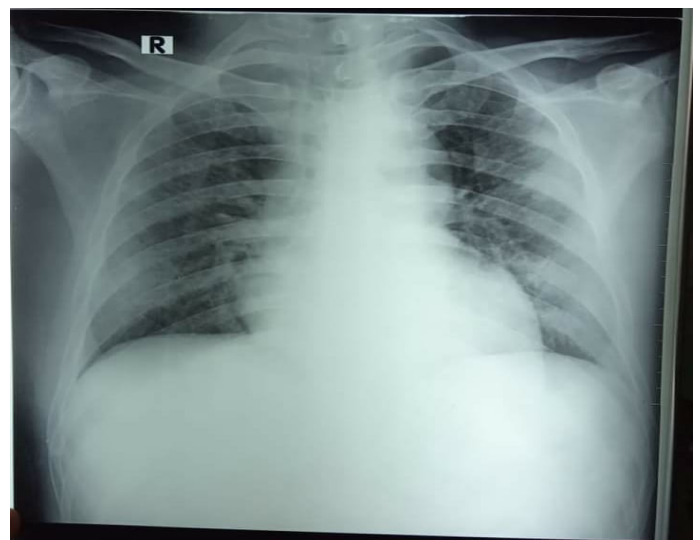


Figure 2 Supine Chest-Ray on 6 April 2020 Showing A Significant Decrease in the Lobe Infiltration

On Day 9, the patient's hemoglobin level was 11.6 g/dl, thrombocyte count was 443000 / μ l, and the liver as well as renal function tests was in a normal range. The swab test that was taken on Day 5 of hospitalization indicated a negative COVID 19. We also performed chest-X-ray that can be seen in **Figure 3**. The patient was ready to be discharged.

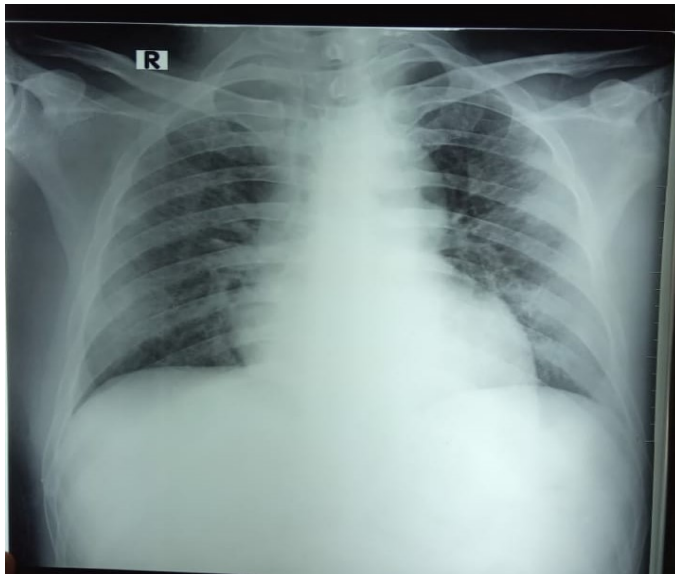


Figure 3 Supine Chest-X Ray taken on 8 April 2020 Showing A Normal Result

PSYCHOSOCIAL SUPPORT

During hospitalization, reducing patient anxiety was one of our main goals. Many studies has found that anxiety, panic and depression in hospitalized patients associate with poor immune system ([Chamberlain et al., 2019](#); [Lutgendorf et al., 2008](#)). A full covered from head-to-toe with personal protective equipment (PPE), and fear of contamination, seemingly did not make all the nurses and the doctors hesitant to make a good and therapeutic conversation with the patient. Support system from the patient family was also intense. Each day, his family delivered his favorite food, drink, or stuffs he needed, such as books and a Holy Quran. They kept on communication by video calls. He believed that everything happened on him is by God's permission. He would rarely complain about his conditions and showing his acceptances. As a Moslem, he never skipped prayer 5 times a day and pray that ALLAH, the Almighty God, will end his suffering. All these supportive environments from doctors and nurses, from his family, as well as his positive attitude toward his disease, successfully made him passed the most critical condition in his life.

DISCUSSION

COVID-19 is caused by the 2019 novel coronavirus (2019nCoV) which was identified on January, 7th 2020 by the Chinese Center for Disease Control and Prevention (CDC) from the throat swab sample of a patient. This novel coronavirus is phylogenetically similar to the severe acute respiratory syndrome coronavirus (SARS-CoV) that caused SARS outbreak in 2002, and therefore, it has been identified as SARSCoV-2 by the International Committee on Taxonomy of Viruses (ICTV) ([Ahn et al., 2020](#); [Chen et al., 2020](#); [Gorbalenya et al., 2020](#)). The origin of 2019nCov remains uncertain but it has been reported that

the virus might be transmitted to human by bat and pangolins ([Liu et al., 2019](#); [Zhou et al., 2020](#)). The main routes for human-to-human transmission are respiratory droplet and contact. However, studies found that SARS COV-2 could also be detected in the urine and stool samples ([Chan et al., 2020](#); [Holshue et al., 2020](#); [Jin et al., 2020](#)). **Figure 4** describes pathogenesis of COVID 19.

Our patient came to the hospital complaining of intermittent fever, unproductive cough and dyspnea. The most distinctive manifestations of COVID-19 include fever, cough and shortness of breath ([Chen et al., 2020](#); [Holshue et al., 2020](#); [Huang et al., 2020](#)). Although some people contracted with the virus may show mild symptoms or even asymptomatic, many patients developed severe complications at the early stage of the infection. These include dyspnea, acute respiratory failure or acute respiratory distress syndrome ([Chen et al., 2020](#); [Lai et al., 2020](#)). Other common manifestations include fatigue, myalgia, nausea and vomiting and sore throat. Interestingly, the SARS COV-2 affects male more than female, with approximately 60% of the COVID-19 patients are male. The highest risk for developing severe aggravation is Chronic Obstructive Pulmonary Disease (COPD). The risk of deaths also increase in patients with hypertension, diabetes mellitus, malignancy and chronic kidney disease, cerebrovascular diseases and cardiovascular disease ([Chen et al., 2020](#); [Wang et al., 2020a](#)).

We would like to emphasize that our patient was administered antiviral drug namely oseltamivir 75 mg orally twice a day and chloroquine phosphate 500 mg twice a day orally. A literature review conducted in 2020 has found that Oseltamivir was administered empirically to a large proportion of COVID-19 patients in China. However, until now the efficacy if this agent in COVID-19 patients has not been proven ([Sanders et al., 2020](#)). Although the therapeutic efficacy and safety of many antiviral drugs are still need to be confirmed by clinical trial in COVID-19 patients, antiviral drugs have been widely administered to patients with COVID-19 and showing promising results ([Ahn et al., 2020](#)).

To date, other than supportive care, there is no specific pharmacological treatments that have already proven effective in patients with COVID-19. Chloroquine has been long used for the treatment of malaria and autoimmune diseases. But, it also has potential wide-range antiviral effect that is inhibiting endosomal acidification, a process needed for cell fusion of the virus and host ([Savarino et al., 2006](#); [Yan et al., 2013](#)). Although a randomized control trial conducted in 2011 have found that chloroquine does not prevent influenza infection, authors from China argued that the drug has showed acceptable safety and efficacy in managing patients with COVID-19 associated pneumonia in multicenter clinical trials conducted in China ([Paton et al., 2011](#); [Rubin et al., 2020](#); [Yazdany & Kim, 2020](#)).

Chloroquine shows an immune-modulating activity which may increase its antiviral effects. It is distributed thought the body including the lung after administered orally. Furthermore, a long-term use of chloroquine is safe and effective against many pathogens. Therefore, the use if this agent in COVID-19 patients might be worthwhile ([Cortegiani et al., 2020](#); [Singh et al., 2020](#); [Wang et al., 2020b](#)).

In the midst of Coronavirus pandemic, most people are developing a sense of cautious, fear to panic ([Depoux et al., 2020](#)). These feeling can

be tapering off or be magnified by misinformation on social media, ranged from good news, hoax, severity of the disease, and mortality number ([Larson, 2018](#)). Healthy people may experience a depressing feeling or panic, let alone the people who are diagnosed with COVID-19. Stigma and social rejection towards people suspected with COVID-19 has made this outbreak in Indonesia more devastating ([Gunawan et al., 2020](#)). We see that people are trying to increase their immune system by consuming the immune booster, vitamin, and buying personal protective equipment. However, we realize the important of building a happy feeling to increase the immune system even faster. As

a virus keep evolving themselves to easily enter and destroy human, so should human. They must prepare their body with specific weapon to counter the attack with lot of ingredient, in which, sad, frustrate, negativity is not included. We do inevitably face unwanted event every day. However, it should not be long. We should adjust the situation with positivism, acceptance, resilience and humor ([Bhardwaj & Agrawal, 2015](#)). These are a good nutrient for building a strong immune. In this case, doctors, nurses, health worker and the patient seemingly hand-in-hand to make that happen.

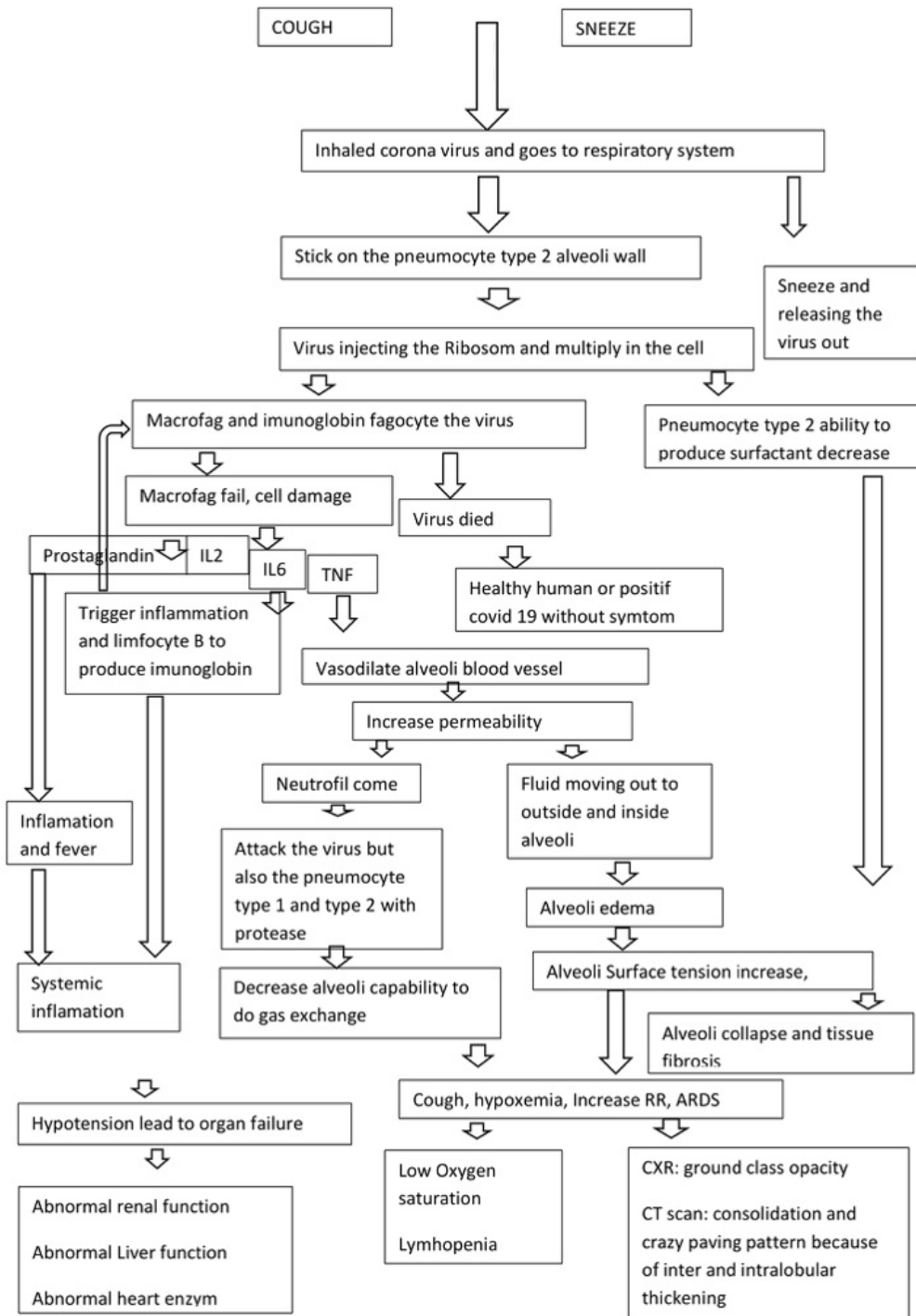


Figure 4 Pathogenesis of COVID-19 ([Ahn et al., 2020](#); [Chen et al., 2020](#))

CONCLUSION

The COVID-19 pandemic has brought fear and panic everywhere. People lied about their travel as they do not want to be suspected and stigmatized with the disease. The reported mortality rate from around the world, not to mention hoax in the social media, uncontrollably spread fear. People are expecting the good news related to the cure. Even though the proven efficacy of chloroquine is still lacking, it has been the favorable choice right now. Indonesia is one of the countries where chloroquine is used as one of the main treatments for patients with COVID-19. Chloroquine detrimental effect on cardiovascular were not seen in our case. The acceptance and continuing supports from all the health workers and family might help to improve the patient's condition.

Declaration of Conflicting Interest

There is no conflict of interest to disclosure.

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Authorship Contribution

A.D collected data, analyzed data, drafted manuscript, and administration. I.R analyzed data, drafted manuscript, reviewed the literature, designed the study, developed discussion. Both authors agreed with the final proof of the manuscript.

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