



## Clinical Data and Laboratory Tests on COVID-19 Patients in Six (6) Hospitals in 2021

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### Abstract

At the beginning of 2021, the hospital was still treating Covid-19 patients. To establish a diagnosis of COVID-19, we still use PCR rapid tests and other laboratory tests. The purpose of this study was to explain patient clinical data and laboratory test results in Covid-19 patients. This research method is descriptive research with research instruments in the form of observation guidelines in the form of a checklist with medical record document data sources from 6 hospitals in the Central Java region and the data will be processed descriptively. There were 81 patients with hypertension, 41 patients with tachycardia, 41 patients with tachypnea, 105 patients with moderate illness, 35 patients with severe illness, and 3 patients in critical condition. Most of the PCR test results were positive, there were 400 patients. The majority of positive PCR examination results were from 400 patients, and most of the X-ray Thorax examination results had abnormalities in 146 patients, There were 24 patients with results of oxygen saturation examination with mild-moderate hypoxia results, and 2 people with severe hypoxia, There were 138 patients receiving electrolyte injections or infusions and 99 patients receiving Continuous Invasive Mechanical Ventilation for 46 consecutive Hours or More, There were 3 laboratory examination results with mostly abnormal results, namely: C-Reactive Protein (CRP) was present 117 patients were abnormal, SGOT 99 patients were abnormal and SGPT 95 patients were abnormal.

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### Introduction

Coronavirus Disease-19 (COVID-19) is a group of viruses that cause disorders of the human respiratory system where the virus is classified as severe acute respiratory syndrome coronavirus 2 (SARS-COV-2). Transmission of this virus is very fast because it is through direct contact with sufferers at a close distance of less than 2 meters without a mask or by accidentally inhaling droplets with the sufferer when coughing or sneezing. According to WHO, statistical data on Covid-19 cases in Indonesia on November 25 2021 was 4,254,815 positive Covid-19 patients, 4,102,993 patients recovered and 143,782 patients died (WHO, 2021). Covid-19 can spread through droplets from the mouth or nose when coughing and sneezing. If splashes fall on objects around them and are accidentally touched by someone, then that person touches

their mouth, nose, and eyes, then that person can become infected with COVID-19. Mild symptoms that often appear in COVID-19 include cough, runny nose, fever, and sore throat. A person may suffer from quite severe illness, such as difficulty breathing or pneumonia, which usually appears gradually (Ministry of Health of the Republic of Indonesia, 2020).

Clinical data is all data about the patient's medical history which will be used as a reference for further action. Clinical data includes a physical examination, diagnosis, treatment, laboratory examination results, and X-ray results (Arifin Z et al, 2021). Physical examinations that are usually carried out include blood pressure, temperature, pulse, and breathing. Supporting examinations that are often carried out by medical staff for COVID-19 patients include PCR or Swab examinations, Rapid tests, and lung X-rays.

Clinical data is all data containing disease history, diagnosis, treatment, laboratory examination results, X-ray results, and physical examination results. In cases of COVID-19, laboratory examination does not show a specific picture, usually, lymphopenia is found, increased levels of C-reactive protein (CRP), Lactacid Acid Dehydrogenase (LDH), and prolongation of prothrombin time. In quite severe cases, an increase in creatine, neutrophilia, and urea is found. To determine a confirmed positive or negative diagnosis of COVID-19, a PCR (Polymerase Chain Reaction) examination is carried out from a naso-oropharyngeal or antigen swab gradually (Ministry of Health of the Republic of Indonesia, 2020).

Characteristics are special characteristics that are often found in COVID-19 patients, such as age, gender, clinical symptoms, comorbidities, laboratory examination results, and lung X-ray results. Someone who is at risk of being infected with COVID-19 is someone who has a previous history of congenital disease, is elderly, has traveled to an area exposed to COVID-19, and is a vape smoker. Apart from that, someone who has a suppressed immune system is more easily infected with SARS-CoV-2 (Arifin Z et al, 2021).

Comorbidities are congenital diseases that were previously present in the patient before being infected with COVID-19. Patients have at least one comorbidity, such as hypertension, diabetes, cardiovascular, and other cerebrovascular diseases, which are the most frequently found. The presence of comorbidities is very influential in increasing the risk several times of being easily exposed to COVID-19, which can cause acute respiratory distress syndrome. In this way, it is easier for someone to experience failure to breathe, which can lead to death in patients carrying comorbidities (Wei-jie Guan et al, 2020).

From the initial survey at 6 hospitals in the Central Java region, several Covid conditions were found, such as recovery, and death, and some of them were patients carrying comorbidities such as hypertension and diabetes mellitus. Although this death rate is not too high, the elderly and people with pre-existing medical conditions, tend to be more seriously ill and more vulnerable, which can affect recovery.

## Methods

This type of research uses descriptive research. Descriptive research is a study that presents a complete picture of comorbid clinical data on the discharge summary form and patient characteristics in the recovery of COVID-19 patients. The research approach uses a qualitative approach. A qualitative approach is a type of approach used to describe or describe which tends to use analysis. The data collection method is carried out by direct observation of the medical record documents of patients who have recovered from Covid-19. The sample of this study is the medical record documents of COVID-19 patients who are being treated in the hospital and the data is processed descriptively.

## Results

### Clinical Data of COVID-19 Patients

Table 1. Clinical Data of Covid 19 Patients

<b>Blood pressure (mmHg)</b>		Amount	%
Normal	( < 120 dan <80 )	280	77,6
Pre Hypertension	( 120-139 atau 80-89 )	17	4,7
Pre Hypertension	( 120-139 atau 80-89 )	17	4,7
Hypertension grade 1	( 140-159 atau 90-99 )	56	15,5
Hypertension grade 2	( > 160 atau >100 )	8	2,2
Total		361	100
<b>Pulse</b>		Amount	%
Normal	( 60-100 )	173	80,8
Tachycardia	( >100 )	41	19,2

Bardykardia	( < 60 )	0	0
Total		214	100
<b>RR (Respiration Rate)</b>			
		Amount	%
Bradypnea	( < 16 beats per minute )	0	0
Normal	( 16-20 beats per minute)	71	56,8
Tachypnea	( >20 beats per minute)	54	43,2
Total		125	100
<b>Clinical degree (severity) of COVID-19 patients</b>			
		Amount	%
Light		5	3,4
Medium		105	70,9
Weight		35	23,6
Critical		3	2,1
Total		148	100
<b>Actions for Covid Patients</b>			
		Amount	%
Procedure			
<i>Injection Or Infusion Of Electrolytes</i>		138	58,2
<i>Continuous Invasive Mechanical Ventilation For 96 Consecutive Hours Or More</i>		99	41,0
Total		237	100

Based on Table 1, there were 81 patients experiencing hypertension., 41 patients who experienced tachycardia, 54 patients who experienced Tahypnoea, 105 patients with moderate degrees, and 135 patients with injections or infusion of electrolytes.

**Supporting Examination of covid 19 patients**

**Table 2. Supporting Examination of covid- 19 patients**

PCR swab supporting examination			
		Amount	%
Positive		400	80,3
Negative		98	19,7
Total		498	100
Rapid Test Examination			
		Amount	%
Positive		450	98,5
Negative		7	1,5
Total		457	100
<i>Thorax X-Ray Examination</i>			
		Amount	%
Normal		2	1,4
Abnormal		146	98,6
Total		148	100
Oxygen Saturation			
		Amount	%
Normal	95 - 100 %	72	73,5
Mild - moderate hypoxia	90 - 95 %	24	24,5
Severe hypoxia	85 - 90 %	2	2,0
Total		98	100

Based on Table 2 there were 400 (80.3%) patients with examination. PCR Positive, 450 (98.5%) patients with positive rapid test results, 146 patients with Thorax X-Ray examination results showing abnormalities, 24 (24.5%) patients with examination results oxygen saturation with mild-moderate hypoxia results, and 2 (2.0%) people with severe hypoxia, 138 (58.2%) patients received electrolyte injections or infusions and 99 (41.0%) patients received Continuous Invasive Mechanical Ventilation for 96 consecutive hours or more.

**Blood laboratory examination results for COVID-19 Patients****Table 3. Blood Laboratory Examination Results for COVID-19 Patients**

<b>Check up result</b>	<b>Amount</b>	<b>Frequency</b>
Laboratory	(n = 148)	(%)
Number of COVID-19 Patients		
Hemoglobin (Hb) (g/dL) <sup>a</sup>		14 ± 2,2
Normal	115	77,7
Abnormal	33	22,3
Leukocytes(/mm <sup>3</sup> ) <sup>b</sup>		7550 (1000 – 26500)
Normal	94	63,5
Abnormal	54	36,5
Platelets (/mm <sup>3</sup> ) <sup>a</sup>		252837,84 ± 98262,74
Normal	123	83,1
Abnormal	25	16,9
Neutrophile (%) <sup>b</sup>		5,79 (1,27 – 87,8)
Normal	144	97,3
Abnormal	4	2,7
Lymphocytes (%) <sup>b</sup>		1,3 (0,4 – 46,8)
Normal	141	95,3
Abnormal	7	4,7
Monocytes (%) <sup>b</sup>		4,6 (1,2 – 12,8)
Normal	110	74,3
Abnormal	38	25,7
<i>C-Reactive Protein</i> (CRP) (mg/L) <sup>b</sup>		42,5 (5 – 200)
Normal	31	20,9
Abnormal	117	79,1
Sodium (mEq/L) <sup>b</sup>		(110 – 200)
Normal	90	60,8
Abnormal	58	39,2
Potassium (mmol/L) <sup>a</sup>		4,60 ± 0,83
Normal	99	66,9
Abnormal	49	33,1
Chloride (mmol/L) <sup>a</sup>		106,17 ± 6,49
Normal	67	45,3
Abnormal	81	54,7
Calcium (mg/dL) <sup>b</sup>		9,1 (7,3 – 16)
Normal	92	62,2
Abnormal	56	37,8
Ureum (mg/dL) <sup>b</sup>		47 (10 – 306)
Normal	78	52,7
Abnormal	70	47,3
<i>Aspartate Transaminase</i> (AST) / SGOT (IU/L) <sup>b</sup>		45,5 (11 – 339)
Normal	49	33,1
Abnormal	99	66,9
<i>Alanine Transaminase</i> (ALT) / SGPT (IU/L) <sup>b</sup>		45 (12 – 314)
Normal	53	35,8
Abnormal	95	64,2

Based on Table 3, there are 3 laboratory examination results with the majority of the results being abnormal, namely: C-Reactive Protein (CRP), 117 patients were abnormal, SGOT 99 patients were abnormal and SGPT 95 patients were abnormal.

## Discussion

Blood pressure is the force exerted by blood on each unit of blood on the walls of blood vessels. (6) The results of the study showed that 81 (22.4%) patients had hypertension, this is different from research conducted by Widiharti, Widiyawati, and Fitrihanur 2020 regarding blood pressure In Covid 19 patients, the

results showed that 68.8% of residents had abnormal blood pressure and were at high risk of developing hypertension if they did not take proper and correct prevention. (Widiharti W et al, 2019)

The results of the study showed that 41 (19.2%) patients experienced tachycardia (> 100x/minute). This is following research by Andreas M et al. In the physical examination carried out on COVID-19 patients, the highest pulse frequency was 120 (Andreas M et al, 2020). Respiration is the body's mechanism for exchanging air between the atmosphere and blood and blood and cells. Normal breathing according to adult age is 16-20 times per minute (Sulistyowati A, 2018). Research results There were 54 (43.2%) patients who experienced tachypnoea (> 20x/minute), this is following research by Andreas M et al with the highest respiratory frequency being 21 times (Andreas M et al, 2020)

The same thing was also conveyed by Antara et al. In 2022, people who have a history of shortness of breath are 2.4 times more likely to be at risk than people who do not have a history of shortness of breath because people with a history of shortness of breath have lower immunity than people who do not have shortness of breath. (Between H, 2022) The results of the study showed that 105 (70.7%) patients had moderate 35 (23.6%) patients were in severe condition and 3 (2.1%) patients were in critical condition. The results of the study showed that 146 (98.6%) patients had Thorax X-ray examinations showing abnormalities. The results of the study showed that 24 (24.5%) patients had oxygen saturation examination results with mild-moderate hypoxia and 2 (2.0%) people with severe hypoxia.

The results of the study showed that 138 (58.2%) patients received electrolyte injections or infusions and 99 (41.0%) patients received Continuous Invasive Mechanical Ventilation for 96 consecutive Hours or More. The research results showed that laboratory examination results were mostly abnormal, namely: C-Reactive Protein (CRP) in 117 patients was abnormal, SGOT in 99 patients was abnormal and SGPT in 95 patients was abnormal. The highest number of supporting examination results when the research looked at the medical record documents of COVID-19 patients who had returned home was the rapid test, which was 98.5% because the examination was very quick to see the results. Meanwhile, the results of the PCR examination were 80.3% positive. The same statement was also made by Yanti et al., antigen results usually come out in just 30 minutes, therefore many people use this test to detect patients affected by Covid 19. (Yanti B et al, 2020)

Based on research by He et al (2020), PCR examination has good sensitivity results in detecting Covid-19, where PCR sensitivity is 79% and accuracy is 92% (He JL et al., 2020). Not only that, in research by Liu et al (2020), it was also explained that the RT-PCR examination is one of the fastest tests in diagnosing Covid-19 where the results are presented efficiently to confirm the virus within 2 hours (Liu R et al, 2020) and on the research results, there were 3 laboratory examination results with the majority of the results being abnormal, namely: C-Reactive Protein (CRP), 117 patients were abnormal, SGOT 99 patients were abnormal and SGPT 95 patients were abnormal. This is following the results of Andi Muhammad Aqil Anwa's research. In the bivariate analysis, the chi-square test between the variables CRP levels and the degree of COVID-19 disease showed that there was a significant relationship between CRP levels and the degree of disease in COVID-19 patients. This proves that the higher the CRP level of a COVID-19 patient found, the more severe the degree of disease that the patient is likely to suffer from so there is a close relationship between CRP levels and the degree of illness of the COVID-19 patient.

## Conclusion

There were 81 patients experiencing hypertension, 41 patients experiencing tachycardia, 41 patients experiencing tachypnea, 105 patients with moderate illness, 35 patients with severe illness, and 3 patients in critical condition, the majority of PCR examination results were positive, there were 400 patients, the majority of Rapid test results were positive, there were 400 patients, the majority of Thorax X-Ray examination results showed abnormalities in 146 patients, there were 24 patients with oxygen saturation test results with mild-moderate hypoxia and 2 people with severe hypoxia, There were 138 patients who received injections. or electrolyte infusion and 99 patients received Continuous Invasive Mechanical Ventilation for 46 consecutive Hours or More. There were 3 laboratory examination results with most of the results being abnormal, namely: C-Reactive Protein (CRP) 117 patients, SGOT in 99 patients were abnormal and SGPT in 95 patients were abnormal. COVID-19 patients with symptoms of hypertension, tachycardia, tachypnea, high C-reactive protein (CRP) examination results, high SGOT, and SGPT, need to receive special (intensive) treatment (Andi Muhammad, 2022).

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