



CHILDBIRTH IN MOTHER WITH COVID-19 (A CASE STUDY AT RSUD KRMT WONGSONEGORO)

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ABSTRACT

Coronavirus Disease 2019 (COVID-19) is an acute respiratory disease caused by Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2). This coronavirus initially infected the elderly. However, recently, it has infected all age groups, from people in productive age, adolescents, toddlers, babies, and mothers during pregnancy and childbirth. Mothers in pregnancy and childbirth are at higher risk of infection due to the physiological change and the immune response mechanism in the body. The respiratory infection during childbirth would increase the risk of obstetric complications. This research was to describe the process of childbirth in mothers with covid-19. It was a descriptive quantitative research with mothers in the childbirth process from January to August 2021. The sample was taken by using the total sampling technique. The results showed that mothers with covid-19 who went through vaginal delivery were 67.2%, mothers with Caesarean delivery was 17.5%, mothers who received conservative treatment were 11.9%, and mothers with abortion were 3.5%. In the case of severity of the covid-19 infection, the percentage of mild infection was 67%, moderate infection 14.8%, and severe infection was 15.4%. The effect of covid-19 during the childbirth process was in the form of Perinatal asphyxia at 37.9%, premature delivery at 20.3%, severe preeclampsia at 16.9%, Premature rupture of membranes (PROM) at 12.4%, while 12.4% was without any side effect. The neonatal mortality rate in mothers with covid-19 was 15.3%, with 84.7% live birth. Meanwhile, the maternal mortality during childbirth due to covid-19 was 15.8%, with 84.2% surviving mothers.

Keywords: case, childbirth, covid 19

1. INTRODUCTION

Coronavirus Disease 2019 (COVID-19) is an acute respiratory disease caused by Severe Acute Respiratory Syndrome. Coronavirus 2 (SARS-CoV-2) was first found in Wuhan, Hubei Province of China, in December 2019 and immediately spread worldwide. In Indonesia, the morbidity and mortality rate keep on rising. Up to April 2020, the mortality rate due to Covid-19 in Indonesia reached 784 people, while the morbidity rate reached 9771 people confirmed with covid-19 and 1391 recovered from covid-19.

The coronavirus initially only attacked the elderly, but eventually infected people in all age groups, starting from people of productive age, adolescents, babies, also pregnant mothers.

In Indonesia, maternal and neonatal mortality is still a big challenge that needs more attention, especially during the covid-19 pandemic. Based on data by COVID-19 Response Acceleration Task Force on September 14th, 2020, there were 4.9% pregnant mothers confirmed with covid-19

from the total 1483 confirmed cases with the accompanying condition. This data shows that during their prenatal, perinatal, and postnatal periods, mothers are at a high risk of COVID-19 infection and the possibility of increased maternal and neonatal morbidity and mortality rate.

2. METHODS

The data were analyzed by describing the obtained data without any intention to make a general conclusion.

3. FINDING AND DISCUSSION

3.1 Delivery method

Table 1. The Table of Delivery Methods

	F	%
Normal	119	67.2
C-Section	31	17.5
Conservative	21	11.9
Abortion	6	3.4
Total	177	100



The results showed that mothers with covid-19 who went through vaginal delivery were 67.2% or 119 cases, mothers with Cesarean delivery was 17.5% or 31 cases, mothers who received conservative treatment was 11.9% or 21, and mothers with abortions were 3.5% or 6 cases. Risnawati (2021) conducted a research entitled “Gambaran Jenis Persalinan Pada Ibu Bersalin dengan Corona Virus Disease 19 di Rumah Sakit Umum Daerah Wangaya Denpasar”. It was mentioned that 30 from the total 86 covid-19 suspected mothers went through Cesarean delivery. It was 80% higher than mothers who went through vaginal delivery, which was only 20%. Meanwhile, among the 56 covid-19 positive mothers, the cesarean delivery was still higher at 64% than the vaginal delivery, which was 36%. It's better to decide the method of delivery based on the individual assessment (per case), family counselling by considering the obstetric condition and family demand. It doesn't count in case of the mother needs immediate SC surgery due to respiratory disorder. Labor induction and Cesarean delivery are done based on the medical or obstetrical condition of the mother and fetus. In this case, the covid-19 infection doesn't always indicate Cesarean delivery.

Besides, the process of choosing a delivery method should also consider the availability of the hospital's resources and facility (including the availability of Negative Pressure Operating Room), management, human resource, and the risk of exposure toward medical workers and other patients (POGI, 2020). Cesarean delivery minimizes the infection or the virus transmission from the patient to the medical workers. They help the delivery process, compared to the normal vaginal delivery of which the mother will push and the possibility of the mother screaming and producing droplets as the media of covid-19 transmission to either medical workers or the newborn.

(<https://www.kompas.com/sains/read/2020/06/19/130300023/ini-prosedur-melahirkan-untuk-ibu-hamil-positif-covid-19>). Therefore, Cesarean delivery would be performed if the mother is confirmed with covid-19. It is different from the WHO statement that the pregnant mother who is a suspect or confirmed positive with covid-19 does not need Cesarean delivery. WHO recommends Cesarean delivery only when it is medically approved. The method of baby delivery

should be decided individually based on the mother's demand and the obstetric indication. (<https://www.who.int/indonesia/news/novel-coronavirus/qa/qa-during-pregnancy>)

3.2 Severity

Table 2. The Table of the Level of Severity

	F	%
	122	68.9
Moderate	27	15.3
Severe	28	15.8
Total	177	100

It was found that the covid-19 severity level of the pregnant mothers was 67% or 122 cases of mild infection, 15.3% or 27 cases of moderate infection, and 15.4% or 28 cases of severe infection. This research was in line with Wardhana (2021) that the covid-19 level of severity in pregnant mothers were 68.8% or 75 cases without symptoms, 11% or 12 cases with mild symptoms, 10.1% or 11 cases with moderate symptoms, and 10.1% or 11 cases with severe symptoms. Meanwhile, pregnant mothers with covid-19 could be categorized into three classifications based on the clinical description. The classifications were based on the severity of the respiratory tract infection. The classifications were clinically mild, moderate, and severe. The classification helps the medical workers plan the immediate and accurate action and treatment by considering the degree of Covid-19 severity in the mother. Besides the clinical degree, the American Thoracic Society and Infectious Diseases Society of America also add the CURB (Confusion, Urea, Respiratory Rate, Blood pressure) score as the consideration to assess the severity of the patient's clinical symptoms. The mild clinical symptoms experienced during pregnancy are usually fever, dyspnea, and gastrointestinal disorder. The moderate clinical symptoms in adults usually include cough, dyspnea, an increase of respiratory rate, and no sign of severe pneumonia. The severe clinical symptoms were indicated with pneumonia and one of the following criteria: more than 30 breaths per minute, severe respiratory distress, and < 90% SpO₂ in room temperature. Meanwhile, the critical condition is indicated by acute respiratory distress, sepsis, septic shock, and other complications such as acute pulmonary embolism, acute coronary syndrome, and delirium. According to the National Institutes of



Health, the clinical symptom of Covid-19 is divided into asymptomatic, mild, moderate, and severe clinical symptoms, also critical conditions. Asymptomatic indicates that the patient does not show any clinical symptoms, but the examination indicates that the patient is infected with SARS-CoV-2 (Mackenzie & David, 2020). Windra (2020) reported in her research entitled "Karakteristik Gejala Klinis Kehamilan dengan Coronavirus Disease (Covid 19)" that pregnant mothers confirmed with covid-19 have no higher susceptibility developing into severe clinical symptoms and serious complications. However, the pregnant mother would experience physiological adaptation change on the cardiovascular system, respiratory system, and coagulation on the hematology system, increasing the risk of morbidity.

3.3 COVID-19 in Childbirth

Tabel 3. The Table of Covid-19 Effects to the Childbirth

	F	%
Preterm delivery	36	20.3
PROM	22	12.4
Asphyxia	67	37.9
Preeclampsia	30	16.9
No effect	22	12.4
Total	177	100

It was found that the side effect of covid-19 during the delivery process were in the form of Perinatal asphyxia at 37.9% or 67 cases, premature delivery at 20.3% or 36 cases, severe preeclampsia at 16.9% or 30 cases, and Premature rupture of membranes (PROM) at 12.4% or 22 cases, while 12.4% or 22 cases were without any side effect. From the cases mentioned above, there was a maternal and neonatal emergency risk, which fatally led to death. For example, premature delivery and asphyxia could increase neonates' morbidity and mortality rates. A case of PROM could increase the risk of intrauterine infection. Besides, severe preeclampsia could increase the risk of maternal and neonatal mortality rates. Meanwhile, from the asphyxia case, the case of asphyxia was considered mild to moderate with APGAR score ranging from 7 – 10 (mild) and 4 – 6 (moderate). The finding of the CDC's research showed that pregnant mother with covid-19 has 1.82 times higher risk of preterm childbirth than pregnant mothers without covid-19. Meanwhile,

covid-19 confirmed pregnant mother with symptoms has a 2.29 times higher risk of preterm childbirth compared to those covid-19 confirmed pregnant mother with no symptom. A study conducted by Vilar entitled "Maternal and Neonatal Morbidity and Mortality Among Pregnant Women with and without Covid 19 Infection. The Intercovid Multinational Cohort Study" involved 18 countries, including Indonesia, with 2130 pregnant mothers. The research found that covid-19 increased maternal morbidity and mortality rate, increased the risk of preterm birth by 1.5 times, the risk of preeclampsia by 1.7 times, the risk of fetal distress by 1.7 times, the risk of ICU admission by five times, length of time in ICU by 3.7 times, the risk of maternal death by 22 times, and the risk of cesarean delivery by 1.2 times. It was also reported that the case of premature delivery in pregnant mothers with covid-19, but it was not defined whether the delivery was iatrogenic or spontaneous. Iatrogenic delivery is caused by the existed maternal condition related to the virus, despite the fetal weakening and PROM. Premature delivery and C-section are mainly decided in pregnant mothers diagnosed with covid-19. Besides, recent research confirmed the possibility of maternal-fetal intrauterine transmission by positive-genetic test and IgM in newborns right after the delivery. Mother's exhaustion and the sign of hypoxia during the second stage of labor could be the consideration to conduct paravaginal operation to speed up stage 2. In terms of covid-19 in pregnant mothers increases the risk of preeclampsia, it is in line with Aris et al.'s study entitled "Pre-Eclampsia and Covid 19 Result Form. The Intercovid Prospective Longitudinal Study" that the case of covid-19 in pregnant mothers could increase the risk of either symptomatic or asymptomatic preeclampsia by 62%, with symptoms varied from raised blood pressure to HELLP syndrome. This preeclampsia caused maternal vascular malperfusion, leading to disturbed fetal oxygenation and bad fetal outcomes such as asphyxia. The data obtained from four hospitals in Indonesia also supported this research. The data were about 1338 cases of covid-19 in pregnant mothers from the beginning of the pandemic to June 2021. It was found that the average maternal mortality was 4.9% (the most cases reported were in Bandung with 10.7%). The average neonatal



mortality was 5.15% (the most reported cases were in Surabaya with 9.2%). The average severe preeclampsia was 18.8% (the most reported cases were in Surabaya with 26.2%). Meanwhile, the average case of covid-19 in pregnancy experienced by mother with full-term pregnancy around 39 weeks pregnancy.

3.4 Neonatal Mortality from Mother with Covid-19

Table 4. The Table of Neonatal Mortality from Mother with Covid-19

	F	%
Live birth	150	84.7
Death	27	15.3
Total	177	100

It could be seen that the rate of neonatal mortality from mothers with covid-19 is 15.3% or 27 cases, while the rate of live birth is 84.7% or 150 cases. The case of neonatal mortality due to asphyxia were 13 cases, low weight birth was 8 cases, IUFD was 2 cases, and covid-19 infection were 2 cases. According to United Nations (UN), almost two million neonatal mortality is reported each year, with one newborn death every 16 seconds. UN warns that the covid-19 pandemic could add another 200,000 death to the report above. The report showed that covid-19 triggered neonatal mortality by 200 thousand cases. David's study entitled "Second Trimester Miscarriage in Pregnant Women with SARS Covid Infection" and Mengmeng's study entitled "The SARS Covid Resept ACE2 Expression of Maternal-Fetal Interface and Fetal Organs by Single-Cell Transcriptome Study" found that there was no significant correlation about the possibility of covid-19 infected newborn from vertical transmission during the first 12 hours 24 hours 48 hours, or during the delivery process. A case of preterm delivery in covid-19 confirmed pregnancy could also increase the rate of neonatal mortality. The newborn could not survive from the immature lung development in that period. Slone Epidemiology Center's research for Boston University and Centers for Disease Control and Prevention (CDC) stated that pregnant women who got fever before or during the first trimester are more likely to have genetically defected newborns than those who never got fever. This

condition could increase the rate of morbidity in the newborn.

3.5 Maternal Mortality

Table 5. The Table of Maternal Mortality due to Covid-19 Infection during Childbirth

	F	%
Alive	149	84.2
Died	28	15.8
Total	177	100

The maternal mortality of mothers with covid-19 during labor is 15.8% or 28 cases, while the alive mothers are 84.2% or 149 cases. From all the cases above, the mothers died due to covid-19. The other risk factors supporting the death were obesity, diabetes, more than 40 years old pregnant mothers, and low social and economic condition. The death was mostly reported from June to July 2021. Pregnant women with covid-19 had a higher risk of worsening symptoms, more difficulty of resuscitation during cardiac arrest, and the risk of ventilator installation. The finding from MMWR (Morbidity and Mortality Weekly Report) research showed that pregnant mothers with covid-19 had a 1.5 higher risk of going through ICU treatment. The risk of using a ventilator was also raised by 1.7 times compared to the covid-19 patient without pregnancy, although the death risk from covid-19 is the same whether the patient is pregnant or not. The research conducted in Dr. Soetomo Hospital showed an increase in mothers with covid-19 during pregnancy and childbirth. In 2020, there were 42 cases, while in 2021, there were 72 cases (during the second wave of covid-19). Wardhana (2021) also reported that in 9 months, there were 109 cases with a mortality rate of 6.4% or 7 cases. Pregnant women in the third trimester were at the highest rate of critical conditions which require intensive treatment. Covid-19 is worse in pregnant mothers who often receive treatment in the intensive care unit or those who need mechanic ventilators compared to Covid-19 patients without pregnancy. Brazilian researchers developing a survey about women health reported five deaths due to covid-19 included within the 1947 deaths, while in Iran, two maternal mortality were reported from the total 3800 deaths.



4. CONCLUSION

1. The severity level was mainly mild, with 67%, although the severe case was 15.4%.
2. The case of covid-19 during childbirth was dominated by normal vaginal delivery at 67.2% and Caesarean delivery at 17.5%.
3. The effect of covid-19 during the delivery process was in the form of Perinatal asphyxia at 37.9%, premature delivery at 20.3%, severe preeclampsia at 16.9%, Premature rupture of membranes (PROM) at 12.4%, while 12.4% was without any side effect.
4. The case of neonatal mortality due to asphyxia were 13 cases, low weight birth was 8 cases, IUFD was 2 cases, and covid-19 infection were 2 cases.
5. The maternal mortality of mothers with covid-19 during labor is 15.8%, or 28 cases. From all the cases above, the mothers died due to covid-19.

5. AUTHORS' CONTRIBUTIONS

In this study all researchers carry out their duties well. Researcher one and researcher two carry out their duties according to their duties.

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