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Management of Post Partum Bleeding in the Era of Corona Virus Disease (COVID-19)

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Abstract: ***Coronavirus disease 2019 (COVID-19) is a disease caused by infection of Severe Acute Respiratory Syndrome Coronavirus-2 (SARS-COV2). This disease has become epidemic almost all over the world and the number is still increasing at this time. This infection is mainly transmitted through droplets containing the virus. The clinical spectrum caused by these infections is very broad, from asymptomatic to critical and even death. Clinical manifestations also vary greatly, although symptoms of fever and respiratory disorders are the main symptoms. Symptoms tend to be more severe in cases with cardiorespiratory or metabolic comorbidity. In the obstetric field, the impact of COVID-19 is still not very clear. There is a possibility that the virus infection will cause bad outcomes, both in the maternal and fetus. One possible maternal impact is complications of postpartum hemorrhage because in theory COVID-19 can also cause thrombocytopenia. However, data supporting this are still very limited. Specific management recommendations for post-partum hemorrhage in the COVID-19 era do not yet exist. More aggressive prophylaxis of bleeding is possible to reduce the risk of this bleeding. In general, the principle of management may be no different, but the use of personal protective equipment, isolation rooms, and contact minimization remain consistent with obstetric procedures in general.***

Keywords: COVID-19, postpartum hemorrhage, management

1. Introduction

COVID-19 is a disease that is endemic all over the world today. This disease was first discovered in the Wuhan area, Hubei Province, China. Initially, pneumonia was discovered in an unknown cause, then finally the cause was known as SARS COV-2. The causative virus has similarities with previous causes of SARS. [1-3]

Based on data from May 6, 2020, the number of global cases reached 3.68 million with 258 thousand deaths. This number will continue to grow. While in Indonesia, cases were first reported in early February this year. For three months for 3 months, the number of cases in Indonesia on May 6 reached 12,438 with a total of 895 deaths. Thus, the mortality rate in Indonesia reaches around 7.2% .[4]

Symptoms that arise in patients with COVID-19 are very varied and have a spectrum from asymptomatic to critical. The main clinical symptoms are symptoms of the respiratory system and fever. Respiratory symptoms such as coughing, runny nose, and shortness of breath. Other symptoms may appear such as diarrhea, rash, and other systemic symptoms. Based on symptoms, contact status, and examination results, now in Indonesia are divided into, people without symptoms, patients under monitoring, patients under supervision, and confirmed case. However, for therapeutic purposes, it is divided into mild, moderate, and severe symptoms. Severe symptoms will usually refer patients to Acute Respiratory Disease Syndrome (ARDS) and the occurrence of cytokine storms. These severe symptoms appear more often in elderly patients or patients with cardiorespiratory or metabolic comorbidities.[1-3,5-6]

In the obstetric field, the effect of COVID-19 on pregnancy and childbirth is still very limited in data. Initially, it was believed that pregnant women had a high risk of developing severe illness, morbidity, and mortality compared to the general population. However, several other reports argue that there are differences in the clinical spectrum in the maternal compared to the general population.[1,7-11] Specifically, there are no reports of the relationship of COVID-19 with labor complications such as postpartum bleeding and there are no specific recommendations for the management of postpartum hemorrhage in patients COVID-19. Therefore, further study is needed.

2. COVID-19 in Pregnancy and Childbirth

In pregnancy, various physiological changes occur, such as a decrease in the immune system. This may have an impact on the increased risk of the clinical worsening of COVID-19 in pregnancy. In contrast, SARS-COV2 infection is also associated with an increased risk of several pregnancy complications, both maternal and fetal, although definitive data are not yet available. Some pregnancy complications that are thought to be related to COVID 19 such as fetal death, premature birth, preeclampsia, and caesarian section (CS). [1,7]

Panahi, et al reported that, out of 37 patients with COVID-19, there were 7 among them giving birth prematurely (30-33 weeks gestational age). While the rest are above 34 weeks, 6 premature rupture of the membrane, 2 have amniotic fluid abnormalities and 2 umbilical cord abnormalities. Among all these patients, the vast majority (29 people) performed CS. Of the 37 deliveries, one baby died. In this report also did not find the pathogenicity of SARS COV-2 and most babies who eventually contracted COVID-19 due to transmission from the environment after birth. Symptoms in infants appear after 5-17 days postpartum.[8] One of the journals in this report also recommends that babies born from maternal with COVID-19 should be isolated for at least 14 days and without breastfeeding.[9] Zhu et al reported perinatal COV infection 19 (later referred to as SARS COV-2) may be associated with

fetal distress, prematurity, respiratory distress, and thrombocytopenia in infants.[10] Other data also show that SARS COV-2 infection causes fetal distress but not vertical transmission.[11]

In every pregnant patient undergoing vaginal and CS delivery, ideally, screening should be carried out especially in areas with COVID-19 transmission.[7] Post mortem CS can be performed if the maternal has died and the fetus is still alive.[1] The management of pregnancy and childbirth in the COVID-19 era in principal to minimize patient and medical contact, screening and preparing the delivery and operating room according to special standards. In pregnant patients without obstetric urgencies, consultation should be done without making direct contact (telehealth) either by telephone or other means. In uncomplicated pregnancies nearing delivery, strict independent isolation should be carried out at home to prevent contact for 14 days before the interpretation of labor. If the patient presents with obstetric urgency such as labor, rupture of membranes, or bleeding, screening should be done first. Management is then carried out in accordance with the screening results and the type of urgency. If the screening results are positive, it is necessary to provide protection standards for health services such as surgical masks, if available better with N95 masks, eye protection, gowns, and glove according to local standards or protocols.[7]

The mode of delivery in COVID-19 patients is generally the same as that of the general population. COVID-19 is not an indication of CS. During labor, it is generally carried out the same as in labor before the outbreak. But there are several variations to avoid transmission. In the first stage, if there is a slowdown in labor it should be augmented with oxytocin to accelerate labor. Even with doses higher than usual are recommended.[7] Vaginal operative measures are also possible to accelerate labor.[1] This is possible to reduce contact time. Giving oxygen during labor has not been proven to improve fetal and maternal outcomes. Therefore, it is better not to be given oxygen because it will produce aerosols which can increase the risk of transmission to health workers.[7] However, in hypoxic state oxygen may still have to be given.

Postpartum management also uses minimal contact principle. In vaginal delivery, the target of the first day the patient has been discharged, while in labor by CS the target is discharged on the second day. Postpartum evaluations should also be carried out by telehealth except for emergencies. Babies born to patients with COVID-19 automatically become patients under monitoring or patient under surveillance. However, there is no definitive data about the vertical transmission of this virus. Data so far shows there is no vertical transmission, so baby care is separated from the maternal to prevent transmission through breathing.[7]

3. Relationship of COVID-19 with Postpartum Hemorrhage

he relationship between SARS COV-2 infection and postpartum hemorrhage remains unclear. The pathology that occurs in COVID-19 patients is thrombocytopenia other than lymphopenia and leukopenia.[7] When referring to the postpartum cause of coagulopathic disorders, it is possible that the risk of bleeding in patients with COVID 19-is greater than the general population. However, Liao et al's study found that there was no difference in postpartum hemorrhage between patients without and with COVID 19. The average bleeding during labor in COVID-19 was 245 cc while non-COVID was 237 cc, but not statistically significant.[12] A birth process with minimal contact with the use of vaginal operative methods may also increase the risk of trauma to the birth canal which is one of the causes of postpartum hemorrhage.

4. Management of Postpartum Hemorrhage in The COVID-19 Era

The management of the third and fourth stages of labor including its complications in the COVID-19 era did not make much difference. Data on the incidence of postpartum hemorrhage in COVID-19 is limited. However, patients with COVID-19 will face several problems. Blood transfusion is more difficult because it may be hampered by local protocols to cross-match using the same machine as non-COVID patients. Therefore, prevention of postpartum bleeding is recommended more aggressively compared to non-COVID. The standard prophylaxis of postpartum hemorrhage in active management of the third stage is oxytocin. However, among COVID-19 patients adding tranexamic acid and 400 mcg misoprostol can be considered. The transfusion is only given if it is needed.[7]

There are no specific recommendations for the management of patients with postpartum hemorrhage with COVID-19. However, generally in patients with COVID-19, all delivery procedures should be performed in a negative pressure isolation room. When the procedure is carried out, it is better to leave the patient in isolation. Personnel who handle patients should be as minimal as possible.

Obstetrics medical management among those at risk of COVID-19 at this time will be different in each country and locally according to their respective protocols. However, triage of COVID-19 risk in each labor patient is very important. This is because only a small percentage of in labor patients are accompanied by COVID-19 and to reduce the possibility of under or overdiagnosis, because often in physiologically pregnant women experience acute respiratory tracts infection symptoms such as nasal congestion or mild spasms. The American Journal of Obstetrics and Gynecology (AJOG) classifies the risk of COVID 19 being a moderate to high risk. The classification is based on symptoms of fever, airway, and contact history. The risk classification as per table 1.[13]

Table 1: Risk Classification COVID-19[13]

Low Risk	-Fever (-) or (+) -Respiratory symptoms (such as shortness of breath or cough) (-)
Moderate Risk	-Fever (+) -Respiratory symptoms (such as shortness of breath or cough) (+) -Without travel history to foreign countries or regions

	with local transmission within 14 days, and -Without a history of contact with patient under surveillance or confirmed cases.
High Risk	-Fever (+) -Respiratory symptoms (such as shortness of breath or cough) (+) -With travel history to foreign countries or regions with local transmission within 14 days, and -history of contact with the patient under surveillance or confirmed case, or -Newly confirmed

The obstetric procedure protocols for each of the above risks are different. At low risk, the procedure is performed like a routine procedure in an ordinary delivery room, with a surgical mask and standard precautions. At moderate risk, the procedure is performed in an isolation room with negative pressure, with a surgical cap, glove, face shield or google, long gawn, surgical mask, or N95. If necessary surgery must be performed in a standard operating room COVID-19. Whereas at high risk, the procedure is performed in an isolation room with negative pressure or an operating room with negative pressure. This personal protective equipment (PPE) at high risk is recommended with surgical caps, glove, face shield or googlers, long gawn, N95 mask or powered air-purifying respirator.[13]

As per POGI recommendations, PPE used in obstetric procedures is divided into levels 1, 2, and 3. Level 1 according to routine PPE. Level 2 PPE is used by officers who are in contact or on duty in COVID-19 room. While health workers who take action on patients with COVID-19 using level 3 PPE.[14]

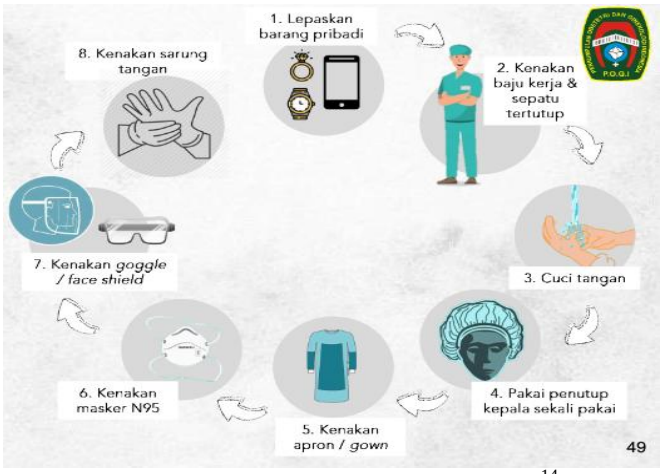

Figure 1: Level 2 PPE and how to use it.[14]

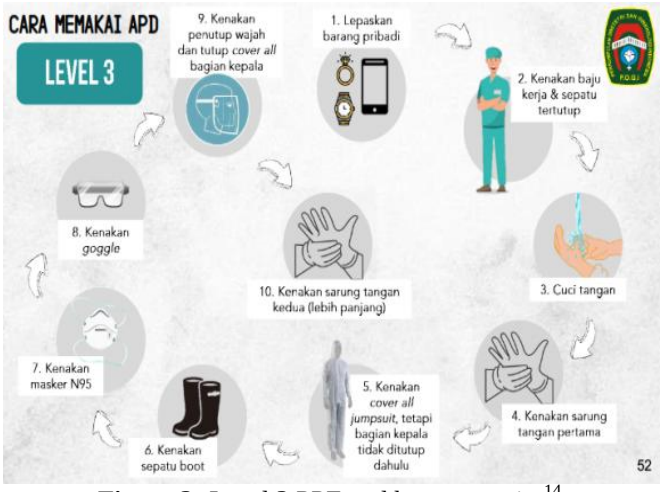

Figure 2: Level 3 PPE and how to use it. [14]

The principle of management of postpartum hemorrhage, in general, is fluid resuscitation and administration of oxygen and bleeding control. Resuscitation begins with the administration of crystalloid fluids or administration of blood products if it is not sufficient with fluid resuscitation. To stop the bleeding, an assessment of the etiology of the bleeding is carried out. There are 4 etiology of postpartum bleeding, tonus disorders (uterine atony), trauma to the birth canal, tissue (remaining placenta), and thrombin (coagulation disorders). In uterine atony the principle is uterotonic and uterine massage, uterine compression, tamponade with ballons, arterial ligation or hysterectomy if uncontrolled. In the trauma of the birth canal, suturing, placental rest with manual placenta, curettage, or other management, coagulation disorders are managed according to the cause of the disorder. However, the possibility of coagulation disorders because of COVID-19 thrombocytopenia often allows for more aggressive bleeding prophylaxis as previously mentioned.

The Role of Anesthesiologist

The anesthesiologists have a thorough knowledge of normal physiological changes in pregnancy and hence their role is crucial in the management of obstetric hemorrhage. Multiple tasks have to be carried out quickly and with expertise in the event of massive hemorrhage. Hence timely and effective communication between the obstetrician and anesthesiologist is adjuratory.

The involvement of anesthesiologists from before the delivery of the patient is fundamental. One needs to proficiently recognize the patients with risk factors and isolate and prepare them accordingly. Investigations requiring special attention are hemoglobin levels, coagulation studies, blood grouping, and cross matching. The availability of whole blood and blood products has to be confirmed before the institution of anesthesia in identified patients.

Care for an actively bleeding mother should follow an algorithm that has rapid and successive sequences of medical and surgical approaches to stem bleeding. The urgency and measures taken to resuscitate and arrest hemorrhage need to be tailored to the degree of shock.

5. Conclusion

The relationship between COVID-19 and complications in pregnancy and childbirth is still unclear. However, several studies have reported an indication of this disease associated with obstetric complications both in maternal and in infants. Specifically for postpartum hemorrhage complications, the data is still very limited. Specific recommendations for handling postpartum hemorrhage in the COVID era also do not yet exist. However, it is still possible to do more aggressive prophylaxis during labor. The protocol for managing postpartum hemorrhage in the COVID-19 era was principal with PPE and standard rooms according to patient risk and minimization of contacts.

6. Conflict of Interest

The author does not have a conflict of interest in this study.

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