Perinatal Anxiety and Depression (PAD) on COVID-19

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**ABSTRACT**

Pregnancy is a complex and dynamic experience where women undergo significant physiological and psychological changes. These changes can cause an increased risk of developing anxiety and depression in perinatal women. Depression usually starts during pregnancy or gets worse after delivery. These changes and uncertainties can cause fear, anxiety, and depression symptoms in women who may have experienced perinatal anxiety and depression, even in women with low risk. The fear of infectious disease or the potential effect that may harm the fetus or the newborn baby will cause harm and depression in this population. Four pregnant and postpartum women diagnosed with COVID-19 in this case series experienced perinatal anxiety and depression, major depression, and adjustment disorder with mixed reactions of anxiety and depression. Patients are given pharmacological and non-pharmacological therapy. The pharmacological therapy was antidepressants and anti-anxiety, while the non-pharmacological therapy was given as supportive psychotherapy, relaxation therapy, and family psychoeducation. During the COVID-19 pandemic, psychotherapy was carried out using the telehealth method.

**Keywords:** COVID-19, perinatal anxiety and depression, telehealth.

I. INTRODUCTION

Coronavirus disease (COVID-19) is the cause of SARS-CoV2 and is currently a global public health concern. In the first quarter of 2020, the COVID-19 epidemic had spread in China, with the number of cases as of May 3, a total of 82,877 cases and 4633 deaths [1]. COVID-19 was first recognized in late 2019. The virus is spreading rapidly around the world. Various "stay at home" instructions implemented in most countries worldwide are carried out to reduce the spread of this virus. The impact of physical and social isolation on mental health can affect high-risk populations: pregnant women.

Depression and anxiety affect one in seven women during the perinatal period and are associated with an increased risk of preterm birth, reduced mother-infant bonding, and delays in infant cognitive/emotional development, which may persist into childhood. Prevention and treatment are essential, but it is estimated that 50% of women with depression go undiagnosed during and after pregnancy. A cross-sectional study of 100 pregnant women in Italy found a moderate to the severe psychological impact of the COVID-19 pandemic and emphasized the need for interventions to improve the mental health of this population [2]. Furthermore, the COVID-19 pandemic is expected to reduce access to psychological diagnosis and treatment or pharmacologically. This condition is likely to worsen mental health in susceptible populations. Even if there are no clinical signs of depression or anxiety, identification, and therapy to reduce subclinical symptoms remain essential.

Pregnancy is a complex and dynamic experience where women undergo drastic physiological and psychological changes. These changes often place perinatal women at increased risk for anxiety and depression. Approximately 20-30% of women worldwide experience at least one psychiatric disorder during pregnancy or postpartum. Approximately 13% - 21% of prenatal women and 11% - 17% of postpartum women experience anxiety and depression. Perinatal anxiety and depression (PAD) are associated with a history of mental health conditions, marital discord, stressful life events or environments, lack of social support, low socioeconomic status, and fear of diagnosis of risky pregnancies such as miscarriage and premature birth delivery, low birth weight. Low and the mother's health condition is not good [3].

Anxiety is a feeling of worry, nervousness, or restlessness about something with uncertain results and can affect or cause depression. The uncertainty of the 2019 coronavirus disease (COVID-19) pandemic makes people vulnerable to anxiety. Research shows that pregnant women are particularly
susceptible to anxiety, with a prevalence of between 15% and 23%, compared to 3% to 5% in the general population. Risk factors for anxiety are similar in the general population and during pregnancy, including adverse childhood experiences (overprotective or abusive parenting, abuse, and corporal punishment). A parent's history of mental disorders and low socioeconomic status also increases the risk of anxiety [4]. Middle-income women experience lower anxiety levels than women with high or low salaries. No demographic characteristics or other pregnancy-related factors were associated with anxiety, although previous studies have shown that age, education, occupation, parity, and gestational age may influence anxiety [1]. The uncertainty of the COVID-19 pandemic, accompanied by new and threatening information, additional burden on the woman and increases the stress levels already present in pregnancy. Anxiety over the health of the pregnant woman and the fetus's health may have a detrimental effect on the well-being of the mother and fetus. Empirical evidence suggests that prenatal stress is associated with a high rate of adverse births such as preterm delivery, low birth weight, and high cesarean delivery rates [5].

Approximately 10% of pregnant women experience perinatal depression globally. Untreated perinatal depression can result in adverse side effects and risk for poor maternal health, inadequate prenatal screening, and postnatal depression. In addition to the potential negative impact on pregnancy, perinatal depression is associated with impaired mother-infant bonding, increased irritability, and decreased activity. Children born to depressed mothers are at risk for delayed cognitive and language development, lower IQs, and an increased prevalence of psychiatric and emotional problems [4].

The consequences of undiagnosed and untreated depression are severe. Nearly 20% of women with postpartum depression are at risk for self-harm. The leading cause of maternal death after childbirth is suicide in the UK. Treatment of depression and anxiety is essential to support the health of both mother and child. However, many women are reluctant to take prescribed antidepressants [2].

Depression that begins during pregnancy often continues or worsens after delivery. Mothers have a strong desire to provide a stable environment for their children. However, the developing pandemic situation with strict restrictions on social contact and economic instability makes the situation unsafe. Based on current data, coronavirus 2 (SARS-CoV-2) with severe acute respiratory syndrome does not cause a severe course of infection in pregnant women because they are usually young and without comorbidities. It should be underlined that the COVID-19 pandemic is a public health crisis and a social, demographic, and economic crisis and has a substantial negative psychosocial effect on everyone, including pregnant women. Anxiety caused by pregnant women harms pregnancy, such as an increased risk of preeclampsia, nausea, vomiting, depression, and can even cause premature labor or miscarriage. Moreover, maternal anxiety can affect the newborn, such as low birth weight, growth retardation, or low APGAR scores [4].

During pregnancy, women experience normal physiological responses in decreased lung capacity and immunosuppression, so they are at higher risk of experiencing a severe infection with COVID-19. Although only 16 deaths in pregnant or postpartum women have been identified in the US, many cases of infection result in severe illness, emergency cesarean section, and potential neonatal infection. Fear of contracting the disease or its potential effects on the fetus or newborn may increase anxiety and depression in this population. The current widespread COVID-19 outbreak is associated with psychological distress and increased mental health symptoms, including depression, anxiety, and post-traumatic stress disorder, especially in women [6].

All the changes and uncertainties of COVID-19 can cause more fear, anxiety, and depressive symptoms in women who may already be at risk for PAD and even cause women at low risk to experience an increase in symptoms. Furthermore, measures such as removing a partner at delivery, separating a newborn from an infected mother immediately after delivery, restricting breastfeeding, and cesarean delivery are typical in perinatal care facilities in an attempt to control the risk of cross-infection. Reductions inappropriate health care services, physical contact, and bonding time between parents and neonates may increase PAD symptoms in perinatal women [3].

All pregnant women should be monitored for the development of signs and symptoms of COVID-19 (which are similar to those of a nonpregnant person, especially if they have had close contact with a confirmed case. In a systematic review that included more than 11,000 pregnant women with suspected or confirmed COVID-19, the most common symptoms were fever (40%), cough (39%), dyspnea (19%), loss of taste (15%), myalgia (10%), and diarrhea (7% sore throat, rhinorrhea, nasal congestion), nausea, vomiting, and anosmia were less frequently reported symptoms than in other cases. Compared with nonpregnant women of childbearing age, pregnant women reported minor fever and myalgia symptoms, and many patients were asymptomatic. In a systematic review, among women screened regularly, universally for COVID-19 during pregnancy, 7 percent tested positive, and three-quarters of these women were asymptomatic; 18 percent of symptomatic women tested positive [6].

COVID-19 can cause complications in pregnancy. Fever and hypoxemia can increase the risk of preterm labor, premature rupture of membranes, and abnormal fetal heart rate patterns. The rates of preterm and cesarean deliveries increased, 17 percent gave birth before 37 weeks and 65 percent delivered by cesarean section [6].

In a study that specifically reported outcomes based on disease severity, 32 of 64 pregnant women hospitalized for severe or critically ill COVID-19 gave birth in the course of infection; 9 out of 44 women with severe illness and 13 out of 20 women with critical illness were born due to maternal conditions and only three deliveries due to fetal conditions [6].

In a prospective UK cohort, the stillbirth rate among infected women was nearly three times the national rate (11.5 versus 4.1 per 1000 total births). More than 95 percent of babies are born in good condition; Neonatal complications are primarily associated with preterm delivery and the consequences of severe maternal disease [6].

The treatment of depression in pregnancy can be
accomplished using pharmaceutical and non-pharmacological techniques. Mindfulness-based cognitive behavioral therapy (MBCT), cognitive behavior therapy (CBT) programs, and combined pharmacologic-psychological programs (drugs and CBT) have shown similar improvements in perinatal depressive symptoms. After medical problems and psychiatric comorbidities are addressed, psychosocial strategies are needed to increase social and emotional support and reduce the negative impact of life events or the impact of stress [7].

II. CASE PRESENTATION

A. Patient I

Female P2001, 29 years old, S1, married, working as a nurse. The patient complains of sadness and anxiety. The patient was interviewed using a video call, and the patient was sitting on the bed. The patient looked sad and cried. The patient said that she had mixed feelings of sadness and anxiety since twelve days ago, and this feeling of sadness had gotten worse three days after giving birth, but the baby died. The patient feels guilty for not being careful so that the baby dies, feels like a source of disease transmission, the body feels weak, there is no enthusiasm, the mind cannot focus, there is no appetite, eats little by little, and is forced. The patient always thinks about his baby who has died, so they cannot sleep, if they can sleep, they will often wake up, they only sleep for 1-2 hours, and since last night she could not sleep at all. The patient has no thoughts of ending his life or taking actions that endanger himself and does not hear voices in his ears or see images that others cannot see. Anxiety has been felt since before giving birth, where the patient was worried that she would get Covid because his husband and family had fever, cough, runny nose accompanied by symptoms such as Covid. The patient is worried that bad things will happen to the baby in his womb if she is infected with covid. She also thinks about how the delivery process will be, where the isolated place is, how will his first child be if she is isolated. The patient and his family had no previous history of mental disorders. The patient also had no history of chronic disease and drug use.

Investigations were carried out using two questionnaires, namely the HARS (Hamilton Anxiety Rating Scale) with a score of 27 (moderate-severe) and the HDRS (Hamilton Depression Rating Scale) with a score of 25 (severe).

The multiaxial diagnosis according to PPDGJ III is Axis I: Severe Depressive Episode without Psychotic Symptoms (F32.2), Axis II: Anxiety personality traits, MPE acting out, displacement, Axis III: Confirmed moderate Covid-19, Community Acquired Pneumonia, Thrombocytopenia, Transaminits ec susp reactive, P2001 (Post partus), Axis IV: problems with illness and death of their children as well as psychosocial and environmental problems at the hospital where they work, Axis V: GAF when examined was 61-50 and the best GAF in the last 1 year was 90-81.

Patients were given pharmacological and non-pharmacological therapy. Pharmacological therapy was given Flouoxetine 20 milligrams every 24 hours intra oral in the morning and Clobazam 10 milligrams every 24 hours intra oral at night. Patients are also given supportive psychotherapy, relaxation therapy and family psychoeducation.

B. Patient II

GIP0000 24 weeks pregnant woman, 23 years old, high school education, married, currently a student. The patient was interviewed via video call and said that the patient had been worried since experiencing COVID-19 and the complaints were getting worse after being isolated, where the other patients on his right and left died. The incident made the patient feel more anxious, chest palpitations, neck stiff, short of breath. The patient is always worried that the child in his womb will experience bad things like what she experienced. The patient also feels sad, has decreased appetite, has difficulty sleeping, feels tired, and complains of pain in the head and body. The patient had no thoughts of hopelessness or suicidal ideation. The patient does not hear sounds or see images that other people cannot hear or see. The patient and family had no previous history of mental disorders. The patient also had no history of chronic disease and drug use.

The supporting examinations carried out were the HARS (Hamilton Anxiety Rating Scale) with a score of 25 (moderate-severe) and the HDRS (Hamilton Depression Rating Scale) with a score of 24 (severe).

The multiaxial diagnosis according to PPDGJ III is Axis I: Adjustment disorder with mixed reactions of anxiety and depression (F43.22), Axis II: Somatization MPE dependent personality traits, Axis III: Confirmed severe Covid-19, GIP0000 24 weeks, Axis IV: problems with disease, and Axis V: GAF at the time of examination was 50-41 and the best GAF in the last 1 year was 90-81.

Patients were given non-pharmacological therapy, namely supportive psychotherapy, relaxation therapy, and family psychoeducation.

C. Patient III

Female patient P3104, 36 years old, high school, married, works as a housewife. The patient was interviewed by video call, saying that she felt sad because she had never seen his child after giving birth. The patient has 4 children where the 3rd child who is 5.5 years old is currently being isolated due to covid, the 4th child who is only 7 days old at home with her husband. The patient has not been able to sleep since 8 days ago when she was admitted to the hospital, she could only sleep at 04.00 in the morning and woke up at 05.00, then she couldn't sleep anymore, his appetite also decreased. The patient is also worried about his son who is being isolated because of Covid. The patient has no feelings of hopelessness or desire to end life. The patient wants to get well soon so that she can gather with his children and family. Never see shadows and hear voices that no one else can see and hear. Patients seem to tell stories while crying, saying they are sad to think about their children.

The patient and the patient's family had no previous history of mental disorders. The patient also had no history of chronic disease or history of drug use.

The supporting examinations that have been carried out are the HARS (Hamilton Anxiety Rating Scale) with a score of 25 (moderate-severe) and the HDRS (Hamilton Depression Rating Scale) with a score of 18 (severe).

The patient was diagnosed as multiaxial according to PPDGJ III, namely Axis I: Adjustment disorder with mixed...
reactions to anxiety and depression (F43.22), Axis II: Anxiety personality traits MPE repression, Axis III: Confirmed severe Covid-19, P3104 post SC day 7, Hypoalbuminemia, mild hypokalemia and Axis V: GAF at the time of examination was 60-51 and the best GAF in the last 1 year was 90-81.

Patients were given pharmacological and non-pharmacological therapy. Pharmacological therapy was given Fluoxetine 10 milligrams every 24 hours intra oral in the morning and Clobazam 10 milligrams every 24 hours intra oral at night. Patients are also given supportive psychotherapy, relaxation therapy, and family psychoeducation.

D. Patient IV

Female P1102, 31 years old, high school education, married, working as a housewife. Patients were interviewed via video call. The patient said that she had been feeling sad since 5 days after giving birth because she was isolated so she couldn't go home, even though the patient really missed his child. The patient also has not been able to sleep since 3 days ago, but his appetite is still good. Patients do not feel tired, hopeless, feel guilty or desire to harm themselves. The patient was worried at the time of the cesarean section because the age of the child in his womb was still premature, she was also worried about the risks of the surgery she underwent. The patient never worries about himself, but thinks more about his son. The patient did not complain of shortness of breath, chest palpitations, or sweating, and also did not see shadows and hear voices that other people could not see and hear.

The patient and the patient's family had no previous history of mental disorders. The patient also had no history of chronic disease and drug use.

The supporting examinations that have been carried out are the HARS (Hamilton Anxiety Rating Scale) with a score of 19 (moderate-severe) and the HDRS (Hamilton Depression Rating Scale) with a score of 16 (moderate).

The patient was diagnosed as multiaxial according to PPDGJ III, namely Axis I: Adjustment disorder with mixed reactions of anxiety and depression (F43.22), Axis II: Anxiety personality traits MPE repression, Axis III: Confirmed severe Covid-19, P1102 post SC on day 10, ruptured iatrogenic bladder post repair, Mild anemia, hypokalemia, Axis IV: problems with disease, Axis V: GAF when examined is 70-61 and the best GAF in the last 1 year is 90-81.

Patients were given pharmacological and non-pharmacological therapy. Pharmacological therapy was given Lorazepam 0.5 mg every 24 hours intraorally at night. Patients are also given supportive psychotherapy, relaxation therapy and family psychoeducation.

III. DISCUSSION

Pregnancy is a complex and dynamic experience in which women experience drastic physiological and psychological changes. These changes often place perinatal women at increased risk for anxiety and depression. Perinatal anxiety and depression (PAD) conditions are associated with a history of mental health conditions, marital disputes, stressful life events or environments, lack of social support, low socioeconomic status and fear or diagnosis of risky pregnancies such as miscarriage, premature birth, weight gain, low birth and poor maternal health conditions.

Depression that begins during pregnancy often continues or worsens after delivery. All of these changes and uncertainties can cause fear, anxiety, and depressive symptoms in women who may already be at risk for PAD, and even cause women who are at low risk to experience an increase in symptoms.

PAD was documented in four COVID-19 patients who were pregnant or postpartum in this case series. Patient 1 had a depressive disorder because the baby in her womb died and there were hormonal changes that increased the risk of depressive disorder. Patient 1 was confirmed to have COVID-19 and the patient felt uncomfortable in his own isolation room and no family waiting. COVID-19 increases the risk of perinatal complications for both mothers such as depression and in infants. Patient 1 was diagnosed with a major depressive episode without psychotic symptoms according to PPDGJ-III. Patient 2 was diagnosed with COVID-19 while pregnant and the patient was worried about the child in her womb and the patient had adjustment disorders with mixed reactions of anxiety and depression. Patients 3 and 4 feel sad because they cannot meet their children after giving birth due to having to be isolated due to COVID-19. Fear of contracting the disease, or its potential effects on the fetus or newborn may lead to increased anxiety and depression in this population.

The therapy given to the patient is pharmacological and non-pharmacological therapy. Pharmacological therapy is given antidepressants and anti-anxiety. The choice of antidepressant is the SSRI class as the first line because the risk is minimal to the baby. Serum sertraline levels in infants are undetectable so they can be given to nursing mothers. During pregnancy, sertraline or escitalopram is recommended because of the lower risk for adverse effects on the fetus.

Non-pharmacological management in the form of supportive psychotherapy and relaxation therapy to patients and psychoeducation to families. Supportive psychotherapy aims to evaluate the patient's current living situation, along with their strengths and weaknesses, and then help the patient make any realistic changes that allow them to function better. The family is given psychoeducation about the psychological impact that may occur due to the patient's physical illness. Patients are also taught relaxation techniques, namely efforts to reduce tension so that people experiencing stress are able to adapt and control the stress they experience. During the Covid-19 pandemic, psychotherapy was carried out using the "telehealth" method using cellphone media.

Telehealth is a viable alternative to in-person visits during outbreaks of infectious diseases such as COVID-19 as it can reduce in-person interactions thereby reducing the risk of infection. The majoriity of primary care clinics in the US have increased the use of telehealth in their daily practice. The efficacy of telehealth has been evaluated and promoted for the perinatal population in synchronous or asynchronous formats. Telehealth modalities may include synchronous or "real-time" healthcare via video or telephone conferencing, asynchronous for later delivery, or m-health involving healthcare messaging. A variety of telehealth modalities can be used including short message service (SMS) or "text
messaging”, mobile phone applications, video for m-health, remote monitoring devices for asynchronous monitoring, and Internet-delivered interventions such as video conferencing. Telehealth has been shown to be effective in reinforcing positive health behaviors and remote monitoring (blood pressure and blood glucose in perinatal women) resulting in significantly reduced in-person medical visits. Additional uses include recalling educational materials on self-care to improve perinatal mental health [3]. With the increasing demand for mental health services and the reduced availability of individual medical services during the pandemic, the use of telehealth and digital mental health resources is a viable and promising alternative. In addition, the use of telehealth can complement midwifery care during a pandemic and serve as a bridge between the two.

IV. CONCLUSION

Depression that begins during pregnancy often continues or worsens after delivery. All the changes and uncertainties during the COVID-19 pandemic can cause fear, anxiety, and depressive symptoms in women who may already be at risk for perinatal anxiety and depression (PAD), and even cause women who are at low risk to experience an increase in symptoms. PAD was documented in four pregnant and postpartum women diagnosed with COVID-19 in this case series. Fear of contracting the disease or its potential effects on the fetus or newborn may lead to increased anxiety and depression in this population. Patients were given pharmacological and non-pharmacological therapy in the form of supportive psychotherapy, relaxation therapy, and family psychoeducation. During the Covid-19 pandemic, psychotherapy was carried out using the telehealth method using cellphone media.

CONFLICT OF INTEREST

Authors declare do not have any conflict of interest.

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