JMHT: Journal of Medicine and Health Technology
Vol. 01, No. 02, Nov, 2024, pp. 6-14
ISSN: 3046-6865
DOI: 10.12962/j30466865.v1i2.1129

Successful Management of High-Risk Pregnancy with TORCH Infection History and Chronic Hypertension

Rumman Karimah[1], Sonny Fadli[2], Dwinka Syafira Eljatin[1], Endah Indriastuti[1], Desiana Widityaning Sari[2], Ahmad Ridhoi[1]

[1]Medical Undergraduate Study Program, Institut Teknologi Sepuluh Nopember, Keputih, Sukolilo, Surabaya, 60111, Indonesia
[2]Medical Professional Education Study Program, Institut Teknologi Sepuluh Nopember, Keputih, Sukolilo, Surabaya, 60111, Indonesia

Corresponding Author: sonny.fadli@its.ac.id

Abstract — A 41-year-old pregnant woman attended the outpatient clinic of a private hospital, presented with fifth pregnancy and no living children due to a history of ectopic pregnancy, two times IUFD, and one-time neonatal death. The patient also had a history of chronic hypertension and asthma. The patient had positive CMV and Toxoplasma IgG examination results with high CMV avidity IgG levels. This indicates a long infection and antibodies in the body have been considered high enough, so this patient was not given treatment for CMV and Toxoplasma. The patient's blood pressure also never touched the normal limit since the beginning of pregnancy by administering Methyldopa (500 mg tablets every 8 hours) and Nifedipine (10 mg tablets every 12 hours), which is around 140-160/100-120 mmHg. At the end of pregnancy, she had very high blood pressure (200/120 mmHg) and proteinuria, so an emergency cesarean section was performed accompanied by the administration of Nifedipine (10 mg tablets every 8 days), Methyldopa (500 mg tablets every 8 days), MgS04 1 g/hour/syringe pump until 24 hours post-cesarean. TORCH infection and chronic hypertension are two of the causes of high risk pregnancies and the cause of the still high prevalence of Maternal Mortality Rate (MMR) in the world today. These two causes can be resolved or controlled if they are discovered early before pregnancy occurs.

Keywords — High Risk Pregnancy; Bad Obstetric History; TORCH; Chronic Hypertension

How to cite: Karimah R, Fadli S, Eljatin DS, Indriastuti E, Sari DW, Ridhoi A. Successful Management of High-Risk Pregnancy with TORCH Infection History and Chronic Hypertension. Journal of Medicine and Health Technology.2024,1(2):6-14.

Manuscript received 23 April 2024; revised 11 May 2024; accepted 30 May 2024. Date of publication 10 November 2024.
JMHT is licensed under a Creative Commons Attribution-Share Alike 4.0 International License.

INTRODUCTION

The World Health Organization (WHO) states that the Maternal Mortality Rate (MMR) still have a high prevalence in 2020, around 810 women die from complications related to pregnancy or childbirth worldwide every day, and around 295.000 women die during and after pregnancy and childbirth. The MMR in developing countries reaches 462/100,000 live births, while in developed countries it is 11/100,000 live births [1]. The cause of maternal mortality is 75% caused by severe bleeding (especially postpartum hemorrhage), infection, hypertension in pregnancy, complications in delivery, and unsafe abortion. If there is one of the most common causes of maternal death above, it is necessary to take immediate treatment to prevent various complications that can be caused [2]. The case to be discussed in this journal is a high-risk pregnancy with a history of TORCH infection and chronic hypertension that was difficult to control, leading to severe preeclampsia at the end of pregnancy. In this case, a bad obstetric history was obtained due to recurrent IUFD, so the patient did not have a live child until her fourth pregnancy. Considering that these are the two leading causes of death in pregnant women and the complications they can cause in the fetus, aggressive management is necessary in such cases to save both mother and fetus. The successful diagnosis and management of this case will be discussed in the journal, so that it can be taken into consideration in similar cases.

CASE ILLUSTRATION

A 41-year-old pregnant woman attended the outpatient clinic of a private hospital for the first time on June 4th, 2023 due to a positive pregnancy test. Her chief complaint was vomiting once a day since 3 days before she came to the hospital. Her last menstrual period was on April, 16th 2023 equal to 7-8 Weeks Gestational Ages (WGA). This was her fifth pregnancy and she had a history of ectopic pregnancy in her first pregnancy in 6 WGA and performed laparotomy and salpingectomy dextra,

IUFD in second and fourth pregnancies in 8 and 6 months gestational ages and performed a cesarean section and spontaneous delivery consecutively, and child death in third pregnancy at 1 month of age. The patient said never performed any laboratory test for the evaluation of her bad obstetric history before. Patients reported a past medical history of chronic hypertension for 12 years and asthma for 30 years. She reported that she had been taking care of a cat for the last few years.

The physical examination at the first admission was within normal limits except for the patient's high blood pressure (BP), namely 150/100 mmHg. Ultrasound examination showed intrauterine gestational sac 7-8 WGA with an expected date of delivery on January, 20th 2024. The patient performed antenatal care in outpatient clinic regularly for 9 times with BP ranges from 140-160/100-120 mmHg. There was no abnormal finding during the ultrasound examination. The patient got prenatal vitamins, Aspilet 80 mg daily until 34 WGA, and Methyldopa to regulate hypertension. After two months, the patient agreed to laboratory testing for TORCH infection. Her initial serologic tests on August 23rd, 2023 were: IgM ACA < 2 IU/ml (normal range negative, < 20 IU/ml), IgG ACA < 2 IU/ml (normal range negative, < 20 IU/ml), IgM Anti Toxoplasma Negative (normal range negative, < 8 IU/ml), IgG Anti Toxoplasma 11 IU/ml (normal range negative, < 8 IU/ml), IgM Anti CMV Negative (normal range negative, < 30 AU/ml), IgG Anti CMV 91 IU/ml (normal range negative, < 6 IU/ml). On September 2nd, 2023 another CMV test was carried out, IgG Anti CMV 498.4 AU/ml (normal range negative, < 30 AU/ml) and IgG CMV Avidity 73.4 IU/ml (normal range low avidity < 45.0 IU/ml). Urine examination trace (normal range negative). Complete blood count and triple elimination showed results within normal limits. It was concluded that the patient's diagnosis was GVP0310 7-8 WGA, bad obstetrical history, high social value baby, previous cesarean section 2 times, chronic hypertension, history of asthma, age above 35 years old. The patient was given a one-month course of Folic Acid (100 mcg/day), Calcium (500 mg tablet every 12 hrs), and Methyldopa (500 mg tablet every 8 hrs). Because blood pressure was still not controlled, the patient received additional Nifedipine (10 mg tablets every 12 hours) after the fourth ANC. Patients are given counseling, information, and education to be referred because they require further examination regarding suspicion of TORCH infection, consultation regarding the choice of other antihypertensive drugs, and close monitoring of the patient's blood pressure at the obstetrics and gynecology clinic at the hospital, but the patient refused.

On December 12th, 2023 patient came to the delivery room with chief complaint of contractions for 3 times in 10 minutes and had a bloody show. Vital signs examination revealed BP 200/120 mmHg and others within normal limits. Obstetric examination showed fundal height 27 cm, fetal heart rate 144x/minute, cephalic presentation, contraction 3-4x/40"/10', from vaginal tissue was found to be 2cm/25%/Amnion sac(+)/Cephalic/Transverse SS/H1. Ultrasound examination showed cephalic/biometry ~38 WGA, Estimated Fetal Weight 2600 grams, Amniotic Fluid Index 8, and a placental grade III at the fundus. Complete blood count, random blood glucose, and serum electrolytes within normal limits. urine examination showed results within normal limits. BUN levels increased slightly to 31 mg/dL (normal range 6-21 mg/dL), creatinine levels were within normal limits (0.8 mg/dL), and urinary dipstick protein +3 (normal range negative).

From the above examination, it was concluded that the patient's diagnosis was GVP0310 38-39 WGA, cephalic presentation, bad obstetric history, high social value baby, previous cesarean section 2 times, chronic hypertension superimposed severe preeclampsia, history of asthma, age above 35 years old, EFW 2600 grams. In this patient, In this patient an Emergency Cesarean Section was performed by administering D5 500 Infusion/24 hours, MgS04 20% (4 g IV Injection followed by MgS04 1 g/hour/syringe pump until 24 hours post-cesarean), Methyldopa (500 mg tablet every 8 hrs), and Nifedipine (10 mg tablet every 8 hrs). The cesarean section is carried out using the lower segment cesarean section method, and sterilization is carried out. The baby born was a girl with a birth weight of 2500 grams and an Apgar Score of 8-9 (normal range 6-21 mg/dL), and no major congenital abnormalities were found.

DISCUSSIONS

A high-risk pregnancy is when the mother and/ or fetus have an increased risk of complications during pregnancy, delivery, or postpartum. This requires immediate identification and treatment because the risks posed mostly threaten the life of the mother or fetus. Risks to the fetus can include preterm delivery, multiple gestations, congenital anomalies, bad fetal growth, placental abruption, and stillbirth. Risks to the mother may include pregnancy-induced hypertension, preeclampsia, eclampsia, gestational diabetes mellitus, sepsis, flare or worsening of underlying disease, and thrombotic events. Women with high-risk pregnancies face a 25% chance of complications, compared to 10% for low-risk pregnancies. Early Antenatal Care (ANC) is a way to detect risky pregnancies so that delivery steps and preparations can be taken [3,4]. In Indonesia, a scoring system for pregnant women is usually carried out at the first ANC, namely using the Pudji Rochjati Scorecard, Table 1. The assessment of the scorecard is by dividing it into three groups based on the total score, namely: (1) Low Risk Pregnancy, with total score of 2, which is a pregnancy that is not accompanied by risk factors or complications so that it is likely that the mother will deliver the baby normally with the mother and fetus in a healthy state, (2) High Risk Pregnancy, with total score of 6-10, which is a pregnancy accompanied by one or more risk factors/ complications from both the mother and fetus so that it is possible for urgent condition during pregnancy and childbirth but not emergency, (3) Very High Risk Pregnancy, with total score of >12, namely pregnancy with risk factors for bleeding before the baby is born, where this will have a serious and emergency impact on the mother and fetus so that it requires timely referral and adequate immediate treatment to save the lives with two or more risk factors, so that delivery assistance must be in the hospital with the help of a specialist [5,6].

This patient's pregnancy is considered a high-risk pregnancy, based on the Poedji Rochyati Scorecard, some of the high-risk pregnancy criteria present in the patient are, a pregnant woman (initial score 2), age during pregnancy > 35 years (score 4), bad obstetric history characterized by repeated miscarriages or history of pregnancy failure (score 4), history of IUFD (score 4), chronic hypertension superimposed on severe pre-eclampsia, as determined by the patient's blood pressure SBP ≥ 140 mmHg and/or DBP ≥ 90 mmHg, persisting from before pregnancy until after 20 weeks gestation, accompanied by positive urine protein (score 8), history of cesarean section (score 8). The score in this patient is 30, so this is very high-risk pregnancy because it has the potential to cause an emergency to the mother and fetus.

The term "Bad Obstetric History" (BOH) refers to a history of congenital abnormalities, stillbirths, intrauterine growth retardation, intrauterine fetal death (IUFD), and/ or two or more consecutive spontaneous abortions. Based on the definition above, BOH is included in the high-risk pregnancy criteria [6,7]. The patient in this case had BOH due to a history of IUFD and consecutive spontaneous abortions. BOH may be caused by infections in mothers, genetic, hormonal, or aberrant maternal immunological responses [8,9]. Even though the mother may not be as much afflicted, the TORCH group of illnesses may seriously influence the fetus [10]. In this case, the patient was known to have a history of neonatal death in her third pregnancy, this could be due to an infection that occurred during the pregnancy which caused the fetus to contract the infection. Based on this, pregnant women should be screened for infections so that diagnosis and treatment can be given earlier for better pregnancy outcomes [8,10].

The abbreviation TORCH represents the following conditions: Toxoplasmosis; Others: Syphilis, Varicella-Zoster, Hepatitis B, Parvovirus B19 infection; Rubella virus infection; Cytomegalovirus (CMV) infection; Herpes Simplex Virus (HSV) infection. Almost every year 3.2 million children experience birth defects due to TORCH [11]. The global seroprevalence of congenital toxoplasmosis infection is 44.41%, and the prevalence in Indonesia has been reported to be 43–88% [7,12]. While CMV cases affect around 0.5% to 1.5% of births and the incidence of congenital CMV ranges from 7-10% [13]. Depending on the stage of pregnancy, primary infections with TORCH can cause a variety of clinical signs. Early-stage pregnancy TORCH infections can cause fetal mortality, intrauterine growth restriction (IUGR), or congenital abnormalities. Later-stage pregnancy infections can

 ISSN : 3046-6865

leave newborns latent (asymptomatic) at birth, with the potential to develop symptoms later. Numerous clinical signs, including skin rashes, jaundice, hepatosplenomegaly, lymphadenopathy, and cerebral calcifications, can also be brought on by TORCH infections [14].

Table 1. Pudji Rochjati Scorecard

No.	Problems/ Risk Factors	Score
	Early score for pregnancy	2
1	First pregnancy at a young age ie ≤ 16 years	4
2	First pregnancy at an old age i.e. ≥ 35 years	4
	Too late in first pregnancy i.e. ≥ 4 years after marriage	4
3	Too long to get pregnant again i.e. ≥ 10 years	4
4	Too soon to get pregnant again i.e. ≤ 2 years	4
5	Too many children i.e. ≥ 4	4
6	Too old i.e. ≥ 35 Tahun	4
7	Short stature i.e. ≤ 145 cm	4
8	History of failed pregnancy or miscarriage	4
9	History of delivery with:	
	a. forceps/ vacuum pull	4
	b. manual placenta	4
	c. infused/ transfused	4
10	Previous cesarean section	8
11	Diseases in pregnant women:	
	a. Anemia b. Malaria	4
	a. Pulmonary tuberculosis b. Decompensated heart failure	4
	Diabetes mellitus	4
	Sexually transmitted diseases	4
12	Swelling of the face/ limbs and high blood pressure	4
13	Twin pregnancy	4
14	Hydramnion	4
15	Intrauterine Fetal Death (IUFD)	4
16	Post-term pregnancy	4
17	Breech pregnancy	8
18	Transverse pregnancy	8
19	History of bleeding in pregnancy	8
20	Preeclampsia or eclampsia	8

The principle for diagnosing several TORCH infectious illnesses is the same. A serological test is the earliest and easiest method for diagnosing congenital infections of Toxoplasmosis and CMV. If immunoglobulin G (IgG) is positive and IgM is negative, the body produced antibodies against a past infection and no need for treatment. If IgM is positive and IgG is negative, a new infection has emerged and needs to be treated. Additional testing, namely IgG Avidity, is required if both IgG and IgM are positive. Treatment is not necessary if the results are high, but it is if the results are poor (15–17). In this patient, the serologic examination of anti-toxoplasma and anti-CMV antibodies was positive IgG, while the patient's IgM was negative. This indicates that the patient has a history of toxoplasma and CMV virus infection in the past, but currently no virus has been detected. Then, an additional test with IgG avidity is carried out for positive IgG to ensure that the antibody formed is sufficient to fight infection. In this patient, only CMV avidity IgG was checked, while Toxoplasma avidity IgG was not checked due to the socioeconomic constraints of the patient and the anti-toxoplasma IgG titer was much lower than CMV, so it was chosen as one of the tests that needed further evaluation. High levels of IgG avidity indicate a long infection and antibodies in the body have been considered high enough, so this patient was not given treatment for CMV infection. This patient has a bad obstetric history of recurrent miscarriage which is most likely due to infection from viruses that can be transmitted and infect the fetus. It is necessary to check for TORCH infection, which are viruses that can be transmitted to the fetus, before pregnancy. If a positive result is obtained, it needs to be treated and proven to be undetectable before the next pregnancy, especially IgM antibodies to prevent the incidence of IUFD or babies who contract viral infections that can be fatal to the fetus. This needs to be a special concern because the infection usually causes no symptoms in mothers.

Congenital toxoplasmosis is an infection caused by the obligate intracellular protozoan *Toxoplasma gondii*, which is contracted by eating raw meat, drinking tainted water or soil, or drinking unpasteurized goat milk, and transplacentally. Intracranial calcifications, hydrocephalus, and chorioretinitis are the typical trio of congenital toxoplasmosis, and their risk drops from 61% at 13 weeks to 25% at 26 weeks and 9% at 36 weeks. In cases that require treatment, antiparasitic therapy with Spiramycin (1500 mg every 12 hours) should be started as soon as feasible to avoid transplacental transmission when primary maternal infection is identified before 18 weeks of gestation. After eighteen weeks of pregnancy, if a PCR on amniotic fluid tests positive for *T.gondii* DNA, the medication should be switched to pyrimethamine-sulfadiazine with leucovorin (folinic acid). If the PCR results are negative, the US and French prophylactic regimens advise continuing Spiramycin until delivery, whereas the Austrian and German prophylactic regimens utilize Spiramycin in conjunction with a 4-week treatment of pyrimethamine-sulfadiazine at 17 WGA. For newborns with no symptoms, the same treatment plan is applied, but it lasts for three months (15–18). While, CMV is a member of the Herpesviridae family of b-herpesviruses. Exposure to various bodily fluids, including blood, urine, cervical secretions, transplacental, saliva, and semen, might result in infection. Congenital CMV infection results in chorioretinitis, microcephaly, mental impairment, and numerous other nebulous symptoms. Intravenous ganciclovir is used to treat congenital infections, a variety of antiviral medications are frequently used to treat non-specific infections (15–18).

Apart from the BOH problem, in the current pregnancy the patient has high blood pressure and is difficult to control with the antihypertensive medication given. Hypertension during pregnancy is defined as systolic blood pressure (SBP) of at least 140 mmHg and/ or a diastolic blood pressure (DBP) of at least 90 mmHg, measured on two separate occasions. Pregnancy-related hypertension is classified into four groups based on guidelines from the American College of Obstetricians and Gynaecologists (ACOG): (1) Chronic/ Pre-existing hypertension is defined as hypertension that is detected before conception or before 20 WGA and that lasts longer than 42 days after parturition; (2) Gestational hypertension (GH) is defined as hypertension that develops after 20 WGA and typically goes away within 42 days after parturition; (3) Preeclampsia/ Eclampsia is gestational hypertension accompanied by one of the following: proteinuria, maternal organ dysfunction including (acute kidney injury, liver involvement (transaminitis) with or without right upper quadrant or epigastric abdominal pain), neurological complications

(eclampsia, altered mental status, blindness, stroke, clonus, severe headache, persistent visual scotomata), hematological complications (decreased platelet count <150,000/uL, disseminated intravascular coagulation, hemolysis), uteroplacental dysfunction (fetal growth restriction, abnormal umbilical artery Doppler wave form analysis, or stillbirth); (4) Chronic/ Pre-existing Hypertension with Superimposed Preeclampsia-Eclampsia is chronic hypertension that develops signs and symptoms of preeclampsia or eclampsia after 20 WGA. Depending on the severity of BP elevation, hypertension during pregnancy is categorized as; (1) Mild hypertension when SBP 140–159 mmHg and DBP 90– 109 mmHg; (2) Severe Hypertension when SBP ≥ 160 mmHg and/or DBP ≥ 110 mmHg [19,20].

The risks that can occur in mothers with chronic hypertension are placental abruption, pulmonary edema, acute renal failure, and stroke. Apart from having risks to the mother, chronic hypertension also adversely affects the fetus and neonate. Among the risks to the fetus is chronic hypertension demonstrating a 4% incidence of perinatal death. This risk is further increased in the presence of comorbid conditions, especially collagen vascular disorders and renal disease. Fetal growth restriction is also a risk because it is multifactorial, among the causes is that aggressive treatment of hypertension may lead to decreased uteroplacental perfusion, while also severe hypertension can lead to vasoconstriction and decreased uteroplacental perfusion apart from treatment. Chronic hypertensives are also most likely to require an indicated preterm delivery, exposing the neonate to the morbidity of prematurity [21]. Uncontrolled blood pressure has the potential to cause IUFD, so in this patient in addition to TORCH, uncontrolled blood pressure in previous pregnancies is also a potential cause of recurrent miscarriage.

This patient had a history of hypertension before pregnancy, SBP ≥ 140 mmHg and DBP ≥ 90 mmHg in early and late pregnancy. Antihypertensive medication should be administered if a patient's blood pressure is consistently found to be 160/110 mmHg or higher, and consider if a patient's blood pressure is 140/90 mmHg or higher. The principle of managing hypertension during pregnancy is to control blood pressure as optimally as possible to reduce morbidity and mortality due to uncontrolled hypertension without causing a decrease in uteroplacental perfusion and prolong pregnancy safety as long as possible to allow the fetus more time to mature before delivery [22,23]. Close monitoring of blood pressure and fetal growth is important to ensure blood pressure meets the therapy target (DBP 85 mmHg) and fetal growth is good according to gestational age [22,24]. Monitoring also needs to be carried out to monitor the possibility of superimposed preeclampsia which often occurs in chronic hypertension [22,25]. To prevent superimposed preeclampsia in chronic hypertension, measures that can be given apart from strict control of blood pressure are administration of low-dose aspirin (75 – 162 mg/ day) from 12 weeks gestation and calcium 1.5-2 g/day [22,26].

Management of hypertension during pregnancy includes non-pharmacological and pharmacological management. Non-pharmacological management for hypertension in pregnancy is quite different from hypertension outside of pregnancy, where weight loss and lowering strict sodium diets (< 100 mEq/day) are not recommended during pregnancy. Exercise is recommended for pregnant women who are used to exercising. The first-line treatment recommendations from the ACOG guideline for chronic hypertension in pregnancy are Labetalol (200–2400 mg/d P.O. in divided doses every 8–12 hours) and Nifedipine extended-release (30–120 mg/d P.O.). The second line is Methyldopa (250–3000 mg/d P.O. in divided doses every 6–12 hours) and hydrochlorothiazide (12.5–50 mg/d P.O.) [20,27]. In mild hypertension, dose titration is recommended by starting with a low dose of one type of antihypertensive drug, then increasing it gradually to a medium dose. If the target blood pressure has not been reached at the medium dose, consider adding a lower dose of another antihypertensive drug. The maximum combination of antihypertensive drugs is three types of drugs. Evaluation of maternal, placental, and foetal growth must also be carried out regularly [24,28]. In this patient, due to high blood pressure at the first examination, namely 150/100 mmHg, the patient received antihypertensive therapy in the form of Methyldopa 500 mg every 8 hours. Methyldopa is a second-line drug option in the management of chronic hypertension in pregnancy, but this drug was chosen in this patient with the consideration that the patient

has a history of asthma, so it is not possible to use labetalol because it has the potential to precipitate bronchospasm. Nifedipine was also not used because it is only allowed to be given at > 20 weeks of gestation [20,27]. In this patient, the dose of Methyldopa was started at a medium dose. On evaluation, blood pressure still had not reached the DBP target of 85 mmHg, so the patient was given additional Nifedipine therapy at a low dose, namely 10 mg every 12 hours after gestational age > 20 weeks. Because the patient refused to be referred, the patient underwent a more stringent evaluation of blood pressure and fetal growth every month and was given information about the possibility of birth by induction or cesarean section if blood pressure continued to be high or other signs of emergency were found at 37 weeks of gestation.

At the end of pregnancy, the patient underwent an emergency cesarean section due to various considerations, namely increasingly uncontrolled tension and positive patient urine protein indicating chronic hypertension superimposed on severe preeclampsia. The treatment for chronic hypertension with severe features is to deliver the baby with cervical ripening agents for labor induction. This decision is given if the gestational age has reached > 37 weeks, there is a worsening of the condition of the mother or fetus, or at a gestational age > 34 weeks with abnormal maternal-fetal test results, EFW <5%, labor or premature rupture of membranes, suspected abruptio placentae [29]. If severe features occur at <34 weeks of gestation, expectant management is carried out with magnesium sulphate, corticosteroids, oral antihypertensive medications, and fetal testing, provided that no contraindications are found. The contraindications for expectant management that lead to the decision to deliver the baby are eclampsia, pulmonary edema, DIC, uncontrollable severe hypertension, nonviable fetus, abnormal fetal testing, abruptio placentae, and intrapartum fetal demise [29].

In severe hypertension, the antihypertensives recommended by the Society of Obstetricians and Gynecologists of Canada and ACOG are is Hydralazine (5-10 mg IV every 20 min, maximum dose 30 mg); Labetalol (20 mg IV, then 40-80 mg every 10 min to a maximum dose of 300 mg or continuous infusion at 1-2 mg/min), Nifedipine (10 mg P.O, repeated in every 30 minutes, 20 mg P.O x 2 doses prn , then 10-20 mg every 4-6 hours to a maximum dose of 240 mg/ 24 hours), Methyldopa (1000 mg P.O) (28,29). In this patient, the initial treatment was to increase the Nifedipine dose to 10 mg tablets every 8 hours. This was done simultaneously with preparations for an emergency cesarean section because of the bad pregnancy history.

In preeclampsia or eclampsia, in addition to antihypertensives, anticonvulsants are also needed for seizure prophylaxis. The safest anticonvulsive used for pregnant women is MgSO4. The administration is with an initial dose of MgSO4 4g IV over 5-8 minutes (rate 0.5-1 gr/minute). Followed by a maintenance dose with MgSO4 6 g in ringer acetate/lactic ringer solution for 6 hours (1 g/hour). If there is a repeat seizure, administer 2 gr MgSO4 IV for 5 minutes. Infusion of MgSO4 1 g/hour is given up to 24 hours postpartum [30,31]. Thus, this patient should still be given MgS04 20% 4 g IV, followed by MgS04 1 g/hour/syringe pump until 24 hours post cesarean. Blood pressure monitoring should continue to be carried out in patients with chronic hypertension, especially in the first 48 hours after birth, because of the possibility of complications such as renal failure, pulmonary edema, and hypertensive encephalopathy. The target for postpartum therapy is below the severe ranges, namely SBP <160 mmHg and DBP <100 mmHg. Intravenous labetalol or hydralazine may be an option if blood pressure remains very high [25,29]. The choice of antihypertensive is similar to antepartum antihypertensive, except that Methyldopa is not recommended because it has the potential to increase the risk of postpartum depression. Oral clonidine and sodium nitroprusside are also not recommended because they are documented to pass through breast milk. ACE inhibitors may be an option because little is secreted in breast milk, but needs monitoring of maternal serum potassium and creatinine. Nifedipine is also recommended for use as postpartum antihypertension and is more effective when used with furosemide [28].

CONCLUSION

In conclusion, high risk pregnancies have life-threatening impacts on the mother and fetus. A habit that has not yet emerged in society today is preparing for pregnancy by checking TORCH infections and blood pressure before pregnancy, even though these two things are fatal causes in causing a pregnancy to become a high-risk pregnancy. TORCH infections and hypertension that are known before pregnancy will be safer and provide optimal results in receiving therapy before pregnancy. If a case of BOH is found, checking for TORCH infection is the easiest thing to do first. In mild hypertension in pregnancy, the principle of treatment is to administer one type of antihypertensive drug at a low dose, followed by a gradual increase in the medium dose, and administer a combination with a second antihypertensive drug at a low dose. If severe hypertension is found in pregnancy, terminate the pregnancy if the gestational age is at term accompanied by more aggressive antihypertensive administration with the recommended drug selection and dosage. Currently, few RCT are comparing the effectiveness and side effects of antihypertensive drugs in pregnancy. Apart from that, RCT regarding blood pressure targets in pregnant women are still difficult to find, while the optimal blood pressure targets are still unclear.

ACKNOWLEDGEMENT

The authors express deep gratitude to the clinical staff, management, and medical team for their support and expertise in data collection and case management. The authors are also thankful to the patient and her family for their cooperation and trust, which allowed them to share valuable insights with the medical community.

REFERENCES

[1] Pratiwi D. Faktor Maternal Kehamilan. J Med Hutama. 2020;2(1):402-406.
[2] Alipour J, Payandeh A, Karimi A. Prevalence of maternal mortality causes based on ICD-MM: a systematic review and meta-analysis. BMC Pregnancy Childbirth. 2023 Nov 28;23(1):821.
[3] Soh MC, Nelson-Piercy C. High-risk pregnancy and the rheumatologist. Rheumatology. 2015 Apr 1;54(4):572-587.
[4] Rajbanshi S, Norhayati MN, Nik Hazlina NH. High-risk pregnancies and their association with severe maternal morbidity in Nepal: A prospective cohort study. Spradley FT, editor. PLOS ONE. 2020 Dec 28;15(12):e0244072.
[5] Pudji R. Skrining Antenatal Pada Ibu Hamil. 2nd ed. Airlangga University Surabaya: Airlangga University Press; 2023.
[6] Ministry of Health R of I. Buku Kesehatan Ibu dan Anak Revisi 2020. 2020.
[7] Flores C, Villalobos-Cerrud D, Borace J, Fábrega L, Norero X, Sáez-Llorens X, et al. Epidemiological Aspects of Maternal and Congenital Toxoplasmosis in Panama. Pathogens. 2021 Jun 17;10(6):764.
[8] Baghel S, Inamdar SA. TORCH Infection and Its Influence on High-risk Pregnancy. J South Asian Fed Obstet Gynaecol. 2021 Apr 12;12(6):376-382.
[9] Jain S, Shah I. A mother with bad obstetric history - Is it due to cytomegalovirus? Pediatr Oncall [Internet]. 2023 [cited 2024 May 11];20(2). Available from: https://www.pediatriconcall.com/pediatric-journal/view/fulltext-articles/1453/T/180/0/0/new
[10] Goud NS, Reddy MM, Desai S. Incidence and pattern of infections in pregnant women with bad obstetric history. Int J Reprod Contracept Obstet Gynecol. 2021 Oct;10(10):3846-3850.
[11] Adila W, Ratnawati R, Putri EN. Gambaran Pengetahuan Dan Motivasi Ibu Hamil Tentang Pemeriksaan Torch. J Ilmu Kebidanan. 2018;8(1).
[12] Retmanasari A, Widartono BS, Wijayanti MA, Artama WT. Prevalence and Risk Factors for Toxoplasmosis in Middle Java, Indonesia. EcoHealth. 2017 Mar;14(1):162-170.
[13] Pratama BF. Infeksi Cytomegalovirus Kongenital. J Kesehat Melayu. 2018 Apr 25;1(2):114.
[14] Rasti S, Ghasemi FS, Abdoli A, Piroozmand A, Mousavi SGA, Fakhrie-Kashan Z. ToRCH “co-infections” are associated with increased risk of abortion in pregnant women. Congenit Anom. 2016 Mar;56(2):73-78.
[15] Leung KK, Hon K, Yeung A, Leung AK, Man E. Congenital infections in Hong Kong: an overview of TORCH. Hong Kong Med J [Internet]. 2020 Apr 2 [cited 2024 May 11]; Available from: https://www.hkmj.org/abstracts/v26n2/127.htm
[16] Yadav RK, Maity S, Saha S. A review on TORCH: groups of congenital infection during pregnancy. Journal of Scientific and Innovative Research. 2014; 3(2): 258-264.
[17] Batra P, Batra M, Singh S. Epidemiology of TORCH Infections and Understanding the Serology in Their Diagnosis. J Fetal Med. 2020 Mar;07(01):25-29.
[18] Raghunandan C, Agrawal S. Jaundice in Pregnancy. Manag High-Risk Pregnancy- Pract Approach; 2015. p. 232.

[19] Agrawal A, Wenger NK. Hypertension During Pregnancy. Curr Hypertens Rep. 2020 Sep;22(9):64.
[20] Battarbee AN, Sinkey RG, Harper LM, Oparil S, Tita ATN. Chronic hypertension in pregnancy. Am J Obstet Gynecol. 2020 Jun;222(6):532-541.
[21] Ankumah NAE, Sibai BM. Chronic Hypertension in Pregnancy: Diagnosis, Management, and Outcomes. Clin Obstet Gynecol. 2017 Mar;60(1):206-214.
[22] Tamargo J, Caballero R, Delpón E. Pharmacotherapy for hypertension in pregnant patients: special considerations. Expert Opin Pharmacother. 2019 May 24;20(8):963-982.
[23] Sibai BM. Chronic hypertension in pregnancy. Obstet Gynecol. 2002;100(2):369-377.
[24] Butalia S, Audibert F, Côté AM, Firoz T, Logan AG, Magee LA, et al. Hypertension Canada's 2018 Guidelines for the Management of Hypertension in Pregnancy. Can J Cardiol. 2018 May;34(5):526-531.
[25] Sibai BM. Chronic hypertension in pregnancy. Obstet Gynecol. 2002;100(2):369-377.
[26] Siddiqi U, Plaat F. The treatment of hypertension in pregnancy. Anaesth Intensive Care Med. 2017 Feb;18(2):106-109.
[27] Metoki H, Iwama N, Hamada H, Satoh M, Murakami T, Ishikuro M, et al. Hypertensive disorders of pregnancy: definition, management, and out-of-office blood pressure measurement. Hypertens Res. 2022 Aug;45(8):1298-1309.
[28] Magee LA, Khalil A, Kametas N, Von Dadelszen P. Toward personalized management of chronic hypertension in pregnancy. Am J Obstet Gynecol. 2022 Feb;226(2):S1196-S1210.
[29] Moussa HN, Arian SE, Sibai BM. Management of Hypertensive Disorders in Pregnancy. Womens Health. 2014 Jul;10(4):385-404.
[30] Perkumpulan Obstetri dan Ginekologi Indonesia (POGI). Pedoman Nasional Pelayanan Kedokteran; 2016.
[31] Arias F, Bhide AG, Arulkumaran S, Damania K, Daftary SN. Practical Guide to High Risk Pregnancy and Delivery-E-Book: A South Asian Perspective. Elsevier health sciences; 2008.