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Case Report

Low Dose Aspirin (LDA) To Prevent Preeclampsia: A Case Report

Andhika Ardi Perdana[1], E Anita Syara[1], Eka Rusdianto Gunardi[2] and Yogi Pasidri[2]*

[1]*Department of Obstetrics and Gynecology, Faculty of Medicine Universitas Trisakti, Indonesia*

[2]*Department of Obstetrics and Gynecology, Faculty of Medicine Indonesia University, Indonesia*

***Corresponding author:** Yogi Pasidri, Department of Obstetrics and Gynecology, Cipto Mangunkusomo General Hospital, Faculty of Medicine Indonesia University, Indonesia.

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Abstract

Introduction: Gestational hypertension affects the majority of pregnant women in the world. Gestational hypertension is blood pressure >140/90 mmHg on two examinations with a distance at 4 hours after 20 weeks of gestation, at previously normal blood pressure. ACOG recommendation for low-dose aspirin (LDA) in women (81 mg/day) at high risk of preeclampsia. Low-dose aspirin is generally considered safe during pregnancy. Low-dose aspirin (LDA) can prevent vascular disorders in pregnancy, such as preeclampsia, stillbirth preterm labor, intrauterine growth restriction (IUGR), and early miscarriage.

Case Report: 37 years old G4P2A1 38 weeks gestation, came to the RSAL dr. Mintohardjo in September with the complaint in labor. The first ANC was in March 2021. in April 2021, with the patient's gestational age of 16-17 weeks, the patient was given low-dose aspirin by giving 80 mg aspilet and was observed every month until the patient to labor. Patients had observed giving aspilet until 35 weeks, and the patient had given nifedipine 30 mg on 34 - 35 weeks.

Conclusions: Low-dose aspirin (LDA) can prevent preeclampsia in pregnant women with moderate risk factors.

Keywords: Gestational hypertension, Preeclampsia, Low-dose aspirin

Introduction

Gestational hypertension affects the majority of pregnant women in the world. According to the World Health Organization (WHO) is one of the causes of maternal death by 12%. The incidence of morbidity and mortality in developing countries likely due to limited health providers and a lack of effective screening and treatment. Gestational hypertension is systolic and diastolic blood pressure ≥ 140/90 mmHg on two examinations with a distance at 4 hours after 20 weeks of gestation, at previously normal blood pressure. According to ACOG (American College of Obstetricians and Gynecologist), preeclampsia is a pregnancy disorder associated with hypertension with a systolic pressure ≥ 140 mmHg and a diastolic pressure ≥ 90 mmHg on two examinations with a distance at 4 hours that occur after 20 weeks of gestation before term with previously normal blood pressure and accompanied by proteinuria ≥ 300 mg or with proteinuria (+2) from dipstick examination. Severe preeclampsia if the blood pressure ≥ 160/110 mmHg on two examinations with a distance of at least 4 hours, accompanied by thrombocytopenia and renal insufficiency, pulmonary edema, and impaired liver function, new onset headache that is not responsive to the treatment and is accompanies by visual disturbances. Management of preeclampsia is a priority to prevent the disease from occurring complications and the risk of death for the mother and baby [1,2].

Aspirin is a cyclooxygenase inhibitor which an antiplatelet and anti-inflammatory properties. Aspirin is one of the most commonly prescribed medications to prevent cardiovascular complications. Low-dose aspirin (LDA) is generally considered safe during pregnancy. Low-dose aspirin (LDA) can prevent vascular disorders

in pregnancy, such as preeclampsia, preterm labor, stillbirth, intrauterine growth restriction (IUGR), and early miscarriage [3]. Daily use of LDA in pregnancy is considered safe. The use of LDA (81 mg/day) as prophylaxis is recommended for women at high risk of preeclampsia, and LDA should be started between 12 weeks and 28 weeks and then continued daily until the woman is due to give birth. The use of aspirin as prophylaxis therapy should be considered, in women with high risks factors such as a history of preeclampsia, multifetal pregnancy, type 1 or type 2 diabetes, autoimmune disease, kidney disease, and chronic hypertension, or women with moderate risk factors such as a first pregnancy, family history of preeclampsia, maternal age > 35 years, body mass index (BMI) > 30, and sociodemographic characteristics [4].

Case Report

A 37 years old G4P2A1 38 weeks gestation, came to the RSAL dr. Mintohardjo on September 9, 2021 with the complaint in labor. The patient admitted that there was blood and mucus discharge. First day of last menstrual period (HPHT) on December 23rd, 2020. Patient for routine antenatal care (ANC) at RSAL dr. Mintohardjo. The first ANC was in March 2021. In April 2021, with the patient's gestational age of 16-17 weeks, the patient was given low-dose aspirin by giving 80 mg aspilet and was observed every month until the patient to labor, because on physical examination, the vital signs were 139/91 mmHg. The routine blood examination found leukocytosis (17.300). The urine examination's protein (+1), so the patient was diagnosed with gestational hypertension and genitourinary infection. At 34-35 weeks of gestation, on physical examination, blood pressure 135/91 mmHg, pulse rate 111 bpm, temperature 36.2^{0}C, respiration rate 18 bpm. Patients had observed giving low-dose aspirin until 35 weeks, and the patient had given nifedipine 30 mg. The patient had an abortion in 2017 and a history of third pregnancy and childbirth in 2020 at RSAL dr. Mintohardjo with vaginal delivery, and a birth weight of 3700 grams.

In labor on 9th, September 2021 in labor, the physical examination found that her general condition was moderate, his consciousness was compost mentis, blood pressure 149/108 mmHg, pulse rate 118 bpm, temperature 36.3^{0}C, respiratory rate 20 bpm, SpO_2 98%. The general status was within normal limits, and there was no oedema in the four extremities. Obstetric status on external examination, uterine fundal height 3 fingers below the processus xiphoid, longitudinal position, right back, head percentage 2x/10'/30", FHR 148 x/minute, estimated fetal weight 3900 grams. The internal examination found thin and soft ports, 8 cm opening, positive membranes, head percentage, Hodge I. Complete blood laboratory examination revealed Hb 12.2 g/dL, Ht 36.5%, leukocytes 14300, erythrocytes 4.26, platelets 302,000. The urine examination's protein (+1). Based on the result of the examination, the patient was diagnosed with gestational hypertension and decide to perform a cesarean section on the indication of Cephalopelvic disproportion (CPD).

Discussion

Risk Level	Risk Factors	Recommendation
High†	• History of preeclampsia, especially when accompanied by an adverse outcome • Multifetal gestation • Chronic hypertension • Type 1 or 2 diabetes • Renal disease • Autoimmune disease (systemic lupus erythematosus, antiphospholipid syndrome)	Recommend low-dose aspirin if the patient has one or more of these high-risk factors
Moderate‡	• Nulliparity • Obesity (body mass index greater than 30) • Family history of preeclampsia (mother or sister) • Sociodemographic characteristics (African American race, low socioeconomic status) • Age 35 years or older • Personal history factors (eg, low birthweight or small for gestational age, previous adverse pregnancy outcome, more than 10-year pregnancy interval)	Consider low-dose aspirin if the patient has more than one of these moderate-risk factors§
Low	• Previous uncomplicated full-term delivery	Do not recommend low-dose aspirin

Figure 1: The clinical risk Assessment to Preeclampsia [4].

Gestational hypertension is the systolic blood pressure and diastolic blood pressure ≥ 140/90 mmHg on two examinations with a distance at 4 hours after 20 weeks of gestation, at previously normal blood pressure. According to ACOG (American College of Obstetricians and Gynecologists), preeclampsia is a pregnancy disorder associated with hypertension with a systolic and diastolic

blood pressure is ≥140 or ≥ 90 mmHg on two examinations with a distance at 4 hours that occurs after 20 weeks of gestation before term with previously normal blood pressure and accompanied by proteinuria ≥ 300 mg or with proteinuria (+2) from dipstick examination. Severe preeclampsia if the blood pressure ≥ 160/110 mmHg on two examinations with a distance of at least 4 hours, accompanied by thrombocytopenia and impaired liver function, new onset headache that is not responsive to the treatment and is accompanies by visual disturbances [1,2] (Figure 1).

Based on the table of clinical risk factors for preeclampsia above. This patient had categorized as a moderate risk factor based on age. Therefore, at the 16-17 weeks, the patient was given aspirin 81 mg until the gestational age of 35 weeks. In 35 weeks, the patient had given nifedipine 30 mg to prevent preterm labor. The patient has observed until she was in labor on 9th September 2021, from the physical examination found that her general condition was moderate, his consciousness was compos mentis, and blood pressure 149/108 mmHg, pulse rate 118 bpm, temperature 36.3^{0}C, respiratory rate 20 bpm, SpO_2 98%. The general status was within normal limits, and there was no edema in the four extremities, so her administration of low-dose aspirin (LDA) was successful to be preventive preeclampsia.

Although the blood pressure not following the ACOG criteria for preeclampsia. Urine test examinations, proteinuria (+1), and from the other examination, without pulmonary edema, impaired liver function, thrombocytopenia, renal insufficiency. Therefore, mother D is still diagnosed with gestational hypertension. Because the patient came in labor, the obstetric status on external examination, uterine fundal height three fingers below the processus xiphoideus, longitudinal position, right back, head percentage 2x/10'/30", FHR 148 x/minute, estimated fetal weight 3900 grams. Therefore, it has decided to do a cesarean section because of indication CPD.

Low-Dose Aspirin (LDA) to Prevention Preeclampsia

The American College of Obstetricians and Gynecology (ACOG) recommends administering LDA in women at high risk of preeclampsia. Administration of low-dose aspirin (LDA) (81 mg/day) was started between 12 weeks and 28 weeks of gestation (optimally before 16 weeks). The administration of this Low-dose aspirin (LDA) should be considered of terms risk factors for preeclampsia and that is not recommended for indications of stillbirth in the absence of risk factors for preeclampsia. Low-dose aspirin prophylaxis is also not recommended to prevent spontaneous preterm birth, fetal growth restriction, and early miscarriage. Indications for the administration of low-dose aspirin (LDA) used to prevent the preeclampsia is related vascular disorders and coagulation disorders due to prostacyclin and TXA2 imbalance [1,2].

Contraindications to the use of aspirin during pregnancy had divided into two.

1. Absolute contraindications: [1]

i. History of allergy to aspirin or another salicylic acid because it will cause an anaphylactic reaction.

ii. Patients with nasal polyps

iii. Asthmatic patients with a history of bronchospasm.

2. Relative contraindications to the use of aspirin: [1]

i. Active peptic ulcer disease

ii. History of gastrointestinal bleeding

iii. Severe hepatic dysfunction

iv. Other sources gastrointestinal or genitourinary bleeding

v. Rey's syndrome

To this case report during an ANC, she was received 80 mg/day aspirin therapy from 16-17 weeks of gestation. The use of LDA to prevent preeclampsia in pregnant women has been shown to meet ACOG criteria at 12 to 18 weeks of gestation and continued throughout pregnancy. At the time the patient was in labor, based on the results of the urinalysis, there was no proteinuria, and hypertension in her pregnancy did not develop into preeclampsia.

Several studies have shown that the use of LDA in pregnant women with a risk to developing preeclampsia can reduce the risk as preeclampsia, premature birth, and IUGR. According to the UPSTF (US Preventive Services Task Force), daily LDA isn't recommended for primary prevention of cardiovascular disease for women < 50 and > 70 years of age. The use of LDA doesn't increase the risk of bleeding, but pregnant women need to be educated about the side effects of using LDA.5 The use of aspirin does not increase the risk of other structural developmental anomalies or congenital heart defects (CHD) [6,7].

Conclusion

The American College of Obstetricians and Gynecology (ACOG) recommends administering (LDA) low-dose aspirin in women at moderate and high risk of preeclampsia. Low-dose aspirin (LDA) (81 mg /day) has started between 12 weeks, 28 weeks of gestation (optimally before 16 weeks). Mrs. D was moderate risk factors from ACOG. In this case, Aspilet was given at 16-17 weeks of gestation and continued until 35 weeks and observed until delivery. The results of physical examination, laboratory, and urine test are normal and proven to prevent preeclampsia.

The administration of nifedipine 30 mg at 35 weeks of gestation was to prevent premature birth. The conclusion from this case report is that giving LDA can prevent preeclampsia for pregnant women with moderate risk factors.

References

1. (2020) Gestational hypertension and preeclampsia. ACOG practice bulletin. Obstet Gynecol 135(6): 237-260.
2. Abanoub, Mariam (2019) Low dose aspirin as a reliable preventive tool of preeclampsia. Clinical care obstetrics and gynecology 5(2:8): 1-6.
3. Atallah A, Lecarpentier E, Goffinet F, Dion MD, Gaucherand P, et al. (2017) Aspirin for prevention of preeclampsia. Drugs 77(17): 1819-1831.
4. (2018) ACOG Committee Opinion on obstetric practice society for maternal fetal medicine. Low Dose Aspirin Use During Pregnancy. Obstet Gynecol 132(1): 44-52.
5. Arminda F, Rodiani (2019) Low-dose aspirin as a preventive measure for mothers who are at high risk of developing preeclampsia. Scientific journal of Indonesian medical students 8(1): 44-51.
6. Kongwattanakul K, Saksiriwuttho P, Chaiyarach S, Thepsuthammarat K (2018) Incidence, characteristics maternal complications, and perinatal outcomes associated with preeclampsia with severe features and Hellp Syndrome. Int J Womens Health 10: 371-377.
7. Fantasia HC (2018) Low dose aspirin for the prevention of preeclampsia. Nurs Womens Health 22(1): 87-92.