Intrauterine Fetal Death as a Complication Pregnancy with Preeclampsia, Diabetes Mellitus Type 2 and Obesity Grade 2

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Abstract: Objective: Reported patient with Intrauterine Fetal Death as a complication Pregnancy with Preeclampsia, Diabetes Mellitus type-2 and Obesity grade 2. Methods: Case Report. Result: Intrauterine Fetal Death (IUFD) is a death that occurs at > 20 weeks of gestation and the fetus has reached a size of 500 gram or more. Every year childbirth in Indonesia ranges from 5,000,000 people and it can be described that infant mortality occurs every 25-26 minutes. Causes of infant mortality include maternal, fetal and placental factors. We report the case of a female 20 years with IUFD. In this patient, management was carried out in the form of pregnancy termination. Conclusion: In this patient after anamnesis, physical examination and investigation, this patient was diagnosed as IUFD. Maternal factor are the most likely cause of fetal death in this case namely due to complication from preeclampsia, diabetes mellitus and obesity. Early diagnosis and appropriate treatment are needed to prevent complications for mother and baby.

Keywords: IUFD, Preeclampsia, Diabetes Mellitus, Obesity

1. Introduction

Intrauterine Fetal Death (IUFD) is a death that occurs when the gestational age is > 20 week and the fetus has reached a size of 500 grams or more. Generally, IUFD occurs before delivery when pregnancy has entered the age of 32 weeks and the term stillbirth (stillbirth) which is the birth of the conception in an attained state of death 28 weeks of gestation, often used in conjunction with IUFD.¹

Based on research from the World Health Organization (WHO) around the world, there are infant mortality of 10,000,000 inhabitants per year. Indonesia is a country with numbers highest perinatal mortality. This illustrates that health services in Indonesia are still need a lot of improvements that are comprehensive and of higher quality. Childbirth in Indonesia each year around 5,000,000 people and it can be described that infant mortality occurs every 25-26 minutes.²

Causes of infant mortality include maternal, fetal and placental factors. Factor maternal, namely, the age of the mother, gestational age and illness suffered by the mother such as preeclampsia, eclampsia, diabetes mellitus, and premature rupture of membranes (PROM). Fetal factors namely pregnant with twins, congenital abnormalities. Placental factors, namely umbilical cord abnormalities, umbilical cord twists, placental abruption and placenta previa.³

It is not certain the cause of fetal death in the womb is not yet known. Some causes that can result in the death of the fetus in the womb, including: 1) Bleeding: placenta and placental abortion 2) Preeclampsia and eclampsia 3) Diseases blood disorders 4) Infectious and infectious diseases 5) Urinary tract diseases 6) Endocrine diseases: diabetes mellitus 7) Malnutrition.⁴

The diagnosis of IUFD is made based on history, physical examination, and supporting investigation. In the history, complaints can be found such as the patient does not feel fetal movement within a few days, or fetal movement is greatly reduced, the patient feel her stomach is not getting bigger, even getting smaller or pregnancy is not as usual and the patient has felt lately that his stomach has become hard and felt sick like going to give birth. Meanwhile, physical examination can be done by inspection, palpation and auscultation.⁵

On inspection, no fetal movements are seen, which can usually be seen especially in thin patients. On palpation, a fundal height can be found lower than gestational age, fetal movements should not be felt and with careful palpation, you can feel the presence of crepitus on the fetal headbone. On auscultation it is good to wear stethoscope, monaural or with doprone, does not hear the fetal heartbeat (FHR). The new pregnancy reaction is negative after a few weeks the fetus has died in the womb.⁶

In 2012, it was shown that the predisposing factors were diabetes and hypertension very influential on the incidence of IUFD. This research shows that Level incidence of IUFD (2.2%), births at gestational age before 32 weeks of gestation (10.1%), and preterm birth before 37 weeks (35.5%) was higher in women with hypertension chronic and pregestational diabetes compared with women with either disease only. Use women without chronic hypertension or pregestational diabetes as referral group, there is an increased likelihood of IUFD incidence in the combined group (OR, 7.1), in the group with chronic hypertension (OR), and in the group with diabetes pregestational (OR, 3.2).⁶

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2. Case History

The female patient, 30 years old, came to the Wangaya General Hospital with G1P0A0H0 Gestation Age 35 weeks + IUFD. The patient complains of headaches and infant movements reduced since 1 day ago. The patient also said that he still felt the baby's movements for 3 days ago. Patient History of routine antenatal care (ANC) at doctor Obstetric and Gynecologist. Recent ANC history on 8/2/21 with Ultrasonography (USG), there was no baby's heartbeat. Complaints of abdominal pain, water out, and blood mucus were denied. and history of trauma be denied.

The patient had a history of uncontrolled hypertension. Family history with Father of Hypertension (+). Allergy history refuted. Gynecological history of the patient married at age 28 years, first marriage, been married for 2 years and first menstruation age 13 years, regular, no complaints during menstruation and the length of menstruation 4-5 days, menstrual cycle 28 days. Last Menstrual Period dated 7 June 2020. History of smoking, drinking alcohol, taking drugs and herbal medicine is denied.

On physical examination, the general condition is found: Good, awareness: Compos mentis, GCS E4V5M6, Weight: 81.5 kg, Height 155 cm (BMI: 33.7). Vital sign Blood Pressure (BP): 170/110 mmHg, Pulse (N): 82 x / minute, Respiration Rate (RR): 21x / minute, Temperature (t): 36.2 ºC. Physical Examination: Head appears normocephali, both conjunctiva eyes are not anemic and not icteric, lymph nodes in the neck are not enlarged, mammary appear symmetrical, enlarged and hyperpigmented areola, lungs, heart and both’s extremities oedem (+).

Obstetric examination revealed uterine fundal height 28 cm, estimated fetal weight: 2480g. Fetal heartbeat not found, uterine contractions (HIS): (-). Vaginal toucher (VT): opening pø1 cm, amniotic (-), palpable head, Hodge I, not felt small part of fetus or umbilical cord.

Laboratory tests obtained (8/2/21) Hemoglobin (Hb): 12.4 g / dL, Erythrocytes (Ery): 4.50 10 ^ 6 / uL, Hematocrit (Hct): 37.5%, Leukocytes (leu): 14.4 10 ^ 3 / uL, Platelets (thromb): 250 10 ^ 3 / uL, HBsAg: (-), Proteinuria: +1, SGOT: 16U / dL, SGPT: 13U / dL, GDS: 273 mg / dL, Na: 144 mmol / L, K: 4.1 mmol / L, Cl: 99mmol / L, L.SARS COV-19 Antigen Swab: Negative (9/2/21 06:00) GDS 225mg / dL (9/2/21 20:00) GDS 301 mg / dL (10/2/21 06:00) GDS 230mg / dL HbA1c 8.4% Patient was diagnosed with G1P0A0 Gestation Age 35 weeks 1 day + IUFD + Obesity Gr II, DM Type II + Severe Eclampsia. Vaginal delivery plan. The patient was given MgSO 4 40% 4 grams bolus and followed by MgSO 4 40% 6 grams in 500 cc of Ringer's Lactate 28 drops per minutes (tpm). Misoprostrol 100mcg every 2 hours. The patient is consulted to a Internist in with type II DM + Hypertension, given Catopril 25 mg therapy every 12 hours PO, Lantus 10 iu, Apidra 3x4 iu

![Image](A) USG date 10/8/2020. (B) Baby Picture- Maceration Grade II

3. Discussion

In this case, the diagnosis of Intra Uterine Fetal Death (IUFD) was based on history, physical examination and investigations. 30 years old pregnant female patient, with a gestational age of 35 weeks, the first pregnancy. The history in this patient is present complaints of headache and the patient feels the baby's movement is reduced. Routine patient control to Doctor Sp.OG. This patient has a history of hypertension, and a family history. Smoking history, drinking alcohol and history of trauma were not found in this patient. On physical examination edema in both extremities with a blood pressure of 170/110 mmHg. On examination supporting results obtained by blood tests with Hemoglobin (Hb): 12.4 g / dL, Erythrocytes (Ery): 4.50 10 ^ 6 / uL, Hematocrit (Hct): 37.5%, Leukocytes (leu): 14.4 10 ^ 3 / uL, Platelets (thromb): 250 10 ^ 3 / uL, HBsAg: (-), Proteinuria: +1, SGOT: 16U / dL, SGPT: 13U / dL, GDS: 273 mg / dL, Na: 144 mmol / L, K: 4.1 mmol / L, Cl: 99mmol / L, L.SARS COV-19 Antigen Swab: Negative (9/2/21 06:00) GDS 225mg / dL (9/2/21 20:00) GDS 301 mg / dL (10/2/21 06:00) GDS 230mg / dL HbA1c 8.4% Patient was diagnosed with G1P0A0 Gestation Age 35 weeks 1 day + IUFD + Obesity Gr II, DM Type II + Severe Eclampsia. Vaginal delivery plan. The patient was given MgSO 4 40% 4 grams bolus and followed by MgSO 4 40% 6 grams in 500 cc of Ringer's Lactate 28 drops per minutes (tpm). Misoprostrol 100mcg every 2 hours. The patient is consulted to a Internist in with type II DM + Hypertension, given Catopril 25 mg therapy every 12 hours PO, Lantus 10 iu, Apidra 3x4 iu

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pulmonary edema, thrombocytopenia, impaired hepatic function with an increase in AST and ALT, stunted fetal growth.  

The theory of the causes of preeclampsia, which was first put forward, was the theory of disorders placental vascularization indicating failure of spiral artery remodeling. Invasion of cells trophoblasts in the muscle layer of the spiral arteries do not occur in preeclampsia, so the arteries spiralis failed to vasodilate. This spiral artery vasodilation occurs in normal pregnancy and it is important to maintain blood flow to the fetus so as to increase tissue perfusion and ensure proper fetal growth.  

Failure to remodeling the spiral arteries occurs in preeclampsia, the vessels are fixed stiffness leading to placental hypoperfusion and ischemia. The ischemic condition will trigger the placenta produces oxidants (free radicals) which can cause cell damage endothelium. Ischemia can also progress to atherosis, fibrin necrosis, thrombosis, narrowing of the arterioles and placental infarction.

Preeclampsia is one of the risk factors for IUFD, where preeclampsia is a disease factor suffered by the mother. In preeclampsia, vessel spasm occurs blood is accompanied by salt and water retention. If all the arterioles in the body experience spasm, then the blood pressure will rise, in an effort to deal with the increase in pressure peripheral so that tissue oxygen can be fulfilled. Then the blood flow decreases to the placenta and causes impaired fetal growth and due to lack of oxygen is dangerous fetus. The most important cause for IUFD is limited fetal growth, this is emphasizes the importance of the role of the placenta in optimizing fetal growth.  

In these patients, the risk factors for obesity and diabetes mellitus were found, which were the results Physical examination of the patient's body weight has increased and obtained a BMI of 33.7 kg / m 2 and supporting examination HbA1c 8.4%, GDS 273mg / dL. Judging from the patient's BMI, this patient having grade 2 obesity has a high risk for IUFD patients is divided into 2, namely active management and management passive, and in this patient is given passive management of spontaneous labor by induction misoprostol.

This patient was given Captopril 25 mg every 12 hours PO, Lantus 10 iu, and Apidra 3x4 iu, with the aim of controlling the patient's blood sugar levels and inhibiting the production of substances in the body that causes the blood vessels to constrict, thus vessels the blood will relax more so that blood pressure decreases and the blood supply is not oxygenated heart will increase. 16 Management of IUFD patients is divided into 2, namely maternal risk factors, factors fetal risk and umbilical cord risk factors.

In this case the possible cause of IUFD is a maternal factor, namely preeclampsia, diabetes mellitus, and obesity. And is a complication of fetal death in the womb. Management of IUFD patients is divided into 2, namely active management and management passive. Early diagnosis and appropriate treatment are needed to prevent complications mother and baby.

5. Acknowledgments

The Authors are responsible for this study and also reports there is no conflicts of interest in this work.

6. Declarations

Conflict of Interest: The author reports no conflicts of interest in this work.

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