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INFLUENCE ANEMIA OF THE EVENT PREECLAMSIA IN MATERNAL

Eka Ameliai[1], and Maryati Sutarno[2]

[1,2]Abdi Nusantara College of Health Sciences, Jakarta, Indonesia

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ABSTRACT

Based on data from the Health Office of Serang Banten City, the Maternal Mortality Rate (MMR) in 2017 was 139/100,000 live births, in 2018 it increased to 158/100,000 live births. The causes of maternal death include bleeding 33% and preeclampsia/eclampsia 22%. One of the indirect causes of maternal mortality is anemia pregnancy. Anemia of pregnancy be marked with hemoglobin rate in lower 11g% resulting in placental ischemia. Placental ischemia is a one reason happening preeclampsia. Based on the foregoing, the researcher is interested in conducting a study entitled "The Effect" Anemia of Preeclampsia Incidence in Maternal Maternity at the Bhayangkara Police Hospital Banten in 2021". To know the effect of anemia in pregnancy on the occurrence of preeclampsia in pregnant women. Type of study observational analytic, with case design example. A sample 346 respondents consist of 173 group case and 173 group control. Data analysis used chi-square, odd ratio. Proportion group case which experience anemia is more big than group control. The results of the analysis showed that there was a significant effect between anemia pregnancy with incident preeclampsia p-value 0.000. Risk of preeclampsia on mother maternity which experience anemia pregnancy increase 2,794 time compared to pregnant women who do not suffer from anemia of pregnancy. It is hoped that health workers can detect early risk factors to the possibility of happening preeclampsia, so that capable of collaborating by effective with the medical team for preventive management which is adequate.

E-mail:

eka523305@gmail.com

1. Introduction

Preeclampsia is a cause of maternal death around 30-40% and tends to increase when accompanied by other organ complications. Preeclampsia occurs in approximately 5% of all pregnancies, 10% in first pregnancies and 20-30% in primi-history of chronic hypertension before pregnancy (Sukmawati 2018). Preeclampsia in pregnancy is a serious complication of the second-third trimester with clinical symptoms such as: edema, hypertension, proteinuria, seizures to coma with gestational age above 20 weeks (Indah, Siti Nur;Apriliana 2016). The initial cause of preeclampsia is still unknown, but recent developments elucidate the molecular mechanisms behindits manifestations are mainly abnormal development,placental hypoxia, endothelial dysfunction. In the mother can be complicated as hemolysis, elevated liverenzymes, and thrombocytopenia (HELLP Syndrome),kidney failure, seizures, liver disorders, stroke, diseaseheart hypertension, and death while infetus can result in preterm delivery, neurogenic hypoxia, small gestational age (SGA) and death (Mariyana, Jati, and Purnami 2017). However, a study states that there are several risk factors for preeclampsia such as family factors; maternal factors such as age, body mass index, gravida, gestational interval, multiple pregnancies, previous miscarriage history, previous history of preeclampsia, and previous history of hypertension; paternal factors such as father's age and father's medical history; other factors such as smoking, physical activity, and mental

health (Widiastuti 2019). and there are those who state that one of the factors closely related to Preeclampsia is obesity (Andriani, Lipoeto, and Indra Utama 2016). POGI targets no more maternal deaths due to preeclampsia. Preeclampsia is the first target to reduce maternal mortality because early detection and prevention can be carried out (Yuniarti F, 2018).

Maternal and child health (MCH) is one of the targets specified in the 3rd SDGs 2030 (Sustainable Development Goals) targeting an AKI (Maternal Mortality Rate) of 70 per 100,000 live births, IMR (infant mortality rate) a maximum of 12 per 1000 live births and under-five mortality a maximum of 25 per 1000 live births (et al. 2017). However, the maternal, infant and under-five mortality rate in Indonesia is still relatively high and is one of the main health problems (Dinas Kesehatan, 2020).

The three main causes of maternal death are bleeding (28%), preeclampsia/eclampsia (24%), and infection (11%) (ramin and ayuning 2017). According to the National Guidelines for Medical Services (PNPK), the incidence of preeclampsia in Indonesia is 128,273/year or about 5.3%. The trend that has existed in the last two decades has not seen a significant decrease in the incidence of preeclampsia, in contrast to the incidence of infection which has decreased according to the development of antibiotic findings (Pedoman Nasional Pelayanan Kedokteran, 2016).

According to research conducted by Bilano, VL et al (2014) chronic hypertension, obesity and severe anemia are the highest risk factors for preeclampsia/eclampsia. Chronic hypertension has an 8-fold risk, obesity has a 3-fold risk, and severe anemia has a 3-fold risk. One of the pathophysiologies of preeclampsia is because placental ischemia does not occur trophoblast invasion so that it is unable to meet nutritional needs and decreased O2 in the blood that is channeled to the placenta which can cause PO2 metabolism as a toxin that can cause preeclampsia (Perkumpulan Obstertri dan Ginekologi Indonesia, 2017).

Based on data from the Health Office of Serang Banten City, the Maternal Mortality Rate (MMR) in 2019 was 139/100,000 live births, in 2018 it increased to 158/100,000 live births. The causes of maternal death include bleeding 33% and preeclampsia/eclampsia 22% (Dinkes Provinsi Banten, 2019).

Postpartum hemorrhage is the most common cause of all deaths due to obstetric hemorrhage. Postpartum hemorrhage is bleeding that exceeds 500 ml after the baby is born (Risnawati and Hanung 2015). Postpartum hemorrhage is influenced by several factors, including bleeding from the placental implantation site consisting of hypotony due to anesthesia, excessive distention, uterine atony, multiparity, retained placenta, birth canal tearing factor, uterine rupture, preeclampsia, thrombophilia cases, placental abruption, fetal death in pregnancy, uterus and amniotic fluid embolism (Manik, Sari, and Wulan 2017). Preeclampsia is a pregnancy disease characterized by hypertension and proteinuria. Preeclampsia is one of the factors that cause postpartum hemorrhage. Women with preeclampsia face an increased risk of bleeding (Bilano, V.L et al., 2017).

According to Manuaba, one of the indirect causes of maternal mortality is anemia during pregnancy. Anemia in pregnancy is a condition in which the mother has a hemoglobin level below 11 g% in the 1st and 3rd trimesters or a hemoglobin level of less than 10.5 g% in the 2nd trimester. Based on the results of the 2013 Basic Health Research (Riskesdas) the prevalence of anemia in pregnant women in Indonesia by 37.1%. The provision of iron tablets is integrated with antenatal care services. The coverage of giving blood (Fe) tablets in Indonesia in 2012 was 85%, this percentage has increased compared to 2011 which was 83.3% (Manuba et al., 2012).

Based on the results of a preliminary study at RS Bhayangkara Polda Banten shows the number of mothers giving birth with pre-eclampsia has increased from 259 cases (13%) in 2020 to 350 cases (16%) in 2021. Based on this, the authors are interested in conducting a study entitled: "The Effect of Anemia on the incidence of pre-eclampsia in women giving birth at the Bhayangkara Police Hospital Banten in 2021".

2. Method

This research isanalytic observational, with a case control design. a sample of 346 respondents consisted of 173 case groups and 173 control groups.

3. Result and Discussion

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3.1 Result

1. Incidence of Pregnancy Anemia in Preeclampsia

TABLE 1
FREQUENCY DISTRIBUTION OF SUBJECTS WITH PREECLAMPSIA WITH ANEMIA AT BHAYANGKARA HOSPITAL POLDA BANTEN YEAR 2021

Anemia	Case		Control		Total	
	n	%	n	%	n	%
Yes	79	45.7	40	23.1	119	34.4
Not	94	54.3	133	76.9	227	65.6
Total	173	100	173	100	346	100

Based on the table above, it is known that the case group with anemia was greater than the control group, namely 45.7% and 23.1%. In the case and control groups, a larger percentage did not experience anemia

2. The Effect of Pregnancy Anemia on the Incidence of Preeclampsia

TABLE 2
EFFECT OF PREGNANCY ANEMIA ON INCIDENCE PREECLAMPSIA IN MATERNITY IN THE HOSPITAL BHAYANGKARA POLDA BANTEN YEAR 2021

Preeclampsia Incidence					Total		*P-value*	x^2	OR (95%CI)
Anemia			No anemia						
	n	%	n	%	n	%			
Yes	79	45.7	40	23.1	119	34.4			
Not	94	54.3	133	76.9	227	65.6	0.000	19,482	2,794
Total	173	100	173	100	346	100			(1.75 - 4.44)

Based on the table above, research has been carried out on 346 pregnant women. The case group with anemia was greater than the control group, namely 45.7% and 23.1%, respectively. In the case and control groups, the percentages that did not experience anemia were greater, namely 54.3% and 65.6%, respectively. The results of statistical tests using chi square calculations with p-value <0.05 obtained a p-value of 0.000 indicating that there is a significant effect between anemia in pregnancy and the incidence of preeclampsia. The odds ratio obtained from the calculation is 2.794, which means that the risk of preeclampsia in maternity women who experience pregnancy anemia increases by 2,794 times compared to maternity women who do not suffer from pregnancy anemia. The odds ratio is accompanied by the desired confidence interval (CI), this study has a 95% CI.

3.2 Discussion

The results of this study showed that there were 119 pregnant women with anemia during pregnancy. Mothers giving birth with anemia in pregnancy diagnosed with preeclampsia were 79 people (45.7%) and 40 people were not diagnosed with preeclampsia (23.1%). Mothers who were not anemic with preeclampsia were 94 people (54.3%). This may be due to other risk factors such as age, parity, employment status and other factors not controlled by the researcher. This study is in line with research conducted by Maulina Intan (2013) which obtained results from 44 patients with a diagnosis of preeclampsia and eclampsia, there were 34 people (77%) who had anemia. In the study of Ali et al (2011) women with severe anemia had a 3.6 times higher risk of preeclampsia than women without anemia. Rohilla's research (2010) observed that 17 (17, 7%) of the 97 women with severe anemia had gestational hypertension or preeclampsia and 2 (2.1%) had eclampsia. Vulnerability of women with anemia for preeclampsia due to deficiency of micronutrients and antioxidants. (Ali, AA et al, 2011). Micronutrients include calcium, phosphorus, sodium, potassium, iron, zinc, copper, magnesium, vitamin B complex, vitamin C, vitamin A, vitamin D, vitamin E, vitamin K (Barasi. ME, 2007). Deficiency of calcium and protein substances in the diet of pregnant women can lead to the risk of preeclampsia (Saifuddin, 2011). Anemia as a potential complication of preeclampsia (Taber, MD, 2006). This is also in accordance with the pathophysiological theory that the cause of preeclampsia is uteroplacental ischemia, is a condition in which the blood supply to the

placenta is reduced due to constriction of blood flow caused by anemia (Manuaba, 2008). Anemia is a decrease in the capacity of the blood to carry oxygen, this can occur due to a decrease in the production of red blood cells and/or a decrease in Hb in the blood (Frase, MD, Cooper, MA, 2009). One type of anemia includes iron deficiency, vitamin C deficiency, vitamin B12 deficiency, which is a micronutrient and antioxidant nutrient. This is likely to cause anemia to affect the incidence of preeclampsia. Antioxidants also need to be anti-free radicals because free radicals are considered toxins. It is this particular toxin that can cause preeclampsia and eclampsia. this can occur due to a decrease in the production of red blood cells and / or a decrease in Hb in the blood (Frase, MD, Cooper, MA, 2009). One type of anemia includes iron deficiency, vitamin C deficiency, vitamin B12 deficiency, which is a micronutrient and antioxidant nutrient. This is likely to cause anemia to affect the incidence of preeclampsia. Antioxidants also need to be anti-free radicals because free radicals are considered toxins. It is this particular toxin that can cause preeclampsia and eclampsia. this can occur due to a decrease in the production of red blood cells and / or a decrease in Hb in the blood (Frase, MD, Cooper, MA, 2009). One type of anemia includes iron deficiency, vitamin C deficiency, vitamin B12 deficiency, which is a micronutrient and antioxidant nutrient. This is likely to cause anemia to affect the incidence of preeclampsia. Antioxidants also need to be anti-free radicals because free radicals are considered toxins. It is this particular toxin that can cause preeclampsia and eclampsia. Antioxidants also need to be anti-free radicals because free radicals are considered toxins. It is this particular toxin that can cause preeclampsia and eclampsia. Antioxidants also need to be anti-free radicals because free radicals are considered toxins. It is this particular toxin that can cause preeclampsia and eclampsia.

4. Conclusion

There is an influence between pregnancy anemia on the occurrence of preeclampsia at Bhayangkara Polda Banten Hospital in 2021. The proportion of anemia in pregnancy with preeclampsia is greater than that without pregnancy anemia. The magnitude of the risk of pregnancy anemia on the incidence of preeclampsia at the Bhayangkara Polda Banten Hospital in 2021 is 2.794 times. For further researchers, the results of this study can be used as a reference for further research and it is recommended to use a better research design.

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