Knowledge E
enriching | engaging | empowering

Conference Paper

Risk Factors Of Preeclampsia Among Pregnant Women In Indonesia

Hemi Fitriani, Achmad Setya R, and Marcelina Keni

STIKES Jenderal Achmad Yani, Indonesia

ORCID:
Hemi Fitriani: https://orcid.org/0000-0003-2164-4123

Abstract

Preeclampsia is the second highest cause of maternal death in Indonesia. The incidence of preeclampsia in Indonesia is very high at 24%. West Java is a province in Indonesia with a high preeclampsia rate of 25%. Predisposing factors include preeclampsia including age. Health Research Data (2010) shows that the percentage of early marriage aged <20 years is still high at 46.7% and marriage age> 35 years at 0.6%. Objectives This study aims to determine the relationship between age and the incidence of preeclampsia at Dustira Hospital in Cimahi City. This study was conducted using the correlation with the case control approach. The population in this study was 130 postpartum mothers treated at Dustira Level II Hospital. The sampling technique used purposive sampling with a total of 24 for the preeclampsia group and 24 for the non-preeclampsia group. The data collected is secondary data collected by observing the medical record book. The research instrument uses a checklist sheet. The study was conducted in June 2019 at Dustira City II Kindergarten Hospital Cimahi. Univariate analysis uses frequency distribution and bivariate uses chi-square. Univariate test results showed that the incidence of preeclampsia was mostly experienced by pregnant women with age at risk of 58.3%. Bivariate test results showed a p value of 0.007 (α <0.05) and OR 7 (95% CI: 1.822-26.887) meaning that there was a relationship between age and the incidence of preeclampsia, and mothers with age at risk had 7 times greater occurrence of preeclampsia compared to age is not at risk. Pregnant women aged less than 20 years or more than 35 years are at high risk of experiencing preeclampsia. One of the efforts to prevent the occurrence of preeclampsia is through health promotion about the age of mothers who are safe to reproduce. It is expected that health workers, especially maternity nurses, can provide health services to the public regarding the ideal age for pregnancy or childbirth as well as the age at risk of preeclampsia.

Keywords: Indonesia, Maternal age pregnancies, Preeclampsia

1. Introduction

The maternal mortality rate (MMR) and infant mortality rate (IMR) in Indonesia is still high, the maternal mortality rate (MMR) reaches 305 per 100,000 live births and the infant mortality rate (IMR) reaches 24 per 1000 live births [1]. In West Java the Maternal

Mortality Rate (MMR) of 102 per 100,000 live births. This figure decreased by 0.10 points compared to 2014 [2].

In Indonesia, preeclampsia is a cause of high maternal mortality in addition to bleeding and infection, namely bleeding reaches 28%, preeclampsia 24%, infection by 11% [3]. Preeclampsia prevalence ranks first in Indonesia at 25% with the number of Preeclampsia in West Java at 24% [2017]. In Cimahi the prevalence of Preeclampsia is 25%, this number has decreased compared to 2015 [3].

Preeclampsia if not treated adequately can cause complications for the fetus or mother. The impact of preeclampsia - eclampsia on the mother is placental abruption, placental abruption, hemolysis, brain hemorrhage, damage to the capillaries of the eye to blindness, pulmonary edema, liver necrosis, heart damage, Haemolysis Elevated Liver Enzymes syndrome, kidney disorders [4]. While the impact of preeclampsia on the fetus is lack of nutrition due to lack of supply of blood and food to the placenta, this leads to impaired growth of the baby in the womb. The fetus can risk birth defects until stillbirth, due to not getting enough food. The most severe complication of preeclampsia-eclampsia is maternal death [4].

Given the danger of preeclampsia is quite high, the importance of prevention. The first step in prevention that can be done is to find out the risk factors for preeclampsia. Factors for the risk of preeclampsia include, primigravida, hyperplasentosis (for example: hydatitic mole, multiple pregnancy, diabetes mellitus, fetal hydrops, large babies), extreme age, family history of preeclampsia. / eclampsia, kidney diseases and hypertension that existed before pregnancy, and obesity [5].

Age is an important part of reproductive status. Age is associated with an increase or decrease in bodily functions that affect a person's health status. The trend is now many early marriage <20 years and marriage> 35 years. According to health research data (2010) shows that the percentage of early marriages with age <20 years is 46.7%, while the percentage of marriages aged> 35 years is 0.6%. Based on these data and of the many risk factors for preeclampsia, researchers are interested in examining age because age <20 and> 35 years greatly affect the health status of postpartum mothers.

This study differs from previous studies that used cross sectional study. This study uses a case control method with a retrospective approach. This research was conducted at Dustira Kindergarten Hospital II Cimahi which is a state-class B hospital in Cimahi, a referral hospital with a high preeclampsia rate for the past three years. The purpose of this study was to identify the relationship between maternal age and the incidence of preeclampsia at TK.II Dustira Hospital.

2. Methods

This type of study is a retrospective analytic survey with a case control design. The population of this study was all post-partum mothers in Dustira Kindergarten Hospital in August 2018 - January 2019 with an average of 130 per month. Sampling using purposive sampling. The inclusion criteria for the case and control groups in this study were not primiparous and not grademiparous, not having a history of hypertension before pregnancy and preeclampsia before, not multiple pregnancy, not being obese before becoming pregnant. The exclusion criteria for the case and control groups in this study were age that was not in accordance with the calculation of the year of birth.

The sample size was determined using the formula for calculating the sample size of the unpaired categorical analysis, amount to 24 respondents for each group so that the total sample was 48 respondents. The data collected is secondary data taken by observing maternal age data and medical diagnoses in the patient's register and medical record. The data collection step starts from the licensing process, then takes the data of the preeclampsia and non-preeclampsia mothers from December to June 2019 in the postpartum responsible room. 35 data were obtained from preeclampsia and 65 non-preeclampsia data.

The next step researchers went to the medical record room to start looking for data that had been selected before to then be seen and reselected in the medical record room based on the limitations of inclusion and exclusion criteria,for inclusion criteria Inclusion criteria are; Samples are not primiparas and grandemultiparas, has no history of hypertension, has no history of preeclampsia in previous pregnancy, not a Gemelli pregnancy, no Obesity and for exclusion criteria is incompatibility of patient birth data in medical records with age at pregnancy check up and from these results obtained 24 sample data for preeclampsia and 24 for non-preeclampsia data. The research instrument used in this study was a checklist sheet. Data collection is carried out on 16-17 June 2019. Analysis of frequency distribution data and analysis used is Chi-Square analysis (x^2)

3. Results

The percentage of age at risk for childbirth in the case and control group in Dustira Hospital CimahiCity in 2019 is explained in table 1.

TABLE 1: Distribution of age frequency at risk for postpartum mothers at Dustira Hospital Cimahi City in 2019, N = 24

Category	Preeclampsia			
	Yes		No	
	N	%	N	%
Age at risk (<20 and >35 years)	14	58.3	4	16.7
Age is not at risk(20 - 35 years)	10	41.7	20	83.3

Table 1 explains that the highest percentage of preeclamptic mothers occurs at the age of risk. The relationship between maternal age and the incidence of preeclampsia is explained in table 2.

TABLE 2: Relationship between maternal age and the incidence of preeclampsia in Dustira Hospital Cimahi City in 2019, N=24

Category	Preeclampsia				*P value*	OR
	Yes		No			
	N	%	N	%		
Age at risk (<20 and >35 years)	14	58.3	4	16.7	0,007	7.000 (95% CI:1,822-26.887)
Age is not at risk(20 - 35 years)	10	41.7	20	83.3		

Table 2 explained a relationship between maternal age with the incidence of preeclampsia and the strength of the relationship expressed by OR which is 7,000 (95% CI: 1,822 - 26,887) which means that mothers with age <20 years and> 35 years have a 7 times greater risk of experiencing preeclampsia compared to mothers aged between 20 years and 35 years.

4. Discussion

The results showed that the percentage of preeclamptic mothers occurred at the age of less than 20 years and more than 30 years. The results of this study are in line with previous studies [6] that preeclampsia is found in extreme age groups, namely less than 20 years and more than 35 years. The high rate of pregnancy at the age of less than 20 years that occurred at Dustira Hospital is caused because of the high marriage at a young age. According to health research data [7], it shows that the percentage of early marriages with age <20 years is 46.7%. The high pregnancy at the age of more than 35 years is due to two things, namely the lack of success in family planning and because women postpone marriage due to career and work.

The results of the study stated that there was a relationship between age and the incidence of preeclampsia, with a relationship of 7 times which means that mothers with

age <20 years and> 35 years had a 7 times greater risk of experiencing preeclampsia compared to women aged between 20 years to 35 years. The results of this study are in accordance with the results of previous studies [8].

Ages who are at risk of experiencing preeclampsia are <20 years and> 35 years [7]. Female reproductive organs <20 years old are still in the process of growth so that the organs are not yet mature including the uterine organs. Female reproductive organs> 35 years old have undergone a degenerative process so that they will experience organ function including the uterine organs. The condition of immature uterus or degenerative uterus is not ready to accept a pregnancy that will experience a disruption in the process of trophoblast invasion into the smooth muscle layer of blood vessels, the emergence of immunological reactions, and free radicals. All of this will cause endothelial damage / injury, which will then cause an imbalance between vasoconstrictor levels (endothelin, thromboxane, angiostensin) and vasodilators (nitricoxide, prostaxillin) as well as disorders of the blood clotting system, which eventually triggers the systemic vasospasm. Vasospasm is the beginning of preeclampsia which will be followed by the rise of blood pressure, urine protein and edema [9].

Age 20-35 years is the right age to start the best pregnancy and birth. At the age of 20-35 years, the reproductive organs are ripe and are the lowest risk for both mother and baby. These results are consistent with the statement of [10] that the age of 20-34 years is a low risk for the occurrence of preeclampsia, due to the maturity of the reproductive organs, compared with age <20 and> 35 years.

The results of the analysis also found that some mothers, as many as 16.7% at age at risk (<20 and> 35 years) but did not experience preeclampsia. This could be because there are other factors that support this such as the condition of the mother in a state of no stress, the fulfillment of good nutrition, regularly see a doctor.There is no family history of preeclampsia. One factor that causes no preeclampsia in the age group at risk is adequate nutrition. This is because adequate nutrition along with adequate antioxidant intake will cause troploblast invasion to run well so it does not trigger the appearance of vasoconstriction of blood vessels.

5. Conclusion

Pregnant women aged less than 20 years or more than 35 years are at high risk of experiencing preeclampsia. One of the efforts to prevent the occurrence of preeclampsia is through health promotion about the age of mothers who are safe to reproduce.

This research can be continued by identifying other factors besides the age factor that contribute to the incidence of preeclampsia.

References

[1] Kemenkes RI. (2017). *Indonesian Health Demographic Survey*. Jakarta: Kemenkes RI

[2] Dinas Kesehatan Provinsi Jawa Barat. (2015). *Health profile of West Java province in 2012*. www.depkes.go.id. Cited at February, 03, 2019

[3] Reeder. 2013. Maternity Nursing: Women's, Infant and Family Health, Ed.18,Vol.1. Jakarta: EGC

[4] Prawirohardjo. (2016). *Midwifery Science 4th edition.* Jakarta: PT. Bina Pustaka

[5] Pradita, I.D.E. (2018). *Relationship between age and pregnant women with preeclampsia at Dr. Soedhadi Prijonegoro Sragen Hospital.*

[6] Rizki, M.E (2013). *The relationship between age and the incidence of preeclampsia in mothers who gave birth at RSUD Wonosan in 2013.*

[7] Hidayati,N & Kurniawati, N (2012). *Relationship between age and parity with the incidence of preeclampsia in pregnant women at Bangteayu Health Center, Semarang City*

[8] Martaadisoebrata D (2013). *Obstetrics Pathology Reproductive Health Sciences. Edition 3.* Penerbit Buku Kedokteran EGC: Jakarta

[9] Fitriyati, D (2017). *Relationship between age and the incidence of preeclampsia in pregnant women with the incidence of preeclampsia at PKU Muhammadiyah Bantul Hospital in 2017.*