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THE CORELLATION BETWEEN AGE AND PARITY TO THE INCIDENCE OF PREECLAMPSIA OR ECLAMPSIA IN LABOUR

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ABSTRACT

Background: Based on Indonesian Health Demographic Survey 2007 maternal mortality rates are 228 per 100.000 live births. In East Kalimantan, maternal mortality was recorded at 90 cases, one of death caused by pre-eclampsia/eclampsia. In 2011, from 923 women in labor in Panglima Sebaya General Hospital there are 307 had pre-eclampsia/eclampsia. Pre-eclampsia or eclampsia be influenced by several risk factors such as primigravidae and ages.
Aims: The purpose of this study is to know the correlation of age and parity with pre-eclampsia/eclampsia on women in labor, in Panglima Sebaya, General Hospital.
Methods: This study used cross sectional design. Sampling methods used purposive sampling, the number of samples is 340 cases. Data analysis using SPSS for Windows Release 16.0 programmes. Bivariate analysis used chi-square test and multivariate analysis used regress logistic test.
Result: chi-square test for primigravidae has p-value(0.002) < 0,05 and Ratio Prevalence (RP) = 1.988 (95% CI 1.296 – 3.079). variabel of ages p-value(0,000) < 0.05 RP = 2.661 (95% CI 1.656 – 4.116). and for regress logistic test for variable of primigravidae the result is p-value(0,003) < 0.05 and coefficients regress 0.665, variable of ages has p-value(0.000) < 0.05 coefficients regress 0.938, and R square 0.99.
Conclusion: Primigravida and age have a correlation with the incidence of preeclampsia/eclampsia

Keywords:primigravidae, ages, pre-eclampsia/eclampsia

INTRODUCTION

Maternal Mortality Rate (MMR) is one indicator for the level of women's health. Reduce maternal mortality as targeted in the Millennium Development Goals aims to improve the health of mothers. Based on Indonesia Demographic Health Survey of 2007, MMR Indonesia was reported at 228 per 100,000 live births, while the target of the National Medium Term Development Plan, there are at 226 per 100,000 live births, and the MDG target by 2015 is 102 on 100,000 live births[1].

Based on the latest Demographic and Health Survey 2012, maternal mortality caused by hemorrhage, preeclampsia/eclampsia and infections. Bleeding occupy the highest percentage the causes of maternal mortality (31.9%), followed by preeclampsia/eclampsia (24.7%), and infections (5.5%). Preeclampsia is a disease with signs of hypertension, edema and proteinuria arising from pregnancy. The cause is not yet discovered severe preeclampsia condition can be symptoms of eclampsia with an addition of seizures[2].

Preeclampsia is a disease that is the number of events in each country is different. The incidence occurs more frequently in developing countries than in developed countries because developed countries has better prenatal care. The incidence of preeclampsia is influenced by parity, age, and race, genetic and environmental factors. Preeclampsia pregnancy is more common in primigravidae, while in multigravida associated with chronic hypertension, diabetes mellitus and renal disease[3]. In primigravidae or first-time mothers, often experience stress in pregnancy during labor that can occur with hypertension in pregnancy or so-called preeclampsia/eclampsia. Primigravidae also one of the risk factors associated with preeclampsia/eclampsia[4].

Adolescents pregnancy (<20 years) attributes to higher maternal mortality compared to more mature women. The reproductive organs has not yet matured to become pregnant and could endanger the health of both mother and fetus. The situation will be more difficult when it coupled with psychological pressure (stress). The combination of reproductive organs state and other factors can cause poisoning of pregnancy*(*gestosi*s)*in the form of preeclampsia and eclampsia[5],while at the age of 35 years or more vulnerable to the occurrence of various diseases in the form of hypertension, and eclampsia[6].

The maternal mortality rate (MMR) as a measure of success of maternal health programs. In East Kalimantan, 90 people mothers died due to maternal reasons in 2010. Direct causes of maternal death are complications that occur at delivery such as bleeding 41 (45.5%), eclampsia 22 (24.4%), infection of 2 (2.2%), and puerperal complications and miscarriage 35 (27.8%)[7]. Based on data from hospital medical record number of deliveries in Panglima Sebaya General Hospital in 2011, among 923 labor, the incidence of preeclampsia/eclampsia reached a total of 307 deliveries (33.2%). Based upon the description above, the study aims to examine the association of primigravidae and age with the incidence of preeclampsia/eclampsia in the mother giving birth. [8]

METHODS

This research is a cross sectional study. This research is conducted in Panglima Sebaya General Hospital East Kalimantan on December 4 to 11, 2012. The population in this study was 340 women giving birth in Panglima Sebaya General Hospital in 2011 that was recorded in the medical records of Panglima Sebaya General Hospital. Primigravida and multigravida pregnancy were included in the analysis. Pregnant women with multiple fetuses, previous history of diabetes mellitus, family history of preeclampsia, kidney disease and hypertension before pregnancy and pregnant women recorded in the medical record labor more than four times were excluded. Bivariate analysis using chi-square was used to determine the relationship primigravidae and age with the incidence of preeclampsia / eclampsia if the p-value$<\alpha$. Multivariate analysis using regression logistic was employed to determine which variables most influenced the incidence of preeclampsia / eclampsia.

RESULTS

Of 340 women giving birth, 170 (50%) were primigravidae and 170 women giving birth with multigravidae (50%). About a third were at risk (38.2%), whilst the rest was no risk of age (63.8%).

Table 1. The frequency distribution of research subjects is based on the characteristics of women giving birth in Panglima Sebaya General Hospital in 2011

Characteristics	**f**	**Percentage**
Gravida		
Primigravidae	170	50.0
Multigravidae	170	50.0
Age		
Risk(<20>35years)	123	36.2
No risk (20-35 years)	217	63.8

Bivariate analysis was conducted to determine the correlation primigravidae variables and age with the incidence of preeclampsia / eclampsia. The results of the analysis are presented in the following table:

Table 2. Correlation primigravidae with the incidence of preeclampsia/eclampsia in labour in RSUD PanglimaSebaya General Hospital In 2011

Gravida	**Preeclampsia / eclampsia**				**Total**		**p value**
	No		**Yes**		**n**	**%**	
	n	**%**	**%**	**n**			
Primi	76	44.7	94	1,3-3,1	170	100	0.002
Multi	105	61.8	65	38.2	170	100	
Total	181	53.2	159	46.8	340	100	

Table 2 shows that there is a significant correlation between primigravidae with the incidence of pre-eclampsia / eclampsia with p value = 0.002 (<0.005), with the prevalence ratio (PR) = 1,998 (95% CI 1.3 to 3.1) which means primigravidae was 1.9 times more likely to develop preeclampsia / eclampsia compared multigravidae.

Table 3.Correlation Age with the incidence of pre-eclampsia / eclampsia in women giving birth in Panglima Sebaya General Hospital Year 2011

Age	**Preeclampsia / eclampsia**				**Total**		**P Value**
	No		**Yes**		**n**	**%**	
	n	**%**	**n**	**%**			
Risk	47	38.2	76	61.8	123	100	0.000
Low Risk	134	61.8	83	38.2	217	100	
Total	**181**	**100**	**159**	**100**	**340**	**100**	

Table 3 shows that there is a significant correlation between age with the incidence preeclampsia/ eclampsia, with p value = 0.000 (<0.05) and Ratio Prevalence(RP) of 2.611 (95% CI 1.6 - 4.1) which means younger and older women are having 2.6 times greater chances for preeclampsia / eclampsia compared to middle aged women (20-35 years). Multivariate analysis was conducted to determine the most influential independent variable, when tested together with other independent variables on the incidence of pre-eclampsia / eclampsia.

Table 4. Correlation primigravidae and age with the incidence of pre-eclampsia / eclampsia in women giving birth in Panglima Sebaya General Hospital in 2011

Variable		**Model**	
		1	2
Primigravidae	P-value	0.002	0.003
	Coefficient regression	0.692	0.665
Age	P-value		0.000
	Coefficient regression		0.938
R2		0.39	0.99
Constance		-0.905	-2399

Table 4 shows that the age variable has a greater influence on the incidence of pre-eclampsia/eclampsia with p-value = 0.000 and regression coefficient of 0.938, compared to primigravidae variable with p-value = 0.002 and coefficient regression = 0.692. With the results of $R^2 = 0.99$, it implied that the contributions of variables primigravidae and age on the incidence of pre-eclampsia/eclampsia by 99%. Thus, the regression equation can be written as follows: $P = - 2,399 + 0.665X_1 + 0,938X_{2.}$ Mothers under 20 and above 35 years old are 31.1% more likely to develop preeclampsia/ eclampsia, while women not at risk (20-35 years) will be having 17.4% likelihood to develop preeclampsia/eclampsia.

DISCUSSION

This study confirmed that there is a significant correlation between the incidence of preeclampsia primigravidae/eclampsia with age and parity. Primigravidae is one of the risk factors associated with preeclampsia/eclampsia. Gradual increase of blood pressure, proteinuria and edema during pregnancy is a sign of preeclampsia, especially in primigravidae. These symptoms will become apparent in the third trimester of pregnancy until labor on primigravidae frequency of preeclampsia / eclampsia is higher when compared with multigravidae, especially young primigravidae.

The results of the study are consistent with Corwin's study that proposed, primigravidae often experience stress during labor. Emotional stress that occurs in primigravidae because increased release of corticotropic-releasing hormone (CRH) by the hypothalamus, which then leads to an increase in cortisol. The effects of cortisol are to prepare the body to respond to all stressors by increasing sympathetic response, including response aimed at increasing cardiac output and maintain blood pressure [4].

Based on the theory presented immunologic Sudhaberata, the formation primigravidae blocking antibody estoan antigen that is not perfect. The first pregnancy occurs with the formation of Human Leucocyte Protein Antigen (HLA) which plays an important role in modulating immune response, so she refused the products of conception (placenta) or intolerance occurs mother to the placenta, causing preeclampsia[9].
This study also confirmed that primigravidae are 2 times more likely to develop preeclampsia/eclampsia. This is supported by research Baktiyani et al, at Saiful Anwar Hospital in 1997 that reported primigravidae pregnant women with preeclampsia/eclampsia and increased by 3.6% in 1999 to 29% in primigravidae aged less than 35 years and more in 19 years. This means that out of 100 cases of preeclampsia, 29 cases occurred in primigravidae [10]. Research conducted at Dr. Hospital. M. Djamil Padang in 2012 - 2013 also shows a significant relationship with parity and the incidences of preeclampsia. Primigravidae have a tendency to experience preeclampsia compared with multigravida.

Relationship between age and the incidence of pre-eclampsia/eclampsia can be explained as the complications in adolescents pregnancy (<20 years) was higher compared to more mature women (20 to 35 years). The immaturity of the reproductive organs to become pregnant can be detrimental to the health of both mother and fetus, and these circumstances will more difficult when coupled with the psychological pressure (stress). Research conducted in China shows that the first pregnancy at a young age are at risk for preeclampsia as well as with subsequent pregnancies [11],

Research conducted in the United States in the late 1990s to early 2000 data showed that women of younger and older had a higher risk of preeclampsia/eclampsia. Similarly other studies conducted in the United States showed that women above 40 years of age had a 2-fold risk for preeclampsia/eclampsia, but in this study adolescent decreased the incidence of preeclampsia/eclampsia and no adverse risk was noted in pregnancy at Adolescent. Similarly, the results of research conducted at RSD Raden Mattaher Jambi showed a significant relationship between maternal age, history of disease with severe preeclampsia,[13-15]. Risk of interference hypertension in pregnancy increases gradually with age of pregnant women aged over 35 years. The risk of preeclampsia and eclampsia also increases in teenage pregnancies. Management of better help to reduce the incidence of eclampsia and improve pregnancy outcomes in pregnant women with advanced maternal age and older adolescents [16].

CONCLUSIONS

Parity and age have a correlation with the incidence of preeclampsia/eclampsia in labor, but age variable has stronger effect on the incidence of pre-eclampsia/eclampsia than parity. Based on the results of the above research is expected health workers can further increase health promotion efforts in the community to increase the age at first marriage and delaying pregnancy until 20. Likewise, this study also suggest that pregnant women above 35 should be more cautious and routinely perform the examination of her pregnancy. By knowing the variables of age and parity as the cause of preeclampsia/eclampsia, health workers can be more thorough and increase the vigilance in performing health services to pregnant women, in order to prevent maternal death.

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