



RESEARCH ARTICLE

The Impact of Age and Parity in the Incident of Premature Rupture Membranes (PRM)

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Abstract

Introduction: One of the most prominent problems due to pregnancy complications is the incidence of PRM. Premature rupture of membranes (PRM) is a complication in pregnancy and childbirth that plays a role in increasing maternal-perinatal morbidity and mortality which can be caused by infection. The purpose of this study was to determine the effect of age and parity on the incidence of PRM at Widodo Ngawi Hospital. **Methods:** Case control analytical observation research design. The sample of cases of maternal PRM with a sample size of 30 respondents. The sample of maternal control was 30 respondents. Samples were taken using simple random sampling technique. The independent variables are age and parity, and the dependent variable is PRM. Data collection used a secondary data type checklist. Data analysis used Logistic Regression Test with a significant level of 0.05. **Results:** The results showed that most of the mothers aged <20-> 35 years (79.3%) and p value = 0.004. The OR value of the age variable is 7,020, the conclusion is that age has a 7 times greater risk of causing PRM. Multigravida parity (72.2%) and p value = 0.010. The OR value of the parity variable is 6.481, it can be concluded that parity has a 6 times greater risk of causing PRM. P-value <0.05 concludes that there is a relationship between age and parity with the incidence of PRM. **Discussion and Conclusion:** There is an impact of age and parity of pregnant women on the incidence of PRM. Because of the magnitude of this impact, pregnant women must know the signs and risk factors for PRM so that pregnant women are more aware of their pregnancy. Efforts to reduce the impact of age and parity on amil mothers through maturing age at marriage and increasing care during pregnancy, through antenatal care programs.

Keywords: *Age, Parity, Premature Rupture of Membranes.*

Introduction

One of the most prominent problems due to pregnancy complications at this time is the incidence of PRM [1]. Premature rupture of the membranes is the rupture of the membranes before there are signs of labor and one hour of waiting has not occurred in labor [2].

PRM is one of the complications in pregnancy and childbirth that plays a role in increasing maternal-perinatal morbidity and mortality which can be caused by infection, which is where the amniotic membrane that prevents the entry of germs that cause infection is gone so that it can endanger the mother and the fetus [3]. The results of the Indonesian Health Demographic Survey (IDHS) in 2012 showed that the Maternal Mortality Rate was 359 per 100,000 live births.

If calculated based on this figure, then there were 16,155 mothers who died due to pregnancy, childbirth, and childbirth in 2012. The number of maternal deaths in East Java Province has increased. In 2016, the MMR target was 305 per 100,000 KH. In 2016, MMR in East Java Province reached 91.00 per 100,000 KH. This figure has increased compared to 2015 which reached 89.6 per 100,000 KH. There are several causes of maternal death, one of which is infection 4.87% [4].

Based on a preliminary study at Widodo Ngawi Hospital in 2018 in January-December 2018, from 1348 mothers who gave birth; women who experienced PRM were 169 (12.53%) person.

The research which was conducted in Dr. Wahidin obtained p-value = 0.045 $a = 0.05$, which means H1 is accepted and Ho is rejected, so it can be concluded that there is a relationship between parity and the incidence of PRM in pregnant women [5]. This research is supported by research at the Sunan Kudus Islamic Hospital which shows that there is a relationship between the age of the mother and the incidence of PRM, this is in line with research which reports that the age of less than 20 years or more than 35 years is a high risk group for childbirth [6, 7, 8]. Complications arising from PRM depend on gestational age.

There may be maternal or neonatal infections, preterm labor, hypoxia due to cord compression, fetal deformities, increased incidence of cesarean section, or failure of normal labor [9]. The risk of maternal and child infection increases with PRM. In the mother, chorioamnionitis occurs, in the baby there is septicemia, pneumonia, omphalitis. Chorioamnitis generally occurs before the fetus is infected.

In PRM, infection is more frequent than at term. In general, the incidence of secondary infection in PRM increases with the length of the latent period [9]. Government policy in handling cases of PRM is contained in the Minister of Health Decree No. 369 of 2007 regarding the professional standard of midwives, states that during providing care and counseling for pregnancy, midwives must be able to identify abnormalities in normal pregnancy, one of which is PRM and carry

out appropriate treatment including referring to more complete service facilities. In addition, there is also the Ministry of Health's policy on Safe Motherhood which is stated as the four pillars of Safe Motherhood, namely family planning services, antenatal care, clean and safe delivery, and essential obstetric services [10].

Methods

The type of research approach used was observational analytic research, and the design used was case control research. The study population of all mothers giving birth at Widodo Ngawi Hospital in 2018 was 1348 mothers giving birth. The sample size in the case group was 30 mothers and the control group sample was determined as the ratio between the case group and the control group, namely 1: 1 [11].

The sample size in the control group was 30 normal birth mothers. The sampling technique is Simple Random Sampling. The independent variables in the study were age and parity and the dependent variable in this study was PRM in the mother. Data analysis used descriptive statistical methods and Logistic Regression Analysis, the error rate was set at α 0.05.

Results

From Table 1, it can be seen that the most age group aged 20-35 years reached 51.7%, the highest parity rate in multigravidas was 36 mothers with a percentage of 60.0% more than primigravida mothers.

Table 1: Data on the Frequency Distribution of Maternal Characteristics by Age, Parity, and PRM

Variabel	Frequency	Percentage
Ege		
<20->35 year	29	48.3
20-35 year	31	51.7
Total	60	100
Parity		
Multigravida	36	60.0
Primigravida	24	40.0
Total	60	100
PRM		
PRM(+)	30	50.0
PRM(-)	30	50.0
Total	60	100

Based on the data in table 2, it can be explained that the incidence of premature

rupture of membranes occurs in mothers with age <20-> 35 years and multigravidas parity.

Table 2: Distribution of the proportion of PRM incidence by age and parity

Variabel	PRM		Total
	PRM(+)	PRM(-)	
Ege			
<20->35 year	23 (79.3%)	6 (20.7%)	29 (100%)
20-35 year	7 (22.6%)	24 (77.4%)	31 (100%)
Total	30 (50.0%)	30 (50.0%)	60 (100%)
Parity			
Multigravida	26 (72.2%)	10 (27.8%)	36 (100%)
Primigravida	4 (16.7%)	20 (83.3%)	24 (100%)
Total	30 (50.0%)	30 (50.0%)	30 (100%)

Based on the data in Table 3, the results of the correlation analysis can be explained that the correlation between age (<20-> 35 years) and parity (multigravida) with the incidence of PRM using the Chi Square test obtained p value 0.000 <0.25. Therefore, the p value

<0.25 qualifies for the Logistic Regression Test. The difference in the risk of age for the incidence of PRM was 0.586 and the difference in risk of parity for the incidence of PRM was 0.555. Meanwhile, the relative risk of age for PRM was 3.83 and the relative risk of parity for PRM was 4.32.

Table 3: Results of analysis of the effect of age and parity on the incidence of PRM

Variabel	PRM		Total	p-value
	PRM(+)	PRM(-)		
Ege				
<20->35 year	23 (79.3%)	6 (20.7%)	29 (100%)	0.000
20-35 year	7 (22.6%)	24 (77.4%)	31 (100%)	
Total	30 (50.0%)	30 (50.0%)	60 (100%)	
Parity				
Multigravida	26 (72.2%)	10 (27.8%)	36 (100%)	0.000
Primigravida	4 (16.7%)	20 (83.3%)	24 (100%)	
Total	30 (50.0%)	30 (50.0%)	30 (100%)	

Based on table 4, the logistic regression test results from the two variables obtained a significance value or p = 0.00 (p <0.05), so H0 is rejected, meaning that there is a relationship between age and the incidence of PRM, there is a relationship between parity

and the incidence of PRM. In the logistic analysis of the variables in the Equation, the most dominant factors with the incidence of PRM in labor mothers respectively include: age (7,020) and parity (6,481).

Table 4: Regression Test Results on the relationship between age and parity with the incidence of PRM

		B	S.E.	Wald	Df	Sig.	Exp(B)
Step 1 ^a	Ege	1.949	.685	8.102	1	.004	7.020
	Parity	1.869	.728	6.592	1	.010	6.481
	Constant	-5.928	1.463	16.416	1	.000	.003
a. Variable(s) entered on step 1: Ege, Parity .							

Discussion

The results showed that there was an effect between age on the incidence of PRM. PRM occurs mostly at age <20-> 35 years. There is a big risk of 7 times the risk of PRM, so that

age gives a 7 times greater risk of PRM. Pregnancies that occur at the age of <20 years or too young often cause complications / complications for the mother and the fetus, this is due to the immature reproductive

organs for pregnancy, where the uterus has not been able to hold the pregnancy properly, the amniotic membrane is immature and prone to tears so that it can causing PRM. Mean while, those who are too old or > 35 years old have health risks for both mother and baby. This situation occurs because the pelvic floor muscles are no longer elastic, making it easy to complicate pregnancy and childbirth. One of them is the mother's stomach that hangs and the cervix is easily dilated, which can cause the cervix to open too early, leading to PRM.

This research is supported by research conducted at the Sunan Kudus Islamic Hospital, showing a relationship between maternal age and the incidence of PRM. Another study states that the age of less than 20 years or more than 35 years is a high risk group for childbirth [6, 7]. Age is related to the increase or decrease in body function so that it affects health status.

Age <20-> 35 years of age are at greater risk for PRM. For this reason, it is advisable to the public, especially pregnant women at a risky age, to carry out regular and quality and thorough antenatal examinations and to recognize the signs as early as possible so that they are given appropriate treatment so that complications both mother and fetus do not occur [7, 8, 9, 10]. There is an influence between parity on the incidence of PRM. PRM occurs in multigravida parity.

The risk of multigravida parity is 6 times greater for premature rupture of membranes, so that multigravida parity provides 7 times greater risk for PRM. Mothers who have given birth several times are more at risk of PRM; because the vascularization of the uterus is impaired which results in the connective tissue of the amniotic membrane brittle and eventually spontaneous rupture [7, 9, 12].

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The occurrence of PRM is also due to direct trauma to the mother's stomach, possibly due to a location abnormality in the uterus and grande multiparous or pregnancy more than five times. One of the causes of PRM in parity is multi-parity. Larger multiparous allows for infection due to the process of opening the cervix faster than primiparous, so that it can cause PRM. The research which was conducted in Dr. Wahidin obtained p value = 0.045 <a = 0.05, which means H1 is accepted and H0 is rejected, so it can be concluded that there is a relationship between parity and the incidence of PRM in pregnant women¹³.

Another study also found that mothers with parity of up to or more than 4 were 9.94 times more likely to experience PRM incidence compared to mothers with parity less than 4 [7, 9, 13]. Multigravida parity has a higher risk of PRM. Therefore, a multigravida mother should attend counseling with health care workers, so that she can find out the risk factors for PRM.

Conclusion

Based on the results of research on 60 mothers giving birth, it can be concluded that the incidence of PRM in mothers aged <20-> 35 years is greater than the normal age group. From the results of statistical tests, there is a relationship between age and the incidence of PRM, meaning that the age group <20-> 35 years has an effect on the incidence of PRM in laboring mothers. Age has a 7 times greater risk of causing PRM.

The incidence of PRM in multigravida parity is greater than primigravida parity. The statistical test results show that there is a relationship between multigravida parity and the incidence of PRM, meaning that multigravida parity affects the incidence of PRM in laboring mothers. Parity has a 6 times greater risk of causing PRM.

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