

THE RELATIONSHIP BETWEEN MATERNAL AGE AND PARITY ON THE INCIDENCE OF PREMATURE RUPTURE OF MEMBRANES

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ABSTRACT

Premature rupture of membranes (PROM) is defined as the rupture of the membranes before the time of delivery at term pregnancy. The research used a quantitative study and an analytical survey with a Cross Sectional approach. The independent variable was parity and maternal age, while the dependent variable was premature rupture of membranes. This study used secondary data from 2019 to 2020. The population of this study were all 379 mothers giving birth in the VK room at the Muna Barat Hospital, and the sample in this study was 36 respondents who experienced PROM. The sample collection technique used a simple random sampling technique. This analysis used a contingency coefficient with an error rate ($\alpha = 0.05$). The results showed that at term pregnancy there were 66% of mothers who experienced PROM in the age group < 20 years and > 35 years and at term pregnancy there were 71% experiencing PROM in the primipara and grandemultipara groups. From the results of statistical analysis were using SPSS, it was found that the P value < 0.05 for the age and parity groups, where these results indicated there is a relationship between maternal age (< 20 and > 35 years) and maternal parity (primipara and grade multipara) with the incidence of PROM. It is hoped that midwives as health service providers for pregnant, maternity and postpartum women can further enhance their role in providing counseling to women, both adolescents and women of childbearing age, about a safe reproductive age for pregnancy and childbirth.

Keywords : Maternal age, parity, premature rupture of membranes

INTRODUCTION

Premature Rupture of the Membranes (PROM) is the rupture of the amniotic membranes before the labor process begins at the full-term pregnancy. Meanwhile, Preterm Premature Rupture of the Membranes (PPROM) is the rupture of the membranes in patients with a gestational age of fewer than 37 weeks (Parry & Strauss, 1998; Brian & Mercer, 2003; Mamede et al., 2012). The rupture of the membranes before delivery or opening in primipara is less than 3 cm, and in multiparas, less than 5 cm. The incidence of premature worldwide varies between 5-10% and 80% and occurs during full-term pregnancy (Adeniji et al., 2013; Endale et al., 2016). The incidence of PROM ranges from 4.5% -6% of all pregnancies in Indonesia and between 6-12% abroad. Premature rupture of membranes is an important problem because it can cause infection and increase morbidity and death in the mother and baby (Purwaningtyas, 2017). One of the impacts of PROM on babies is the occurrence of premature births. This is because when the amniotic fluid is reduced or lost, the umbilical cord is pinched between the fetus and the uterine wall. This makes the fetus short of nutrition and reduces oxygen supply. This can cause brain injury and even death in the baby. In addition, PROM can also result in oligohydramnios. This condition can affect the fetus due to reduced volume of amniotic fluid, which causes the umbilical cord to be compressed by parts of the fetal body so that blood flow from mother to fetus is reduced, which will cause reduced oxygen exchange and continue to become asphyxia of the newborn. Whereas in mothers, PROM can be a factor in uterine infection. The symptoms can be identified by the mother's rising temperature, abnormal vaginal discharge, vaginal odor, fast pulse, and lower abdominal pain, and these conditions can cause death (Manuaba, 2016).

Based on the Inter-Census Population Survey (ICPS) in 2015, Indonesia's Maternal Mortality Rate (MMR) was 305 per 100,000 live births. The number of maternal mortality in Indonesia in 2019 was 4221 people from 4,778,621 live births, with the most common causes of maternal mortality being bleeding (1280 cases), hypertension in pregnancy (1066 cases) and infection (207 cases) (Ministry of Health

THE RELATIONSHIP BETWEEN MATERNAL AGE AND PARITY ON THE INCIDENCE OF PREMATURE RUPTURE OF MEMBRANES

of the Republic of Indonesia, 2018). The highest maternal mortality rate for the Southeast Sulawesi region was in South Konawe, namely 10 cases, then 7 cases in Central Buton, 5 cases in Kolaka and Bombana, 2 and 1 case in Wakatobi, Muna, North Buton, East Kolaka, Kendari, South Buton and Muna West (Southeast Sulawesi Health Office, 2016).

Most infant deaths in Southeast Sulawesi in 2016 were in Muna Regency, with 20 cases, followed by North Buton Regency, with 18 cases (Southeast Sulawesi Health Office, 2016).

Based on this background, the author is interested in conducting a study entitled "the relationship between maternal age and parity on the incidence of premature rupture of membranes in Regional General Hospital of West Muna Regency."

RESEARCH METHODS

This study employed quantitative research using an analytical survey with a cross-sectional approach. The independent variable was maternal age and parity, while the dependent variable was premature rupture of membranes. This study used secondary data from 2019 to 2020. The population of this study was the result of a documentation study taken from medical records regarding data on mothers giving birth from 2019 to 2020 who experienced PROM. The sampling technique was simple random sampling. The secondary data obtained were analyzed using univariate analysis and multivariate analysis.

RESULTS

This study collects data on mothers who experience PROM from 2020 to 2020. This data collection aims to determine the relationship between maternal age and parity in the incidence of PROM at full-term pregnancies in the Regional General Hospital of West Muna Regency. The data comes from secondary data, namely medical records.

1. Univariate Analysis

Table 1. Univariate analysis of premature rupture of membranes, age and parity

Variable	Total	Percentage (%)
Incidence of PROM		
PROM	36	100
Non-PROM	36	100
Maternal age		
<20 and >35 years	35	49
20-35 years	37	51
Parity		
Primipara and Grandemultipara	34	47
Multipara	38	53

Source: Secondary data processed, June 2022

Based on Table 1 above, 36 respondents give birth with PROM, and 36 respondents with non-PROM. Then for the age group, the highest distribution of respondents' ages is <20 & >35 years with 35 respondents (49%), and between 20-35 years with 37 respondents (51). From the table above, the highest parity distribution group is the primipara and grandemultipara parity groups, totaling 24 respondents (47%), and the rest are multiparas, totaling 38 respondents (53%).

2. Bivariate Data Analysis

2.1. Bivariate data analysis regarding the relationship between maternal age and parity on the incidence of PROM at the full-term pregnancy

The relationship between maternal age and the incidence of premature rupture of membranes at full-term pregnancy is analyzed using the chi-square bivariate test. The results of the chi-square test for the variable maternal age can be explained in the following table:

Variable	Incidence of PROM
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**THE RELATIONSHIP BETWEEN MATERNAL AGE AND PARITY ON THE INCIDENCE OF
PREMATURE RUPTURE OF MEMBRANES**

	PROM		Non-PROM		P-value
	n	%	n	%	
Maternal age					
<20 and >35 years	23	66	12	34	0.009
20-35 years	13	35	24	65	
Parity					
Primipara	24	71	10	29	0.001
Multipara	12	32	26	68	

Source: Secondary data processed, June 2022

DISCUSSION

Maternal age with the incidence of premature rupture of membranes

Based on the data in Table 2, it can be seen that the group of mothers at risk aged <20 years and >35 years are more susceptible to premature rupture of membranes compared to the age group of 20-35 years. From the results of the chi-square analysis, a p-value <0.001 is obtained, which indicates that the mother's age significantly affects the incidence of PROM. In this study, 66 percent experiences PROM in the age group of <20 years & >35 years at the full-term pregnancy. The results of this study are in line with the theory, which states that the reproductive age is normal in the age group between 20 and 35 years. At this age, reproductive organs are mature and function optimally. Conversely, if the mother is in the age group under 20 years, the female reproductive organs are not ready to face pregnancy, which can affect the formation of the amniotic membranes to become abnormal. Whereas for those over 35 years of age, there is a decrease in the function of the reproductive organs, which affects the process of embryogenesis so that the amniotic fluid becomes thinner and easily torn prematurely (Agatha & Utin, 2016).

Furthermore, in the age group of 20 to 35 years, 35 percent of mothers experience PROM. Mothers who experience PROM are not at risk, which can be caused by several other factors. However, in this study, the author does not compare it with birth mothers who do not experience PROM.

Based on Table 2, it can be seen that the group of multiparous mothers is more at risk of experiencing PROM than primipara. The results of the chi-square

analysis are obtained a p-value <0.001 , which indicates a relationship between parity and the incidence of PROM.

The results of this study are in line with the study conducted by Invansi MP and Andini MT (2018) that there is a significant relationship between maternal age and PROM, and there is a significant relationship between parity and the incidence of PROM.

Maternal parity with the incidence of premature rupture of membranes

Based on the data in Table 2, the group of mothers at risk is mothers with primipara and grandemultipara. These are more susceptible to premature rupture of membranes compared to the multiparous group. The results of the chi-square analysis are obtained a p-value <0.001 and indicated that the mother's age has a significant effect on the incidence of PROM. In this study, 71 percent experiences PROM in the primiparous and grandemultipara groups at the full-term pregnancy. Parity is the number of live births a woman has. Primipara is a woman who gives birth for the first time with a fetus that has reached the viability limit, regardless of whether the fetus is alive or dead at birth. Multipara is a person who has two or more pregnancies that end when the fetus has reached the limit of viability. Meanwhile, grandemultipara are women who have given birth more than five times (Taufan N, 2010).

The results of this study are in line with Titi Maharani's(2017) study, where the number of mothers who experience PROM is more in mothers with only one parity or primipara, namely 75.67%, while mothers with parities 2-4 or multiparas are 57.38%.

The consistency of the cervix greatly affects the occurrence of premature rupture of membranes in multipara thin consistency of the cervix; thus, it can allow for a higher occurrence of premature rupture of membranes (Fatihah, 2015). Parity 2-3 is the safest condition when viewed from the point of view of maternal mortality and morbidity. The higher the number of parities, the mother will be more susceptible to death due to complications during childbirth. Mothers with grandemultipara will be

THE RELATIONSHIP BETWEEN MATERNAL AGE AND PARITY ON THE INCIDENCE OF PREMATURE RUPTURE OF MEMBRANES

prone to various complications related to the decreased function of the reproductive organs. Thus, it can cause abnormalities in the birth process. In order to reduce the risk of complications caused by parity that is too high (grandemultipara), health service providers must be committed to providing care services for pregnancy and childbirth needed by mothers by providing information and education using communication that can be received by mothers including preparation for pregnancy, childbirth and postpartum.

CONCLUSION AND SUGGESTION

Based on the research results on the relationship between maternal age and parity towards the incidence of premature rupture of membranes at Regional General Hospital of West Muna by taking secondary data from 2019 to 2020, the researcher concludes that some mothers giving birth at Regional General Hospital of West Muna experience premature rupture of membranes. Then, the age of the mother giving birth at Regional General Hospital of West Muna has a risk of premature rupture of membranes, which is less than 20 years and more than 35 years. The results of statistical calculations found a relationship between maternal age and the incidence of premature rupture of membranes. Furthermore, mothers with a parity of only one or more than five have a risk of premature rupture of membranes. Moreover, the results of statistical calculation tests find a relationship between maternal parity and the incidence of premature rupture of membranes.

From the conclusions above, the researcher provides several suggestions. First, midwives, as health service providers for pregnant, maternity and postpartum women, must further enhance their role in counseling women, both teenagers and women of childbearing age, about a safe reproductive age of pregnancy and childbirth. Second, future researchers hope that the results of this study can help and become basic data for further research related to the incidence of premature rupture of membranes.

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