

Research Article



Risk Factors for The Incident of Serotinus Pregnancy in The Lalowaru Health Center Area, North Moramo District

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ABSTRACT

Background: Post-term pregnancy is one of the complications that can be detrimental to the mother and baby, one of which is a decrease in fetal weight which can cause death in the baby. Objective: To determine the risk factors for serotinus pregnancy in the Lalowaru Community Health Center area, North Moramo District.

Methods: This type of quantitative analytical research uses a case-control design. The population in the study were all mothers with a history of serotinus pregnancy. The total sample was 66 respondents, using random sampling techniques

Results: There were 32 respondents (48.5%) who were at risk of experiencing a serotinus pregnancy and 34 other respondents (51.5%) who were not at risk of experiencing a serotinus pregnancy. In addition, 31 respondents (47%) with parity were at risk of experiencing a serotinus pregnancy and 35 respondents (53%) were not at risk of experiencing a serotinus pregnancy. The results showed that respondents at risk age had a 31.006 times greater chance of experiencing a serotonin pregnancy and respondents in the risk category had a 17.031 times greater chance of experiencing a serotonin pregnancy. Based on the results of statistical tests, a ρ value of 0.003 ($0.003 < 0.05$) was obtained, indicating that age is a risk factor for serotinus pregnancy. The ρ value is 0.010 ($0.010 < 0.05$), which means that parity is also a risk factor for serotinus pregnancy.

Conclusions: age and parity are risk factors for serotinus pregnancy in the Lalowaru Community Health Center Working Area, North Moramo District

Keywords : *Pregnancy, serotinus, age, parity.*

INTRODUCTION

Pregnancy is a condition where a woman has an embryo or fetus in her womb. The pregnancy period ends with the birth of the baby (1). Pregnancy is a physiological process that occurs in every woman and there will be changes in all of the mother's body systems (2). Normal pregnancy is a complex series of temporally regulated events that include decidualization, placenta, and partum. Gestational age is said to be normal if delivery occurs within 37 weeks to 40 weeks of gestation. However, in some cases, some women with chronic health conditions or other complications experience post-term pregnancy also called serotinous pregnancy, prolonged pregnancy, postdate where the pregnancy lasts until 40 weeks of gestation or for 294 days or more (3); (4).

Problems with the fetus in serotinous pregnancy based on data World Health Organization (Word) in 2014, the death rate (AKN) in the world was 26 per 1000 live births, where births with asphyxia were in fifth place, namely 9%, as the highest cause of child death in the world after other diseases (5). According to the World Health Organization (WHO), in 2016, among 6,240,830 single births with a gestation period of more than 42 weeks, the rate was 1.16%. Long-term births are higher in the West (United States, Mexico, and Chile) compared to the East. The large difference in the number of patients between countries depends on the diversity of the population in a country. The prevalence of serotinous pregnancy in Indonesia is based on data from the Indonesian Ministry of Health in 2013. The incidence of serotinous was 11,830 cases spread across all regions in Indonesia (6).

The number of post-term pregnancies in Indonesia in 2017 was 11,830 cases spread throughout Indonesia. The incidence rate in Indonesia ranges from 10.4% - 12%. The Demographic and Health Survey (IDHS) in 2017 had a high maternal mortality rate of 305,000 per 100,000 live births. Statistical data also shows that the percentage of deaths in post-term pregnancies is higher than in term or term pregnancies, where the pregnancy death rate reaches 5-7% (6).

The number of cases of serotinous pregnancy in Southeast Sulawesi is 2980 cases. In 2020, from 950 deliveries, the incidence of serotinous was 3.26%. In 2021, from 816 deliveries, the incidence of serotinous was 4.04%. Meanwhile, in 2022, from 617 births, the incidence of serotinous will be 4.12% (7). The incidence of serotinous pregnancies in South Konawe Regency in 2020 was 219 cases. In 2021 there will be 278 cases and in 2022 there will be 293 cases. Meanwhile, data from the Lalowaru Community Health Center, North Moramo District, recorded that in the last 3 years (2020-2022) there were 137 cases of serotinous pregnancies. In 2020 there were 65 cases, in 2021 there were 37 cases and in 2022 there were 36 cases (8)

Generally, post-term pregnancies occur due to disturbances at the start of labor, which causes cephalopelvic disproportion and shoulder dystocia (8). Post-term pregnancy is also caused by hormonal factors where there is a reduction in the function of oxytocin which will obstruct the uterine muscles from contracting naturally and adequately, which will cause the cervix to thin and open less, resulting in the pregnancy lasting longer in the uterus (9). Apart from

that, a factor that can be related to the incidence of serotinus pregnancy is birth parity. In multiparas, the risk of pregnancy and childbirth increases because women who frequently give birth experience a decrease in the sensitivity of uterine contractions, causing the uterus to become looser. In grand multiparas, post-date pregnancies increase, because there are too many pregnancies and births so that contractions become weak (10).

A preliminary study was conducted on 15 mothers who were diagnosed as experiencing post-term labor in 2021, 10 of whom were < 20 years old, 3 mothers were > 35 years old, and the remaining 2 were in the healthy reproductive age range. Apart from age, data was obtained from 15 pregnant women who experienced post-term, 7 of whom were multiparous. Based on this background, researchers are interested in conducting research with the title Risk Factors for Serotine Pregnancy in the Lalowaru Community Health Center Area, North Moramo District.

Post-term pregnancy is a clinically important health problem. Post-term pregnancy is associated with an increased risk of maternal morbidity and mortality (11). The problem of post-term pregnancy, if not treated immediately, can be detrimental to the mother and baby and the baby can experience a decrease in fetal weight, causing death in the baby.

METHODS

This type of research is quantitative analytical research through observational with a case-control study design. The population in this study were all mothers with a history of serotinous pregnancy at the Lalowaru Community Health Center, North Moramo District. The population in this study was taken in the 2022 period, namely

36 cases. The research sample was part of the population whose population was drawn randomly, as many as 66 people.

This research uses a measuring instrument in the form of a questionnaire. Post-term pregnancy is measured by a questionnaire using a nominal scale, namely at risk if gestational age is ≥ 40 weeks and not at risk if gestational age is 37-40 weeks. Age was measured using a questionnaire using a nominal scale, namely at risk if age < 20 years and > 35 years, and no risk if age 20-35 years. The parity variable is measured by measuring answers using a nominal measurement scale where there is a risk of parity if $\geq IV$, whereas if there is no risk of parity I to III.

Univariate analysis in this research was carried out on each research variable including the characteristics of the research respondents. Bivariate analysis was used to determine the relationship between independent variables and attachment variables, using the Odd Ratio (OR) test. To determine if H_a is accepted or rejected by looking at the p-value (α), if $\alpha > 0.1$ then H_a is accepted. To determine whether the OR value obtained has a risk of significance, the lower limit value (lower limit) and the upper limit value (upper limit) must be calculated. In OR interpretation, if $OR > 1$, it is a risk factor for cases, if $OR = 1$, there are no risk factors for cases, and if $OR < 1$, it is a risk factor for protection or protection against cases. Before carrying out the research, the research team submitted research approval to the Ethics Committee of Mandala Waluya University and was approved to carry out the research.

RESULTS

Characteristics of Respondents

Characteristics of respondents based on age, education, and occupation respondents at the Lalowaru Community Health Center, North Moramo District can be seen in the following table:

Table 1.

| Respondent characteristics | Age Category (Years) | n | % |
|----------------------------|----------------------|----|------|
| Age | 20-25 | 20 | 30.3 |
| | 26-30 | 16 | 24.2 |
| | 31-35 | 2 | 3.0 |
| | 36-40 | 17 | 25.8 |
| | 41-45 | 8 | 12.1 |
| | 46 years and over | 3 | 4.5 |
| Education | SENIOR HIGH SCHOOL | 66 | 100 |
| Work | Housewife | 66 | 100 |

The distribution of respondents in this study includes age, education, and occupation. Table 1 shows that of the 66 respondents, the largest age group was 20-25 years old with 20 respondents (30.3%) and the smallest age group was 31-35 years and above with 3 respondents (3.0%). Characteristics of respondents in terms of education show that all respondents in this study had a senior high school (SMA) education of 66 respondents (100%). Meanwhile, the characteristics of respondents regarding work show that all respondents in this study worked as housewives (IRT) as many as 66 respondents (100%).

Analysis of risk factors for serotinusin the Lalowaru Community Health Center Working Area, North Moramo District

The distribution of age risk for the incidence of serotinus pregnancy in the Lalowaru Community Health Center Working Area, North Moramo District can be seen in the following table:

Table 2. Age distribution of serotinus pregnancy incidence

| Age | Serotinus Pregnancy Incidence | | | | | | Statistic test |
|---------|-------------------------------|------|-----------|------|-------|------|---------------------------|
| | Normal | | Serotinus | | Total | | |
| | n | % | n | % | n | % | |
| Risky | 2 | 6.1 | 30 | 90.9 | 32 | 48.5 | $p = 0.003$ OR =31.006 |
| No Risk | 31 | 93.9 | 3 | 9.1 | 34 | 51.5 | |
| Total | 33 | 100 | 33 | 100 | 66 | 100 | |

Table 2 shows that 2 respondents (6.1%) had normal pregnancies while 30 other respondents (90.9%) had serotinous pregnancies. Meanwhile, among respondents of non-risk age, 31 respondents (93.3%) had a history of normal pregnancy and 3 other respondents (9.1%) had a history of serotinous pregnancy.

The distribution of risk parity regarding the incidence of serotinous pregnancies in the Lalowaru Community Health Center Working Area, North Moramo District can be seen in the following table:

Table 3. Age distribution of serotinus pregnancy incidence

| Parity | Serotinus Pregnancy Incidence | | | | | | Statistic test |
|---------|-------------------------------|------|-----------|------|-------|-----|-------------------------|
| | Normal | | Serotinus | | Total | | |
| | n | % | n | % | n | % | |
| Risky | 4 | 12.1 | 27 | 81.8 | 31 | 47 | ρ = 0.010 OR =17.031 |
| No Risk | 29 | 87.9 | 6 | 18.2 | 35 | 53 | |
| Total | 33 | 100 | 33 | 100 | 66 | 100 | |

Table 3 shows that 4 respondents (12.1) had a history of normal pregnancy while 31 other respondents had serotinous pregnancies. Meanwhile, among respondents with parity in the no-risk category, there were 29 respondents (87.9%) who had a normal pregnancy history while 6 respondents had serotinous pregnancies.

DISCUSSION

Risk factor Age on the incidence of serotinous pregnancies in the working area of the Lalowaru Community Health Center, North Moramo District

Age is a person's age starting from the time they are born until their birthday. The older a person is, the wiser they are and the more experience they have had and do to know (12). Based on the results of the research, it was found that of the 66 respondents, there were 32 respondents (48.5%) who were at risk of serotinous pregnancy and 34 other respondents (51.5%) were not at the risk age of serotinous pregnancy. Based on the statistical test results, the Chi-square value obtained was a ρ-value of 0.003 (0.003<0.05). This shows that H0 is rejected and Ha is accepted, meaning that age is a risk factor for serotinous pregnancies in the Lalowaru Community Health Center Working Area, North Moramo District. These results indicate that age is a risk factor for serotinus pregnancy.

The results of the research conducted are in line with research conducted by (14)

who found that there was a relationship between age and serotinus pregnancy. The results of this research are also in line with research conducted by (15). The results showed that age is at risk for the incidence of serotinus. Women who have a healthy and safe reproductive period in preparation for pregnancy and childbirth are around the age of 20-35 years because at that age the function of the reproductive organs can influence readiness for pregnancy and childbirth. Under or over this age there is a risk of experiencing problems during pregnancy.

The results showed that 30 respondents (90.9%) of those aged at risk had serotinus pregnancies. Meanwhile, at the non-risk age, 31 respondents (93.3%) had a normal pregnancy history. Based on research data on mothers who experience serotinous pregnancy, it occurs in mothers aged under 20 years and over 35 years. Mothers with normal pregnancies are known to become pregnant at productive reproductive age. At the age of < 20 years, the function of the female reproductive organs is not yet ready, so the function of the hormones is not yet

balanced, resulting in the hormone estrogen not increasing, which will prevent the hormone oxytocin from increasing so that contractions do not go well, the pregnancy becomes overdue or experiences pregnancy serotonitis which can result in complications in the fetus and the possibility that the fetus may die (14). Fetal death in post-term pregnancy is associated with progressive fetal hypoxia following placental insufficiency (15).

The research results also found that 2 respondents (6.1%) of those aged at risk had normal pregnancies. Research data found that the respondent experienced pregnancy at the age of 19 years. These results indicate that age at risk allows someone to give birth on time. Pregnancy at a vulnerable age, for example under 20 years of age, makes it possible to have a healthy pregnancy if balanced with good care such as consuming nutritious food, getting antenatal care from a doctor or midwife from the start of pregnancy, avoiding alcohol, drugs and cigarettes (17). One of the most common causes of post-term pregnancy is that it is not well known, namely inaccurate dating. Proper management of post-term pregnancy is something that needs to be handled immediately. So, to prevent serious complications for the fetus and mother, it is very important to always have regular pregnancy check-ups at a health facility (17).

Age was not at risk, as many as 3 respondents (9.1%) had a history of serotinus pregnancy. This condition is caused by the mother's readiness both physically and mentally. Apart from that, it is also triggered by hormones where progesterone levels do not fall quickly even though the pregnancy is at term so that the uterus' sensitivity to oxytocin is reduced. Pregnancies that tend to be frequently anxious can cause serotinus

pregnancies (17). Anxiety will hurt pregnant women, namely, it can inhibit fetal growth and weaken uterine muscle contractions (18). One of the hormones that functions in labor is the oxytocin hormone which plays a role during contractions. When the mother experiences stress, the oxytocin produced decreases so that the uterus cannot contract adequately, resulting in post-term labor (9). The level of physical and emotional maturity of someone who is an adult is more reliable than someone at a young age. Differences in developmental stages between the adult age group and the young age group influence the response to emotional disturbances as a risk for the emergence of a person's mental health disorders (19).

The odd ratio of the result obtained from the calculation is 31.006, which means that respondents who are at risk are 31.006 times more likely to experience serotinus pregnancy compared to respondents who are not at risk. One way that can be done to avoid serotinus pregnancy is to carry out a pregnancy program or plan a pregnancy at a mature age or > 20 years of age. pregnant women at a young age, less than 20 years old, from a biological perspective the development of their reproductive organs is not yet fully developed (20). Old age during pregnancy causes the risk of developing diseases that are triggered by age and as age increases, a woman's risk of experiencing complications during pregnancy increases due to decreased function of the reproductive organs in women (21).

Parity Risk Factors in the Occurrence of Serotinus Pregnancy in the Working Area of the Lallowaru Community Health Center, North Moramo District

Parity is the condition or number of births of children both alive and dead, but

not due to abortion (22). The results of the study found that of the 66 respondents, 31 respondents (47%) with parity were at risk of experiencing serotinous pregnancy and 35 other respondents (53%) were not at risk of experiencing serotinous pregnancy. Based on the results of statistical tests, the Chi-square value obtained was a p -value of 0.010 ($0.010 < 0.05$). This shows that H_0 is rejected and H_a is accepted, meaning that parity is a risk factor for serotinous pregnancies in the Lalowaru Community Health Center Working Area, North Moramo District. The results of this study indicate that parity is a risk factor that influences the occurrence of serotinous pregnancy.

If a mother gives birth too often, the uterus will experience weakness due to the appearance of uterine scar tissue due to repeated pregnancies, which can cause the mother to experience complications during pregnancy and childbirth. In multiparous pregnancies, additional months of pregnancy are often found due to decreased sensitivity of uterine contractions. This can happen because the uterus stretches and relaxes, causing the head not to enter the pelvic cavity quickly. Meanwhile, among respondents with parity in the no-risk category, 29 respondents (87.9%) had a normal pregnancy history. The serotinous pregnancies in this study occurred in primiparous, grand multiparous mothers. The cause of serotinous pregnancy in parity 1 (primiparous) is due to the mother's unpreparedness in facing childbirth so pregnant women are unable to handle problems that occur during pregnancy, childbirth, and postpartum. Besides in mothers with primipara, serotinous can be caused because the mother has never experienced pregnancy and childbirth, while in grandmultipara it is caused by the mother

experiencing pregnancy and childbirth too often, which can affect the mother's contractions (23)

Results of research that has been carried out also found that at at-risk parity there were 4 respondents (12.1%) who had a normal pregnancy history. Based on research data, this incident occurred in mothers with multiparous pregnancies. This incident arose because the mother felt that she had more knowledge and experience in pregnancy so she was not motivated to have her pregnancy checked by health workers. Meanwhile, during pregnancy, a gynecological examination is necessary to ensure the health of the fetus and womb (13).

Based on the research results, it was found that 6 (18.2%) respondents experienced serotinous pregnancies even though they did not have risk parity. Mothers who are not at risk but experience serotinous pregnancies. This is because some mothers in labor have received information and understand about healthy reproductive age and have planned the number of children (16).

The odds ratio obtained from the calculation is 17.031, which means that respondents with parity in the at-risk category have a 17.031 times greater chance of experiencing serotinous pregnancy compared to respondents with parity in the no-risk category. Serotinous pregnancies with risk factors due to parity can be prevented by carrying out antenatal care visits during pregnancy in the hope of monitoring possible risks of complications early on during pregnancy and being able to plan optimal management of high-risk pregnancies as well as reducing maternal and fetal morbidity and mortality during pregnancy (14, 25).

CONCLUSIONS

Based on the research results and discussion in this study, it can be concluded that age and parity are risk factors for serotinus pregnancy.

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