

Research Article

Fetomaternal Outcomes in Term Labor with Pregnant Thrombocytopenia***Luaran Fetomaternal pada Ibu Hamil Aterm dengan Trombositopenia*****Rajuddin Rajuddin, Muhammad Iqbal, Cut M. Yeni**

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Abstract

Objective: To determine the relationship between term pregnant women and the incidence of post-partum haemorrhage, duration of healing of incision/perineorhaphy wounds, fetal thrombocytopenia, APGAR value and birth weight of infants in dr. Zainal Abidin Hospital Banda Aceh.

Methods: Design of research is observational analytic with a cross sectional approach. The research sample was taken by the total sampling method. The population in this study were all pregnant patients at term who came to the dr. Zainoel Abidin Hospital Banda Aceh and experienced thrombocytopenia 0at a predetermined time, met the inclusion and exclusion criteria. Analysis data with the Pearson correlation test formula to assess the strength of the relationship between two variables.

Results: Prevalence of aterm pregnant women with thrombocytopenia who visited and gave birth at Dr. Zainoel Abidin General Hospital during the study period was 1.62% from 1850 visited pregnant women. A total of 30 samples in this study, obtained a maternal outcome were postpartum haemorrhage as much as 60% (p-value 0.000). The duration of wound healing was 26.70%, (p-value 0.008). While the fetal outcomes were the incidence of neonatal thrombocytopenia 50% (p-value 0.000), neonatal asphyxia with an APGAR value of 4-6 as much as 43.30% (p-value 0.003) and low birth weight of the baby at 36.70% (p-value 0.033). The five variables obtained a positive correlation with varying strengths of the relationship.

Conclusion: There is a close relationship between the incidence of thrombocytopenia at term pregnant women at delivery and fetomaternal outcomes in dr. Zainoel Abidin Hospital Banda Aceh.

Keywords: fetal outcome, maternal outcome, Score APGAR, thrombocytopenia.

Abstrak

Tujuan: Untuk mengetahui hubungan ibu hamil aterm dengan kejadian perdarahan post-partum, lamanya penyembuhan luka insisi/perineorafifi, trombositopenia janin, nilai APGAR dan berat badan lahir bayi di Rumah Sakit Umum dr. Zainal Abidin Banda Aceh.

Metode: Jenis penelitian ini adalah analitik observasional dengan pendekatan potong lintang. Sampel penelitian diambil dengan metode total Sampling. Populasi pada penelitian ini adalah semua pasien hamil aterm yang datang ke RSUD dr. Zainoel Abidin Banda Aceh dan mengalami trombositopenia pada rentang waktu yang telah ditentukan, memenuhi kriteria inklusi dan eksklusi. Analisa data dengan melakukan uji korelasi Pearson untuk menilai kekuatan hubungan dua variabel.

Hasil: Prevalensi ibu hamil aterm dengan trombositopenia pada penelitian adalah 1,62% dari 1850 ibu hamil yang berkunjung. Sebanyak 30 sampel pada penelitian didapatkan luaran maternal yaitu perdarahan postpartum sebanyak 60% (p-value 0,000). Lama penyembuhan luka didapatkan 26,70%, (p-value 0,008). Sedangkan luaran fetal yaitu kejadian trombositopenia neonatus 50% (p-value 0,000), asifiksia neonatus dengan nilai APGAR 4-6 sebanyak 43,30% (p-value 0,003) dan berat badan bayi lahir rendah 36,70% (p-value 0,033). Kelima variabel didapatkan korelasi positif dengan kekuatan hubungan yang bervariasi.

Kesimpulan: Terdapat hubungan erat antara kejadian trombositopenia ibu hamil aterm saat persalinan terhadap luaran fetomaternal di RSUD dr. Zainoel Abidin Banda Aceh.

Kata kunci: luaran fetal, luaran maternal, nilai APGAR, trombositopenia.

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INTRODUCTION

Thrombocytopenia in pregnancy is a common hematological disorder that occurs during pregnancy. The prevalence of thrombocytopenia in pregnant women is 8-10% and complications in 7-8% of pregnancies. The American College of Obstetry and Gynecology about 75% of cases are caused by gestational thrombocytopenia; 15-20% metabolic disorders; 3-4% due to immunological processes; and the remainder 1-2% consists of rare constitutional thrombocytopenia, infection and malignancy.^{1,2}

Hematological abnormalities that commonly occur during pregnancy are a benign process such as gestational thrombocytopenia. associated with systemic diseases such as preeclampsia, HELLP syndrome (hemolysis, elevated liver enzymes, low platelet count), and acute fatty liver in pregnancy (AFLP). Furthermore, autoimmune diseases include systemic erythematous lupus (SLE), antiphospholipid syndrome (APS), thrombocytopenic purpura (PTT), hemolytic uremic syndrome (HUS), and idiopathic thrombocytopenia purpura (ITP) that are detected during pregnancy.²⁻⁴

Fifty five point one percent cases of mild thrombocytopenia because most of them are thrombocytopenia gestational which usually causes mild to moderate thrombocytopenia.³ Maternal complications that often occur are bleeding, that antepartum, intrapartum and postpartum haemorrhage. Pregnant women with thrombocytopenia have a greater risk of bleeding during and after delivery, especially if cesarean surgery or operative vaginal delivery is performed and during the puerperium.⁵⁻⁷

The major changes of hemostasis during normal pregnancy include increased concentrations of most clotting factors such as (thrombin, fibrinogen and fibrin), decreased concentrations of natural anticoagulants, and reduced fibrinolytic activity. These changes create a state of hypercoagulability, so that the incidence of thrombocytopenia can risk to bleeding complications during delivery.⁸⁻¹⁰

Maternal thrombocytopenia can cause fetomaternal outcomes in the form of postpartum haemorrhage, longer duration of surgical wound healing, hemoperitoneum events and the risk of relaparotomy. Whereas for fetuses, the assessment of thrombocytopenia used was fetal thrombocytopenia, birth weight, APGAR value, bleeding complications in the fetus and

the number of platelets in the umbilical cord immediately after birth. This study aims to assess the relationship of thrombocytopenia at term pregnant women at delivery to fetomaternal outcomes.

METHODS

This research is an observational analytic study with cross sectional method, a research technique that analyzes the dependent and independent variables at the same time. This research was conducted at the dr. Zainoel Abidin General Hospital in Banda Aceh during January 2018 - December 2019. The population in this study were all term pregnant patients who gave birth with a total population of 1850 people, the prevalence of term pregnant women with thrombocytopenia who visited and gave birth during the study period is 1.62%.

The research sample was taken using the total sampling method. The total sample was 60 people and the sample in this study who met the inclusion and exclusion criteria was 30 samples of pregnant women at term with thrombocytopenia and 30 control samples. The inclusion criteria for the case group were term pregnant patients with thrombocytopenia diagnosed by obstetricians and gynecologists based on laboratory findings and pregnant women with gestational age 37 weeks 0 days to 41 weeks 6 days, while the exclusion criteria include case group patients with cases of postpartum haemorrhage other than thrombocytopenia and patients with a history of cytostatic drug use or chemotherapy. The control inclusion criteria in this study were uncomplicated term pregnant patients and live births from uncomplicated term pregnant women.

Data analysis in this study was conducted SPSS 26 both with univariate and bivariate analysis, namely to see the distribution of each variable and the relationship between independent factors and dependent factors using contingency coefficient test with a limit of significance. Pearson correlation used to determine whether there is a relationship between 2 variables, namely the independent variable and the dependent variable on an interval or ratio scale (parametric). The assumption in Pearson correlation, data must be normally distributed. Correlation can produce positive and negative.

This study has passed the ethical clearance of the Health Research Ethics Committee of the Faculty of Medicine, Universitas Syiah Kuala

dr. Zainoel Abidin Hospital number: 189/EA/FK-RSUDZA/2020.

RESULTS

The characteristics of the sample in this study showed that the most common age category was the 18–35-year-old with a total of 48 (80%) cases. In the parity characteristic, pregnant women with parity ≤ 3 children were the most frequently encountered group 50 (83.3%) cases, the gestational age group was mostly found at 39–40 weeks of age as many as 32 (53.3%) cases. In the category of BMI, the group with normal BMI was the group most frequently encountered 33 (55%) cases. In the occupational group, the majority of pregnant women were the IRT group most often found as many as 33 (55%) cases. In the education category, the majority of pregnant women have high school and elementary education 19 (31.7%) cases. The characteristics of pregnant women are shown in table 1.

Table 1. Characteristic Distribution of Term Pregnant Women

Characteristic	Term pregnant women n : 60	%
Age (y o)		
≤ 18	1	1.7
18 – 35	48	80
> 35	11	18.3
Parity (children)		
≤ 3	50	83.3
> 3	10	16.7
Gestational Age (weeks)		
37-38	28	46.7
39-40	32	53.3
BMI		
Underweight	2	3.3
Normoweight	33	55
Overweight	19	31,7
Obese	6	10
Occupation		
Housewife	33	55
Farmer	8	13.3
Entrepreneur	11	18.3
Government employee	8	13.3
Education		
Primary School	19	31.7
Middle School	14	23.3
High School	19	31,7
Bachelor's Degree	8	13.3

A distribution of pregnant at term with thrombocytopenia based on maternal outcomes was divided into 18 (60%) cases of postpartum haemorrhage with a p-value (0.000) and in the category of duration of wound healing, 8 (26.70%) cases were obtained with a p-value (0.008). Meanwhile, the fetal outcome was divided into 15 (50%) cases of neonatal thrombocytopenia with a p-value (0.000). In the category of neonatus asphyxia, APGAR values of 4-6 were obtained as many as 13 (43.30%) cases with a p-value (0.003) and in the category of low birth weight babies occurred in 11 (36.70%) cases with a p-value (0.033).

Table 2. Distribution of Term Pregnant Women with Thrombocytopenia

Variable	Pregnant with thrombocytopenia (n:30)	(%)	Control Group (n:30)	(%)
Postpartum Haemorrhage				
Yes	18	60.00	4	13.30
No	12	40.00	26	86.70
Wound Healing duration				
Lengthened	8	26.70	0	0.00
Normal	22	73.30	30	100.00
APGAR Score				
4-6	13	43.30	2	6.70
7-10	17	56.70	28	93.30
Neonatal thrombocytopenia				
Yes	18	60.00	4	13.30
No	12	40.00	26	86.70
Birthweight (gr)				
< 2500	11	36.70	3	10.00
2500-4000	19	63.30	27	90.00

Bivariate Analysis

The assessment of the relationship between two variables to obtain a correlation value was carried out by statistical tests with bivariate analysis, namely to determine the relationship between the independent variable and the dependent variable. The statistical test used is the Chi Square test. With the degree of confidence (Confidence Interval) is 95% (alpha value (p-value = 0.05). The relationship of each variable between the independent factor and the dependent factor will be used the Pearson correlation coefficient test with a limit of significance.

Table 3. Correlation of Term Pregnant Women with Thrombocytopenia and Postpartum Haemorrhage

	Pregnant with thrombocytopenia	(%)	Control Group	(%)	P-value	Correlation coefficient (r)
Postpartum Haemorrhage						
Yes	18	36.7	4	13.3	0.000	+0.462
No	12	63.3	26	86.7		
Wound Healing duration						
Lengthened	8	26.7	0	0	0.008	+0.733
Normal	22	73.3	30	100		
APGAR Score						
4-6	13	43.3	2	6.7	0.003	+0.607
7-10	17	56.7	28	93.3		
Neonatal thrombocytopenia						
Yes	15	50	0	0	0.000	+0.500
No	15	50	30	100		
Birthweight (grams)						
< 2500	11	36.7	3	10	0.030	+0.704
2500-4000	19	63.3	27	90		

In this study, was found that the maternal outcome for postpartum haemorrhage was higher in women who experienced thrombocytopenia during term pregnancy with a distribution of up to 18 cases compared to pregnant women who did not experience thrombocytopenia during pregnancy. A correlation test was carried out and found a significant relationship between the incidence of postpartum haemorrhage in pregnant women at term who suffered from thrombocytopenia (p-value 0.000). The correlation coefficient value of +0.462 indicates a positive correlation with moderate strength between the incidence of postpartum haemorrhage in pregnant women at term who suffer from thrombocytopenia. We found that the maternal outcome for prolonging the healing period of the incision wound / perineorrhaphy in term pregnant women with thrombocytopenia was 8 cases (26.7%). There is a significant relationship between the lengthening of the incision wound healing period in pregnant women at term with thrombsytopenia (p-value 0.008) and a correlation value of +0.733 shows a positive correlation with a strong correlation strength.

The fetal outcome in term pregnant women with thrombocytopenia was found in 15 cases of neonatal thrombocytopenia (50%). There is a significant relationship between pregnant women at term who is suffering from thrombocytopenia and the occurrence of thrombocytopenia in neonates (p-value 0.000). The correlation coefficient value +0,500 means that there is a positive correlation between pregnant women at term thrombocytopenia and the incidence of thrombocytopenia in neonates with moderate correlation strength, fetal outcome in the form

of neonatal asphyxia with an APGAR value of 4-6 was found in as many as 13 cases (43.3%). There is a significant relationship between pregnant women at term with thrombocytopenia and the occurrence of neonatal asphyxia with an APGAR score of 4-6 (p-value 0.003) with a correlation coefficient of +0.607. There was a positive correlation between pregnant women at term with thrombocytopenia and the incidence of neonatal asphyxia with moderate strength, while the outcome with birth weight <2500 grams was found in 11 cases (36.7%). There was a significant relationship between pregnant women at term with thrombocytopenia and the occurrence of asphyxia in neonates with birth weight <2500 grams (p-value 0.030). The correlation coefficient value is +0.704, there is a positive correlation between pregnant women at term thrombocytopenia and the incidence of birth weight <2500 grams with a strong association strength.

DISCUSSION

This study used an observational analytic method with cross sectional method by using a total sampling technique which was carried out at the dr. Zainoel Abidin Banda Aceh in a pregnant patient at term suffering from thrombocytopenia between January 2018 - December 2019. The total sample was selected based on inclusion and exclusion criteria, total 30 thrombocytopenia samples and 30 controls with various sample characteristics.

The prevalence of term pregnant women with thrombocytopenia who gave birth from January 2018 to December 2019 was a total population of

1850 people, using the prevalence rate formula (PR), the prevalence of term pregnant women with thrombocytopenia was 1.62%. The prevalence of thrombocytopenia in pregnant women is 8-10% and can cause complications occur in 7-8% of pregnancies, often detected in the third trimester of pregnancy.⁵ Maternal thrombocytopenia is detected by complete blood count performed at antenatal examination.^{5,7}

From the distribution of the characteristics of pregnant patients at term, we found that most of our population was aged 18-35 years, with a total of 48 (80%) cases. On the characteristics of maternal parity, parity ≤ 3 children was the group most frequently encountered, namely 50 (83.3%) cases, the gestational age group was mostly found at 39-40 weeks of age with as many as 32 (53.3%) cases. On the characteristics of BMI, the group with normal BMI was the group most frequently encountered, namely as many as 33 (55%) cases. In the occupational group, the majority of respondents were the most frequently encountered IRT groups, namely as many as 33 (55%) cases. Whereas in the educational characteristics the majority of respondents had high school and elementary education, namely 19 (31.7%) cases.

The study studied 1,079 antenatal cases studied, 95 of which found thrombocytopenia, giving a prevalence of 8.8%. Cases of mild thrombocytopenia were 74.7%, moderate thrombocytopenia was 17.9% and severe thrombocytopenia was 7.4%.¹¹ There was no significant difference in the distribution of cases and controls according to age (p-value 0.923), religion (p-value 0.947) and parity (p-value 0.068). In the postpartum period, thrombocytopenia persisted in 30% of medical thrombocytopenia and 5% in obstetric thrombocytopenia and there were no cases of gestational thrombocytopenia (p-value 0.001) Gestational thrombocytopenia the platelet count usually returns to normal within 6 weeks of delivery.^{3,8,12} Thrombocytopenia in pregnant women is usually associated with adverse fetal, neonatal, or maternal effects, and special management is required other than regular monitoring. Vaginal delivery in these cases should be avoided so cesarean surgery may have to be chosen for obstetric reasons.¹²⁻¹⁴

Table 3 describes a significant relationship between postpartum haemorrhage and the incidence of thrombocytopenia in pregnant women, which shows a percentage of 36.7% with a value (p-value 0.000). This is consistent

with research which says that a state of gestational thrombocytopenia or in those with a high risk for postpartum haemorrhage.^{9,15,16} In a research was found that maternal complications with thrombocytopenia such as placental abruption (9.4%), postpartum haemorrhage (5.3%), episiotomy hematoma (2.5%), rectus sheath hematoma (1%) were more than in the control group because only 3% of cases had placenta.^{17,18} abruption and 1.3% had postpartum haemorrhage in which none had an episiotomy or hematoma over the rectus abdominis muscle. Twenty patients required blood transfusions. However the need for blood transfusions was higher, (16.60%). Most women with ITP had uncomplicated pregnancies but an increased risk of PPH in women with ITP and a platelet count less than 150,000 / μl at birth.¹⁹ Major changes in haemorrhage include increased concentrations of most clotting factors, decreased concentrations of some natural anticoagulants, and decreased fibrinolytic activity. These changes create a state of hypercoagulability, thereby reducing complications of labor bleeding.²⁰

A significant relationship was also found between the incidence of thrombocytopenia in pregnant women with the length of incision healing / perineorrhaphy wounds where the percentage was 26.7% with a p-value of 0.008. A platelet count of 5000-10,000 / μL is needed to maintain the integrity of the vascular microcirculation to maintain the haemostasis process from the process of injury. Wound healing is a process involving cellular and biochemical responses both locally and systemically involving dynamic and complex processes of serial coordination including bleeding, coagulation, initiation of acute inflammatory response immediately after trauma.

CONCLUSION

In the maternal aspect, there is a moderate positive relationship between thrombocytopenia in pregnant women with post-partum haemorrhage and the duration of healing of incision wounds, caesarean section wounds and perineorrhaphy. In neonates, there is a moderate positive relationship between thrombocytopenia of pregnant women and neonatal thrombocytopenia. Meanwhile, with the APGAR score and the baby's birth weight, we found a strong positive correlation.

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CONFLICT of INTEREST

Author declare that there is no conflict of interests in this study.

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