Research Article

The Association betweeen Cesarean Section and Placenta Accreta

Hubungan antara Seksio Sesarea dan Plasenta Akreta

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Abstract

Objective: To determine the relationship between the history of cesarean section and the incidence of placenta accreta in Dr. Zainoel Abidin Hospital Banda Aceh.

Methods: The data collection method used was secondary data collection which was assessed through retrospective medical records. Sampling in this study using total sampling method. The results of the study were processed using the chi square statistical test on 781 research samples that were collected from period April 2019 - April 2020.

Results: The results obtained were 22 respondents (2.8%) experienced placenta accreta where 18 respondents (2.30%) had placenta accreta with a history of CS and 4 respondents (0.51%) placenta accreta without a history of CS. The p value obtained was 0.000 (p value <0.05). In this study, the value of the Risk Estimate (RE) was 6.483 with a Confident Interval (CI) of 95% being (2.21-18.97).

Conclusion: There is a very significant relationship between the history of cesarean section and the incidence of placenta accreta at RSUDZA Banda Aceh and mothers with a history of CS have a 6 times greater risk of experiencing placenta accreta.

Keywords: cesarean section, placenta accrete.

Abstrak

Tujuan: *Untuk mengetahui hubungan riwayat seksio sesarea dengan kejadian plasenta akreta di Rumah Sakit Umum Daerah Dr. Zainoel Abidin Banda Aceh.*

Metode: *Jenis penelitian ini adalah penelitian analitik dengan desain potong lintang. Metode pengambilan data yang digunakan adalah pengambilan data sekunder yang dinilai melalui rekam medik secara retrospektif. Pengambilan sampel pada penelitian ini menggunakan metode total sampling. Hasil penelitian diolah menggunakan uji statistik chi square terhadap 781 sampel penelitian yang telah dikumpulkan dari data periode April 2019 – April 2020.*

Hasil: *Hasil yang didapatkan sebanyak 22 responden (2,8%) mengalami plasenta akreta dimana 18 responden (2,30%) plasenta akreta dengan riwayat SC dan 4 responden (0,51%) plasenta akreta tanpa riwayat SC. Nilai p value yang didapatkan adalah 0.000 (p value <0,05). Pada penelitian ini didapatkan nilai Risk Estimate (RE) 6,483 dengan Confident Interval (CI) 95% berada (2,21- 18,97).*

Kesimpulan: *Hasil ini menunjukkan terdapat hubungan yang sangat signifikan antara riwayat seksio sesarea dengan kejadian plasenta akreta di RSUDZA Banda Aceh dan ibu dengan riwayat SC memiliki risiko 6 kali lebih besar untuk mengalami plasenta akreta.*

Kata kunci: *plasenta akreta, seksio sesarea.*

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Received: Accepted: Published:

INTRODUCTION

Maternal Mortality Rate (MMR) is still quite high in Indonesia until now it is still an annual health problem. According to the data Inter-Census Population Survey (SUPAS) in 2015, the MMR in Indonesia was 305 per 100,000 live births, which tend to decrease compared to the previous year, namely 390 per 100,000 live births, but the number 305 was still high when compared to the SDG's target.[1,2] In Aceh, there were 141 cases of MMR reported in 2018 with the MMR ratio showing a decrease to 139 per 100,000 live births.[3]

Obstetric complications that can lead to mortality and fatal morbidity that increase MMR include placental invasive abnormalities (AIP).The incidence of AIP continues to increase to 1/153 of deliveries in the United States.[4]

Placenta accreta is an abnormal placental disorder in which the placental villi attach to the myometrium.[5,6] The incidence of placenta accreta in America increased 10-15 times from 1: 4017 in 1980 to 1: 272 in 2016.[7] Pathology studies of placenta accreta distribution were found to be 69.5% whereas invasion placenta accreta represents 30.5% of all placenta accreta cases. This incidence has increased in the last two decades.[8] The high incidence of placenta accreta also occurs in the General Hospital (RSUD) Dr. Soetomo with a total of 156 cases with an incidence of 4% of total deliveries.[4] The incidence of placenta accreta has continued to increase in Indonesia since 2016, namely 2% and will continue to increase, this has resulted in an increase in the mortality rate and morbidity of pregnant women in Indonesia.[9]Meanwhile, Aceh Province itself does not have data that is significant enough for the prevalence of placenta accreta. RSUD Dr. Zainoel Abidin obtained initial survey data on the incidence of Placenta accreta as many as 36 cases in 2018 to April 2020.

Method of delivery in mothers giving birth is thought to be a risk factor for the incidence of placenta accreta. Mothers with a history of previous cesarean section have a greater risk of experiencing placenta accreta compared to mothers who deliver vaginal delivery. An increase in the number of prior history of cesarean section increased the risk of placenta accreta by an eightfold increase after two or more histories of cesarean section.[10]

The incidence of cesarean section in the United States and Australia, has increased by 30%, which is quite a high number, while WHO recommends limiting the percentage of cesarean section for a country to a maximum of only 10% to 15% and not allowed to pass this limit. [11]Asia is the 6th highest cesarean section in the world. The increase in cesarean section over the past few decades has generated global concern, including from the scientific community as well as public health and medical groups.[12]

The latest RISKESDAS results in 2018 the incidence of cesarean section increased to 17.6%.[13] According to the RISKESDAS results, the delivery rate for cesarean section in Lampung Province in 2013 was around 4.5%.[14] In Dr. Zainoel Abidin, the cesarean section rate also continued to increase to 54.35% at the end of December 2016 which was previously only 13.29% in 2011-2013.[15]

Cesarean section has short term and long-term risks. The short-term risks for mothers with a history of cesarean section include peri- and postoperative complications such as: bleeding requiring transfusion or hysterectomy, bowel injury, bladder injury or ureteral injury, thromboembolic disease, and maternal death. Long-term risks of cesarean section include ectopic pregnancy, miscarriage, abnormal invasive placenta (AIP), and uterine rupture. The study reported that women who had Placenta Praevia and a history of previous cesarean section increased the incidence of placenta accreta by 3%, 11%, 40%, 61% and 67% for cesarean section 1 time, 2 times, 3 times, 4 times and respectively. 5 times.[7,16] Based on these data, the researcher was interested in conducting research on the relationship between the history of cesarean section and the incidence of placenta accreta at RSUDZA Banda Aceh.

METHODS

This type of research is an observational analytic study with a cross sectional design, which is a study between 2 variables carried out simultaneously. This study is called analytic because it wants to analyze the relationship between the history of cesarean section as a risk factor for placenta accreta. Retrieval of data through secondary data in the form of patient medical records retrospectively. The research was conducted at General Hospital Dr. Zainoel Abidin Banda Aceh. Data collection was carried out from 12 August to 21 September 2020.

The population in this study were all women

who gave birth using the method of cesarean section at the General Hospital Dr. Zainoel Abidin Banda Aceh for the last 1 year, namely April 2019 to April 2020, namely 854 people. Samples were taken using a non-probability sampling method using total sampling type and the sample in question was all women who gave birth using the cesarean section method for the last 1 year, namely April 2019 to April 2020 who met the inclusion and exclusion criteria of 781 samples.

The research instrument used maternal medical record data with cesarean section in General Hospital Dr. Zainoel Abidin Banda Aceh for the past 1 year from April 2019 to April 2020. Collecting data in this study by taking patient data in the registration booklet in the delivery room and Arafah 2 room then tracing the medical records of cesarean section patients to find out whether there was a history of cesarean section or not.

RESULTS

Table 1. Subject Characteristics

Characteristics	Frequency (N)	(%)
Mother's Age		
<20	10	1.3
20 - 35	609	78.0
>35	162	20.7
Gravida		
Primigravida	209	26.8
Multigravida	572	73.2
Parity		
Nullipara	245	31.4
Primipara	208	26.6
Multiparous	328	42.0
Abortion		
Yes	126	16.1
No	655	83.9

Table 2. Distribution of the Frequency of Placenta Accreta Occurrences in Maternal CS at RSUDZA Banda Aceh April 2019 - April 2020

	Frequency (N)	(%)
Placenta accreta	22	2.8
No Placenta accreta	759	97.2
Total	781	100

Tabel 3. The Relationship between Cesarean Section History and the Incidence of Placenta accreta at RSUDZA Banda Aceh April 2019 - April 2020

History of Cesarean Section	Placenta Accreta				Total		*P-value*	Risk Estimated
	Yes		No					
	N	%	N	%	N	%		
Yes	18	2.30	302	38.68	320	40.98	0.000	6.483
None/Primary SC	4	0.51	457	58.51	461	59.02		
Total	22	2.81	759	97.19	781	100		

Table 4. Characteristics of placenta accreta patients with a history of cesarean section at RSUDZA April 2019 - April 2020

Characteristics	Frequency (18)	(%)
Mother's Age (years)		
20 - 35	14	77.8
> 35	4	22.2
Gravida		
Multigravida	18	100
Parity		
Primipara	5	27.8
Multiparous	13	72.2
Abortion		
Yes	4	22.2
No	14	77.8
History of the Cesarean Section		
1X	7	38.8
2X	9	50.0
3X	2	11.1
Placenta Position		
Fundal Placenta	1	5.6
Low laying Placenta	1	5.6
PPT	10	55.6
PPT Anterior	6	33.3
Probability of Invasion PAS (%)		
33	5	27.8
51	4	22.2
69	8	44.4
19	1	5.6
Anatomical Pathology Results		
Not Placenta accreta	2	11.1
Placenta accreta	7	38.9
Placenta Increta	1	5.6
Placenta Percreta	2	11.1
PA results are unknown	6	33.3
Education		
Diploma IV	7	38.9
Diploma III	2	11.1
High school	8	44.4
Junior High School	1	5.6
Profession		
Honorary	2	18.2
Housewife	11	61.1
Civil servants	2	11.1
Private	2	11.1
Nurse	1	5.6
Outcome mother		
Life	17	94.4
Death	1	5.6
Outcome Baby		
Life	18	100

DISCUSSION

The majority of samples in this study were aged 20-35 years with a percentage of 78.0%. This is in line with the analysis of the 2017 IDHS data in 2019 that the method of cesarean section delivery in Indonesia is mostly for mothers aged 20–35 years.[13] This is also in accordance with research in 2019 at Pringsewu Hospital Lampung that the majority of mothers at the age of 20-35 years experienced cesarean section which may be caused by several factors such as maternal health conditions that do not allow vaginal delivery, one of which is heavy bleeding during pregnancy or physical stress. as well as mental and can be caused by other pregnancy complications so it should use the method of cesarean section.[17] The majority of respondents in this study were multigravida status at 73.2%. Based on parity status, respondents with multiparous status were 42.0%. The multiparous parity status was higher when compared to nulliparous and primiparous. While the majority of women who gave birth with cesarean section who experienced abortion, only 16.1% and 655 other mothers did not experience abortion (83.9%).

In this Study shows that women with CS with a history of CS 2.30% had Placenta accreta while women who gave birth with a cesarean section who did not have a history of CS 0.51% had Placenta accreta.[18] Chi-square test with Confident Interval (CI) 95% resulted in a p value of 0.000 which means that there is a significant relationship between the history of cesarean section and the incidence of placenta accreta. A retrospective cohort study in 2019 in China also supported the results of this study that there was statistical significance on history of CS, the amount of vaginal bleeding, medications during pregnancy, and placenta previa which were independent risk factors for placenta accreta with a p value of 0.04 for history of CS.[19]

Our study also shows the Risk Estimate which aims to estimate the risk of women in cesarean section with a history of CS experiencing placenta accreta. The result of the Risk estimate obtained was 6.483 with a Confident Interval (CI) of 95% (2.21-18.97), which means that mothers with a history of CS have a 6 times greater risk of experiencing placenta accreta. The results of this study are supported by a study entitled Analysis of pregnancy in women with a history of previous cesarean section and it was found that this study showed an association between abnormal placenta in women with a history of previous CS. Cesarean section was associated with an increased risk of abnormal placenta including 2.6 times higher placenta accreta and placenta previa 1, 8 times higher than that of mothers who did not have a previous CS. A cohort study conducted in the UK reported that the incidence of abnormal placenta was the reason that 40% of women had to have hysterectomy.[20]

Characteristics of Placenta Accreta Patients with a History of Cesarean Section

Mother's Age

The characteristics of placenta accreta patients with a history of CS in RSUDZA are presented in table 4 where the age of mothers who experienced placenta accreta with a history of CS was 77.8% experienced by mothers aged 20-35 years as many as 14 people. This occurs because almost part of the sample in the study were mothers of productive age for the pregnancy process, although at the age of 20-35 the uterus was still quite strong, but it did not rule out placenta accreta due to other factors. This result is different from the research at RSUP Dr. M. Djamil Padang in 2017 who found that the mother who experienced placenta accreta was more at age> 35 years.[21]One of the risk factors that can affect the condition of the mother is age. At the age of> 35 years the uterus is associated with decreased vascularity which can lead to tissue hypoxia.

Gravida

The results of this study indicate that mothers who have 100% placenta accreta are multigravidas, meaning that placenta accreta predominantly occurs in women who have been pregnant more than once. Placenta accreta in multigravida mothers is associated with previous gestational measures be it previous methods of delivery such as CS, condition of the mother's uterus and other supportive factors.

Parity

Parity is one of the characteristics of placenta accreta in this study, Table 4 shows that placenta accreta occurs mostly in multiparous women as much as 72.2%. This is consistent with a study conducted in 2018 entitled The relationship between placenta accreta index scores and the

incidence of placenta accreta at RSUP M. Djamil Padang where the results showed that cases of placenta accreta were more prevalent in multiparous women with a percentage of 57.7%.[22]

Abortion

Patients with placenta accreta with a history of CS who experienced a slight abortion, namely 22.2%. This means that the characteristics of placenta accreta patients in RSUDZA majority do not experience abortion.

History of Cesarean Section

The results of this study indicate a significant relationship between history of CS and the incidence of placenta accreta. The results of the characteristics obtained in table 4 show that the number of CS was twice, more experienced with placenta accreta with a percentage of 50.0%, while the number of CS three times was only 11.1%.

Placenta Position

The characteristics of placenta accreta based on the position of the placenta when seen from Table 4, the majority are placenta previa totalis. The most frequent distribution of placenta positions in placenta accreta patients is placenta previa totalis, namely 55.6%. The results of this study are also in line with the results of research at Hasan Sadikin General Hospital Bandung in 2017 that the most common type of placenta previa found in invasive placenta including placenta accreta is placenta previa totalis anterior where the significance of the p value was 0.001 for anterior PPT.

Probability invasion of PAS

Probability of invasion of placenta accreta based on table 4, the largest proportion was 69% with a percentage of 44.4%. This means that the mean placenta accreta index scoring is 5, with an invasion probability of 69%, a sensitivity of 52% and a specification of 92%.

Type of Placenta Accreta Spectrum

The type of placenta accreta spectrum based on ultrasound results with laboratory confirmation of anatomic pathology in table 4 was mostly placenta accreta with a percentage of 38.9% and 6 of the 18 placenta accreta patients with a history of CS had no anatomic pathology results.

Education and Work

Education and work are demographic characteristics that accompany placenta accreta patients, in table 4 it shows that most mothers with placenta accreta have Diploma IV and high school education, while work for mothers with placenta accreta is housewives with a percentage of 61.1%. These results indicate that the majority of placenta accreta patients are educated and know the actions and health problems they experience.

Outcome Mothers and Infants

Outcome mothers and infants in patients with placenta accreta can describe the mortality and morbidity rates of placenta accreta itself. Table 4 shows that the maternal outcome for placenta accreta was 94.4% alive. Meanwhile, the mortality rate in mothers with placenta accreta was 5.6%, this shows a high enough number when viewed from the number of patients. The number 1 in 18 mothers with placenta accreta who experience death is quite alarming. This is also supported by a study conducted in 2019 in a survey analysis of the world health organization that the greatest effect between maternal outcomes and CS results is severe maternal outcomes reaching 6.5 per 1000 live births and maternal mortality 5.5 per 1000 live birth. The infant outcome in placenta accreta patients was 100% alive.

CONCLUSSION

Based on the results of the study, it can be concluded that there is a significant relations between history of cesarean section and the incidence of placenta accreta at the General Hospital Dr. Zainoel Abidin Banda Aceh.

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