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RESEARCH

The Relationship Between The Placenta Accreta Index (PAI) Score and The Incidence of Placenta Accreta In Patients Giving Birth in The Obstetrics Department Of RSUP.Dr.M. Djamil Padang

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Abstract

Objective: To determine the relationship between PAI scores and the incidence of placenta accreta in placenta previa accreta suspects who gave birth at RSUP M. Djamil Padang.

Method: This study is an analytical study using a cross-sectional study design with a sample of all patients with placenta previa totalis suspected accreta who gave birth in the obstetrics department of RSUP M. Djamil Padang during the period January 1, 2017 - April 30, 2018. The data were taken from the patient's medical records that included age, parity status, labor history, and PAI score from ultrasound examination results. The relationship between PAI scores and the incidence of placenta accreta was analyzed using an independent T-test with a significant degree of <0.05 . The research results are presented in tabular form.

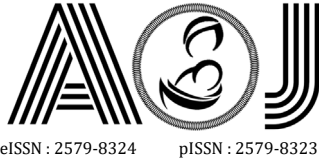
Results: During the study period, 30 patients with placenta previa suspected of accreta at RSUP M. Djamil Padang. It is known that cases of placenta accreta were more common in multiparous (57.7%), suspected accreta (57.7%), had a history of SC (65.2%), and the mean age of patients with accreta was 34.7 ± 3.5 years. Furthermore, it can be concluded that the mean PAI score in patients with placenta accreta is higher than non-accreta, and there is a significant relationship between PAI scores and cases of placenta accreta ($p > 0.05$).

Conclusion: The mean PAI score in patients with placenta accreta is higher than without accreta and there is a significant relationship between PAI scores and cases of placenta accreta.

Keywords: Placenta Accreta, PAI Score

INTRODUCTION

Placenta accreta is defined as the invasion of abnormal trophoblasts from part or all of the placenta into the uterine wall's myometrium.¹ Placenta accreta, formerly known as placenta adhesive, refers to the pathological range of placenta, including placenta increta, placenta percreta, and placenta accreta. Maternal morbidity and mortality can result from severe and sometimes life-threatening bleeding, which often requires blood transfusions.



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Maternal mortality rates are increased for women with placenta accreta.^{1,2} Besides, patients with placenta accreta are more likely to need a hysterectomy at the time of delivery or during the postpartum period and have a longer hospitalization period.

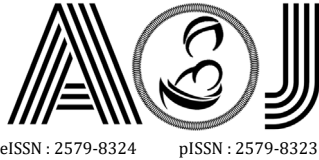
An increased incidence of placenta accreta has been reported. Wu et al. reported an increase in the incidence from 1: 2510 in 1994 to 1: 533 in 2005, but the incidence has increased by about three per 1,000 births in the last decade and is in line with the increase in the cesarean delivery rate. Other risk factors associated with placenta accreta are multiparity, placenta previa, prior intrauterine infection, and maternal age over 35 years.

Doppler imaging is the recommended first-line modality for diagnosing an abnormal placenta.^{1,2,3} Although more complex forms of imaging hold promise in determining placental topography, such as 3-dimensional Doppler and ultrasound volume contrast, their validation studies lack the general application of the technique. The diagnosis of abnormal placenta involves several different ultrasound variables, some qualitative and others quantifiable. These markers include the inability to visualize a normal retroplacental clear zone (halo zone), irregularity of the uterine-bladder border, retroplacental myometrial thickness, presence of intraplacental lacunar spaces, and blood vessels crossing between the placenta and bladder wall when using Doppler color. A recent meta-analysis of 23 studies explored the contribution of this ultrasound parameter to the prediction of overall placental abnormalities and found a promising sensitivity of 91% and specificity of 97%.³

This prompted the authors to investigate further the relationship between Placenta Accreta Index (PAI) scores and the incidence of placenta accreta in placenta praevia accreta suspects who gave birth at RSUP M. Djamil Padang.

METHOD

This research is an analytical study using a cross-sectional study design with a sample of all patients with placenta previa totalis accreta suspects who gave birth in the obstetrics department of RSUP M. Djamil Padang the period January 1, 2017 - April 30, 2018. parity status, labor history, and PAI score from ultrasound examination results. The relationship between PAI scores and the incidence of placenta accreta was analyzed using an independent T-test with a significant degree of <0.05. The research results are presented in tabular form.



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RESULTS**Table 1** Respondent Characteristics

Respondent Characteristics	Accreta (n=15)	Non Accreta (n=15)	p-value
Gravida			
Primipara	0 (0%)	5 (100%)	0,04
Multipara	15 (57,7%)	11 (42,3%)	
Early Diagnosis			
Suspected accreta	15 (57,7%)	11 (42,3%)	0,1
Non Accreta	0 (0%)	4 (100%)	
Previous CS			
Yes	15 (65,2%)	8 (34,8%)	0,002
No	0 (0%)	8 (100%)	
Age	34,7 ± 3,5	31,93 ± 6,4	0,16

Based on Table 1, it is known that placenta accreta cases were more prevalent in multiparous (57.7%), suspected accreta (57.7%), had a history of SC (65.2%), and the mean age of patients with accreta was 34.7 ± 3.5 years. It can be concluded that there is a significant relationship between gravida and history of CS with cases of placenta accreta, and there is no relationship between early diagnosis and age with cases of placenta accreta.

Table 2 Mean PAI Scores in Placenta Accreta and Non-Accreta Patients

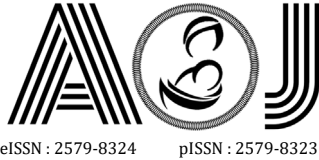
Variable	Accreta (n=15)	Non Accreta (n=26)	p-value
PAI Score	5,9 ± 2,2	4,2 ± 2,2	0,04

Based on Table 2, it can be concluded that the mean PAI score in patients with placenta accreta is higher than non-accreta, and there is a significant relationship between PAI scores and placenta accreta cases ($p < 0.05$).

DISCUSSION

The results of this study indicate that there is a relationship between gravida and history of CS with cases of placenta accreta, and there is no significant relationship between early diagnosis and maternal age with the incidence of placenta accreta. This is in line with a study conducted by Silver et al. (2006) that the risk of placenta accreta and hysterectomy significantly increases with the increase in the number of deliveries with cesarean section.⁴ Placenta accreta is generally more common in multiparous than primiparous. The existence of a manual history of placenta, sepsis, and curettage can be a risk factor for placenta accreta in subsequent pregnancies. The probability of placenta accreta, increta, and percreta increases with increasing maternal age.⁵ Besides, the presence of disorders of the corpus luteum can be a cause of placenta accreta.³

The impact of placenta accreta is the occurrence of heavy bleeding that causes maternal death. Prenatal diagnosis is very helpful for planning the delivery process, including using the



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PAI score so that cases of placenta accreta are detected early, and appropriate treatment can be planned.

Based on the results of the analysis, it is known that there is a significant difference in the mean PAI score between patients with placenta accreta and no accreta. This is in line with research conducted by Rac et al. (2014), which shows that all sonographic parameters are related to the placental invasion.³ Likewise with research conducted by Nelson et al. (2016) were using the PAI score the accuracy of the diagnosis increased to 80.3 % .⁷ The PAI score was obtained from the sum of the sonographic parameters, namely the history of cesarean section, lacunae, the smallest sagittal location of the thickness of the myometrium, anterior placenta previa, and the bridging vessel.

The cause of lacunae on the placenta is unknown, but many researchers use this parameter to predict placenta accreta. Visualization of lacunae has a sensitivity in the range of gestational age 15-20 weeks, namely 79%, while at 15-40 weeks of age it is 93%.⁸

Research conducted by Eshkoli et al. (2012) concluded that placenta previa is associated with placenta accreta.⁹ Meanwhile, Fitzpatrick et al. (2012) revealed that the incidence of placenta accreta, increta, percreta in patients with a history of CS labor and placenta previa was 577 / 10,000 births.⁵

CONCLUSION

The mean PAI score in patients with placenta accreta was higher than without accreta, and there was a significant relationship between PAI scores and cases of placenta accreta.

SUGGESTION

A larger study with a cohort method and a larger sample is needed to confirm the correlation between the PAI score's accuracy and the incidence of placenta accreta.

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