Clinical Characteristics and Risk Factors Analysis for Severity of Morbidly Adherent Placenta at Persahabatan General Hospital in 2015-2018

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Abstract

Background: Morbidly adherent placenta is a condition which placenta adheres and invades deeply into the myometrium and, in some cases, until uterine serosa, thus contribute to peri-partum hemorrhage and significant maternal mortality.

Purpose: To identify prevalence, clinical characteristics and their odds ratio to increasing severity of morbidly adherent placenta case in RSUP Persahabatan from 2015 to 2018

Methods: Cohort retrospective study

Results: From 2015 to 2018, prevalence of morbidly adherent placenta was around 0.8%. The risk factors which contribute to increasing severity of morbidly adherent placenta were: age above 35 years (OR 1.6, 95% CI 0.41-6.24) and history of Caesarean section more than 2 times (OR 1.63, 95% CI 0.41-6.46). The presence of increasing severity of morbidly adherent placenta were related to volume of blood loss more than 1000 ml during surgery (OR 2.13, 95% CI 0.52-8.76).

Conclusion: The prevalence of morbidly adherent placenta at Persahabatan General Hospital in 2015-2018 was 0.8%. Age, history of Caesarean section more than 2 times, volume of blood loss, and duration of surgery were not statistically associated with adherent placenta case.

Keywords: Adherent placenta, accreta, increta, percreta.

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Karakteristik Klinik dan Analisis Faktor Risiko yang Berperan pada Derajat Keparahan Invasi Plasenta Abnormal di RSUP Persahabatan pada Tahun 2015-2018
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Abstrak
Latar belakang: invasi plasenta abnormal adalah kondisi dimana plasenta memiliki implantasi yang mendalam di miometrium, dan pada beberapa kasus, hingga lapisan serosa uterus, hingga mengakibatkan perdarahan pasca persalinan dan meningkatkan kejadian kematian ibu.
Metode: kohort retrospektif
Hasil: dari tahun 2015 hingga 2018, prevalensi invasi plasenta abnormal adalah sebesar 0.8%. Faktor risiko yang meningkatkan derajat keparahan invasi plasenta abnormal adalah: usia di atas 35 tahun (OR 1.6, 95% CI 0.41-6.24) dan riwayat seksio sesarea lebih dari 2 kali (OR 1.63, 95% CI 0.41-6.46). Makin parahnya invasi plasenta abnormal meningkatkan risiko terjadinya kehilangan darah selama operasi lebih dari 1000 ml (OR 2.13, 95% CI 0.52-8.76).
Kesimpulan: prevalensi invasi plasenta abnormal di RSUP Persahabatan dari tahun 2015 hingga 2018 adalah sebesar 0.8%. Secara statistik, usia, riwayat seksio sesarea lebih dari 2 kali, volume kehilangan darah, dan durasi operasi ditemukan berhubungan dengan kasus invasi plasenta abnormal.
Kata-kunci: invasi plasenta abnormal, akreta, inkreta, perkreta

Introduction
Placenta accreta contributes to a significantly high morbidity up to 60% and mortality up to 7%.1,2 The incidence of placenta accreta was 81.6%, increta 11.8 %, and percreta 6.6%.3 Common risk factors of placenta accreta are previous cesarean section, placenta previa, mul-tiparity, maternal age more than 35 years and elevated alpha-fetoprotein in maternal serum.4,5 The risk of placenta accreta increases up to 39% in patients with two or more previous cesarean delivery and had an anterior or central placenta previa.6
RSUP Persahabatan, a type-A hospital and considered as a one of top referral hospital in East Jakarta and are associated with Academic Health System of University of Indonesia, gets many referral cases of morbidly adherent placenta every year. Based on that situation, we would like to identify the clinical characteristics and risk factors analysis for severity of morbidly adherent placenta in our hospital.

Method
This was a cohort retrospective study which included all patients who underwent cesarean section with suspected of morbidly adherent placenta in General Persahabatan Hospital from January 1, 2015 to June 30, 2018. Medical records, ultrasonography pictures and histopathological result of uterus and placenta, were reviewed and added to the research subject.
Several characteristics were measured to describe the proportion and to find odds ratio which relate to the increasing severity of morbidly adherent placenta. The classification of morbidly adherent placenta was divided into 2 groups, the accreta group and the increta-percreta group. The Chi-Square test was used to do bivariate analysis. The Fisher test was used if the prerequisite for Chi-Square test was not
fulfilled. Statistical significance was determined by p value below 0.05. SPSS v.24 was used to do the statistical calculation.

**Result**

From January 2015 to June 2018, there were 4,195 deliveries, and 34 (0.8%) cases were morbidly adherent placenta cases. Most of them were above 35 years (52.9%), and had a history of more than 2 cesarean deliveries (58.8%). There were 17 cases with placenta accreta (50%), 11 cases with placenta increta (32.4%), and 6 cases with placenta percreta (17.6%). There were 29 patients who had to undergo hysterectomy (85.3%) and 5 patients had conservative management (14.7%). Most cases had volume of blood loss more than 1000 ml (70.6%) and underwent more than 2 hours of surgery (82.4%). The difference between clinical parameters and increasing severity of adherent placenta with odds ratio and its confidence interval can be seen on tables.

**Table 1. Clinical Characteristics and Management Related to Each Type of Adherent Placenta**

<table>
<thead>
<tr>
<th>Type of adherent placenta</th>
<th>Total</th>
<th>OR</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accreta</td>
<td>8</td>
<td>0.492</td>
<td>0.24-1</td>
</tr>
<tr>
<td>Increta</td>
<td>18</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Percreta</td>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>35 years</td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt;35 years</td>
<td>30</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of previous CS</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inter-delivery interval from last pregnancy</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt;18 months</td>
<td>20</td>
<td>1.00</td>
<td>0.94-5.72</td>
</tr>
<tr>
<td>Total</td>
<td>21</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Table 2. Increasing Severity of Morbidly Adherent Placenta Related to Blood Loss Volume**

<table>
<thead>
<tr>
<th>Type of adherent placenta</th>
<th>Volume of blood loss</th>
<th>OR</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Percreta - Increta</td>
<td>&gt;1000 ml</td>
<td>2.13</td>
<td>0.32-8.76</td>
</tr>
<tr>
<td>Accreta</td>
<td>≤1000 ml</td>
<td>21</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>21</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Table 3. Increasing Severity of Morbidly Adherent Placenta Related to Duration of Surgery**

<table>
<thead>
<tr>
<th>Type of adherent placenta</th>
<th>Duration of surgery</th>
<th>OR</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Percreta - Increta</td>
<td>&gt;120 minutes</td>
<td>0.73</td>
<td>0.16-3.41</td>
</tr>
<tr>
<td>Accreta</td>
<td>≤120 minutes</td>
<td>25</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>25</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Discussion**

Our study showed that most cases of morbidly adherent placenta in Persahabatan General Hospital was placenta accreta (50%). A study by Sofiah et al in Malaysia also found a similar result, which was around 58% of morbidly adherent placenta case was placenta accreta. In our study also showed that 52.9% cases were above 35 years old. This finding was similar with a study by Fitzpatrick et al which showed that advanced maternal age (= 35 years) was considered as a significant risk factor for placenta accreta. Another study by Usta et al in Lebanon, reported a different result that showed advanced maternal age was not associated with placenta accreta. In our study, the increasing age of the subjects, although not statistically significant, had an OR of 1.61 (95%CI, 0.41-6.24).

The American College of Obstetrics and Gynecologic (ACOG) reported the incidence...
of placenta accreta increases in patient with more than 2 cesarean deliveries and anterior or central placenta previa. This is consistent with our study, although not statistically significant, history of more than 2 cesarean sections showed an OR of 1.63 (95% CI 0.41-4.46) for increasing severity of morbidly adherent placenta.

The mean of inter-delivery interval in this study was 60.88 ± 35.73 months. Shipp et al study demonstrated that inter-pregnancy interval was associated with the incidence of uterine rupture in women who had vaginal birth after Caesarean section. It was caused by non-optimal healing of uterine scars. The placenta is created by interaction of maternal cells and fetal trophoblast cells. Trophoblast cells invades the vein and stroma in early pregnancy, thus the placenta grows in uterine cavity. Uterine damage or poor healing due to previous hysterotomy allows the placenta to grow through an absent or damaged Nitabuch layer in the myometrium, thus increase the chance for having morbidly adherent placenta.

In our study, inter-delivery interval less than 18 months was not associated with increasing severity of morbidly adherent placenta. Surprisingly, 91.2% cases of morbidly adherent placenta had an inter-delivery interval more than 18 months. There was no difference in the surgical technique for the management of morbidly adherent placenta. The presence of placenta increta-percreta was not associated with the choice of hysterectomy, many cases of placenta accreta were also performed hysterectomy (83.3% vs 88.9%).

Higher blood loss was observed in the increta-percreta case. Total blood loss more than 1000 ml was observed on increta-percreta case and had an OR to 2.13 (95% CI 0.52-8.76), although it was not statistically significant compared to accreta case. Our study was consistent with Mehrabadi, et al. which showed that 50% patient with placenta accreta had postpartum hemorrhage and up to 22.6% patient had severe postpartum hemorrhage that needed intensive management.

Our study showed that mean operative time for adhesive placenta was 165.35 ± 52.981 minutes and there was no significant difference on operative time between increta-percreta and accreta. Takahashi et al held similiar study in Japan found that the average time required for the surgery of placenta accreta was 205 ± 78.3 minutes.

**Conclusion**

The prevalence of morbidly adherent placenta at Persahabatan General Hospital in 2015-2018 was 0.8%. Age, history of Caesarean section more than 2 times, volume of blood loss, and duration of surgery were not statistically associated with adherent placenta case.

**References**


