Correlation of maternal age with placenta previa

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Abstract

Objective: To study the effect of maternal age on incidence of placenta previa. Introduction: Placenta previa is a serious and life threatening obstetric complication where the placenta lies within the lower segment of the uterus, presenting an obstruction to the cervix and to delivery. A trend of increasing placenta previa incidence was observed in the past decade mainly because of an increasing caesarean section rate and advancing maternal age at the time of pregnancy. Methods: This study was a prospective study conducted in a teaching medical college and hospital over a period of three years [2011-2014]. A detailed history was taken according to our proforma for all pregnant women at or after 32 weeks who attended the hospital in the study period. As per inclusion and exclusion criteria of our study, the study population was selected. All other risk factors for placenta previa except maternal age were excluded. The association between maternal age and placenta previa was analysed. Placenta was located by Transabdominal ultrasound and patients with placenta previa were followed up regularly. Results: Our study showed that women aged ≥35 years or more had increased risk of placenta previa(3.6%) which was statistically significant (p<0.05) by Chi-square test. Conclusion: Advancing maternal age (≥35years) appears to increase the risk of placenta previa independent of other risk factors.

Keywords: Maternal Age, Placenta Previa, Advanced Maternal Age.

Introduction

Placenta previa is a serious and life threatening obstetric complication where the placenta lies within the lower segment of the uterus, presenting an obstruction to the cervix and to delivery. Risk factors for placenta previa include advanced maternal age, gravidity of 3 or more, history of previous cesarean section, previous abortions etc [1]. It is one of the main causes of vaginal bleeding in the third trimester [2] and a significant cause of maternal [3, 4] and perinatal morbidity and mortality [5].

Advanced maternal age, defined as age 35 years or older at the date of delivery, has become more common. This age group is associated with subfertility, chromosomal abnormalities in offspring, multiple gestations and many obstetric risks including placenta previa [6].

The incidence of placenta previa varies from 0.2% to 1.9% [7-10]. A trend of increasing placenta previa incidence was observed in the past decade mainly because of an increasing caesarean section rate[11] and advancing maternal age at the time of first pregnancy[12,13].The strongest connection was found between previous history of caesarean section[14-19], high parity [15,16,19] and advanced maternal age [20].

The aim of this study was to study the effect of maternal age on the incidence of placenta previa.

Materials and Methods

The study was conducted after getting permission from Institutional Ethical Committee and detailed informed consent was obtained from the patients. The study was a hospital based prospective study conducted in a teaching medical college and hospital for a period of
three years (2011-2014). As per proforma, details were collected from all pregnant women at or after 32 weeks who attended the hospital in the study period.

Exclusion Criteria-
Multifetal gestation
Para 4 and above
Previous uterine surgeries
Previous placenta previa
Previous LSCS

The study population was subjected to detailed history taking, general examination, obstetrical examination, Transabdominal ultrasound for placental location (criteria- placental edge 0.1cm -2cm from internal os) and routine investigations. Patients were followed up regularly. The incidence of placenta previa in various age groups was calculated. The data were subjected to chi square test with SPSS software version 20.0.

Results
Total number of patients delivered in our hospital from July 2011 to June 2014 was 1992. Patients with known risk factors for placenta previa were excluded from the study [like multiple gestations, grand multi, previous LSCS, previous uterine curettage, uterine surgeries, previous placenta previa].

Table 1: Incidence of placenta previa in various maternal age groups

<table>
<thead>
<tr>
<th>Age (years)</th>
<th>No. of patients</th>
<th>Placenta previa</th>
<th>Incidence</th>
</tr>
</thead>
<tbody>
<tr>
<td>≤19</td>
<td>11</td>
<td>1</td>
<td>9.1%</td>
</tr>
<tr>
<td>20-24</td>
<td>379</td>
<td>3</td>
<td>0.8%</td>
</tr>
<tr>
<td>25-29</td>
<td>842</td>
<td>6</td>
<td>0.7%</td>
</tr>
<tr>
<td>30-34</td>
<td>356</td>
<td>4</td>
<td>1.1%</td>
</tr>
<tr>
<td>≥35</td>
<td>56</td>
<td>2</td>
<td>3.6%</td>
</tr>
</tbody>
</table>

Of the remaining 1644 patients (Table 1), patients with age ≤ 19 years were 11, of which one patient was diagnosed to have placenta previa. The incidence was 9.1%. In the age group of 20-24 years there were 379 patients and 3 of them had placenta previa (incidence-0.8%). In the age group of 25-29 years there were 842 patients and 6 of them had placenta previa (incidence-0.7%). In the age group of 30-34 years there were 356 patients and 4 of them had placenta previa (incidence-1.1%). In the age group of ≥35 years there were 56 patients, 2 of them had placenta previa (incidence-3.6%). The incidence of placenta previa in the age group ≥35 years (3.6%) when compared to other age groups was found to be high and it was statistically significant by Chi square test (p <0.05).

Discussion
Placenta previa can have very serious adverse effects for both mother and baby, including an increased risk of maternal and neonatal mortality [21-23], fetal growth restriction and preterm delivery [24], antenatal and intrapartum haemorrhage [3, 25,26] and women may require a blood transfusion [27]. A trend of increasing placenta previa incidence was observed in the past decade mainly because of an increasing caesarean section rate [11,15-19] and advancing maternal age[20] at the time of first pregnancy. The other risk factors which showed strong correlation with placenta previa include high parity [15,16,19], history of previous abortions[11,16], previous uterine operations, previous placenta previa [ 28] and multiple gestations[29].

As per the exclusion criteria of our study all possible independent risk factors for placenta previa have been excluded. The incidence of placenta previa in patients with various age groups was calculated. Total number of patients delivered in our hospital during our study period was 1992. Of them 25 patients with multi fetal gestation were excluded from the study. Of this one patient had placenta previa making an incidence of 4%. But the number of patients with twins was very less in our study making it not possible to comment on the significance. Strong et al [30] reported that the incidence of placenta previa was 0.55% for twin gestation as compared with 0.31% for singleton gestation.

Babinzki et al and Eniola et al [31, 32] showed that the incidence of previa was high (2.2%) in women of para 5 or more when compared to women of lower parity. According to Laverty [33] placenta previa occurs in
0.2% of nulliparous women and up to 5% of grand multiparas; hence patients with para 4 and above (1 patient) have been excluded from the study as per our exclusion criteria.

Those patients with previous endometrial damage and myomectomy scars (68 patients) have been excluded as Rose and Chapman [34] reported significant association between placenta previa and previous curettage. Monica et al [35] reported that women who have a history of placenta previa have an increased risk of placenta previa in subsequent pregnancy, hence we have excluded 2 patients with this history from the study. Silver and associates [36] cited an increased risk of previa in women who had prior cesarean delivery. The incidence was 1.3% for those with one prior cesarean delivery. Miller and associates [37] cited a threefold increased risk for placenta previa in women with a prior cesarean delivery. Hence patients with previous LSCS (252 patients) have been excluded from the study.

Of the remaining 1644 patients, patients with ≤ 19 years were 11, of which one patient was diagnosed to have placenta previa. The incidence was 9.1%. Again since the numbers were very less (only 11 patients), we cannot really comment on the significance of this result. In the age group of 20-24 years there were 379 patients and 3 of them had placenta previa (incidence-0.8%) in the age group of 25-29 years there were 842 patients and 6 of them had placenta previa (incidence-0.7%). In the age group of 30-34 years there were 356 patients and 4 of them had placenta previa (incidence-1.1%). In the age group of ≥35 years there were 56 patients. 2 of them had placenta previa. (Incidence-3.6%). The incidence of placenta previa in the age group ≥35 years (3.6%) when compared to other age groups was found to be high and it was statistically significant by Chi square test (p <0.05).

Advancing maternal age increases the risk of placenta previa. The incidence of previa increased significantly with each advancing maternal age group. It is 1 in 1500 for women 19 years or younger and is 1 in 100 for women older than 35. Increasing maternal age has caused an increased overall incidence of previa from 0.3% in 1976 to 0.7% in 1997[11]. In more than 36000 women enrolled in the FASTER TRIAL, those older than 35 years had a 1.1% risk for previa compared with that of 0.5% for women less than 35[6].

The relationship between incidence of placenta previa and maternal age has been established in many studies and our study also proved that. The mechanism by which advanced maternal age impairs normal placental development is still not well understood. One of the possible explanations could be that the percentage of sclerotic changes on intramyometrial arteries increases with increasing age, thereby reducing blood supply to placenta [20].

It is important to know about the risk factors which predispose women for placenta previa, so that we can take adequate preventive measures like avoiding pregnancies after 35 years of age. Physician should suspect placenta previa especially if woman is over 35 years and above, has had 3 or more previous pregnancies, increased number of previous abortions and cesarean sections[1]. These women should receive counselling as soon as pregnancy is confirmed. It is especially important in non compliant pregnant women with possible poor antenatal care. Very careful monitoring of these patients is of utmost importance, especially ultrasonographic examination with proper placental location during second trimester of pregnancy. Early identification and appropriate care for placenta previa cases will prevent all potential dangerous complications for mother and fetus.

Conclusion
The risk of placenta previa is increased with increasing maternal age. Placenta previa in turn increases the risk of complications like obstetrical haemorrhage and the need for caesarean hysterectomy. To prevent the deadly complications of placenta previa, all pregnant women with high risk factors like advanced maternal age should undergo at least one ultrasound examination during second trimester of pregnancy.

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References


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