Original Article

Abruptio placenta and adverse pregnancy outcome

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Abstract

Objective: To determine the risk factors in pregnancies complicated with abruptio placenta

Methods: Case-control study. The study was conducted at department of Obstetrics and Gynecology Unit 3, Civil Hospital, Dow University of Health Sciences Karachi. The study period was from January to December 2008. All pregnant women who were diagnosed with abruptio placenta after 28 weeks of gestation were included in the study. They were compared with women who had live birth during the study period. This group was taken as controls. Both groups were identified from the admission, labour room registers.

Results: Total number of deliveries during the study period was 2610. Patients identified with abrupio placenta were 81, giving a frequency of 3.75%. Majority (44%) of women were between 26-30 years of age group. Forty three (54%) of the women were second, third or fourth gravida. The mean gestational age was 34 ± 4.21 weeks. Forty one (51%) delivered preterm before 37 weeks and 40 (49%) delivered at or after 37 completed weeks of gestation. Vaginal delivery was the main mode of delivery, followed by Caesarean section. Vaginal bleeding was the most common clinical finding seen in 80% (68/81) women, followed by blood stained amniotic fluid in 45% (37/81). Foetal heart sounds were absent on admission in 65% (53/81). There were two maternal deaths due to postpartum haemorrhage. The perinatal mortality rate was 66% (54/81). Parity and gestational age were found to be significant risk factors for abruptio placentae ($p < 0.031$ and $p < 0.001$ respectively).

Conclusion: Abruptio placenta is associated with poor maternal and foetal outcomes (JPMA 60:443; 2010).

Introduction

Abruptio placenta, is defined as complete or partial separation of placenta before delivery. It occurs in around 1% of all pregnancies.[1] Etiology of abruptio placenta (AP), has not been well defined. Risk factors which have been found associated with AP include maternal age, parity, smoking, hypertension, past history of AP, thrombophilic disorders, abdominal trauma, polyhydramnios. It has been associated with chorioamnionitis, in both term and preterm gestation.[2] Both maternal and paternal smoking have been found to be significantly associated with abruption.[3]

Abruptio placenta has been associated with poor maternal and foetal outcomes. Maternal complications of AP include postpartum haemorrhage with its sequelae of acute tubular necrosis, disseminated intravascular coagulation. Abruptio placenta has also been found to be associated with poor perinatal outcome, including low birth weight, increased incidence of Prematurity and still birth.[4,5]

The purpose of this study was to determine the clinical characteristics and outcome of pregnancies diagnosed as abruptio placenta.

Patients and Methods

This study was done at Department of Obstetrics and Gynaecology Unit 3, Civil Hospital Karachi and Dow University of Health Sciences The department mainly receives patients referred from peripheral hospitals of Sindh and Baluchistan provinces of country. Majority of these women

have not received any form of ante-natal care.

The study period was from Ist January to 31st December 2008. Total numbers of deliveries during the study period were 2610. It was a case-control study.

Cases were women who were identified with the clinical diagnosis of abruptio placenta in current pregnancy. Controls included women who delivered during the same study period, a healthy live foetus. Both groups of women were identified from the labour room admission and delivery registers. Data was collected on a pre-designed Performa for abruptio placenta.

Placental abruption was defined as complete or partial separation of normally located placenta before delivery of the foetus. The diagnosis of placental abruption was made on clinical signs and symptoms of bleeding pervaginum, tense and tender abdomen, and confirmed at delivery by the local examination of placenta for separation and presence of retroplacental blood clots. All women having singleton pregnancy, after 24 weeks of gestation with clinical diagnosis of abruptio placenta were included. Demographic variables which were collected for both group of women included maternal age, parity, past history of stillbirth, and hypertension. Clinical and laboratory variables included bleeding per vaginum, blood stained amniotic fluid, maternal blood pressure, complete blood picture, serum urea and creatinine, Prothrombin time, partial thromboplastin time. Perinatal outcome included weight and sex of baby, apgar score.

Women with multiple pregnancy, fibroid uterus and polyhydramnios were excluded. The study was approved by hospital ethics committee.

Statistical Analysis:

Data were initially analyzed descriptively using SPSS (version 16.0). Simple frequencies were calculated for different variables. Mean and standard deviation were calculated for clinical variables like haemoglobin, serum urea, creatinine, Prothrombin and partial thromboplastin time.Multivariate logistic regression analysis was used for categorical variables: maternal age, parity, gestational age, foetal weight and gender.

Results

In this retrospective study, from January 2008 to December 2008, a total of 81 cases were identified as abruptio placentae. These were compared with women who had live birth, during the same study period (control).Total numbers of deliveries during the study period were 2610, giving an overall frequency of 3.75%.

Table-1 shows the demographic characteristics of study population. Majority (44%) of women were between 26-30 years of age group. Forty three (54%) women were either second, third or fourth gravida. The mean gestational age was 34 ± 4.21 weeks. Forty one (51%) delivered preterm before 37 weeks and 40 (49%) delivered at or after 37 completed weeks of gestation. Eight (10%) women gave history of previous stillbirth, and 17 (21%) gave history of gestational hypertension in previous pregnancies. Recurrent abruption was observed in seven (9%) women.

Table-1: Maternal demographics of patients with abruption placenta.

Maternal age (years)	
20--25	23 (28%)
26--30	36 (44%)
31--35	18 (22%)
>35	4 (4.9%)
Gestational age	34± 4.21
Parity	
Primigravida	14 (17%)
2--4	43 (53%)
Multigravida	24 (29.6%)
H/O previous stillbirth	8 (10%)
Past H/O gestational hypertension	17 (21%)
Recurrent abruption	
Yes	7 (8.6%)
No	74 (91%)

Table-2: Clinical characteristics of patients with abruption placenta.

Blood stained liquor	
Yes	37 (45%)
No	44 (54%)
Hypertension	13(16%)
Premature rupture of membranes	7 (8.1%)
Retroplacental clots (ml)	760±520
Haemoglobin (gm/dl)	7±2.11
Prothrombin time (seconds)	17± 19
Partial thromboplastin time (seconds)	36± 14
Urea (mg/dl)	27±11
Creatinine (mg/dl)	0.8± .717
Mode of delivery	
Vaginal delivery	41 (50%)
Caesarean section	37 (45%)
Instrumental	1 (1%)
Breech vaginal delivery	2 (2%)
Foetal weight (gms)	2.4gms±.710
Male	39 (48%)
Female	42 (52%)
Perinatal mortality	54 (67%)

Table-2 shows the clinical characteristics of the population. Vaginal bleeding was the most common clinical finding seen in 80% (68/81) women, followed by blood stained amniotic fluid in 45% (37/81). Prelabour premature rupture of membranes was present in 8 %(7/81), and hypertension in current pregnancy was seen in 16% (13/81). Foetal heart sounds were absent on admission in 65% (53/81). Spontaneous vaginal delivery occurred in 50% (41/81), followed by caesarean section in 45%. Postpartum haemorrhage (PPH) was seen in 18% (15/81). There were 2 maternal deaths in the study group, both due to PPH.

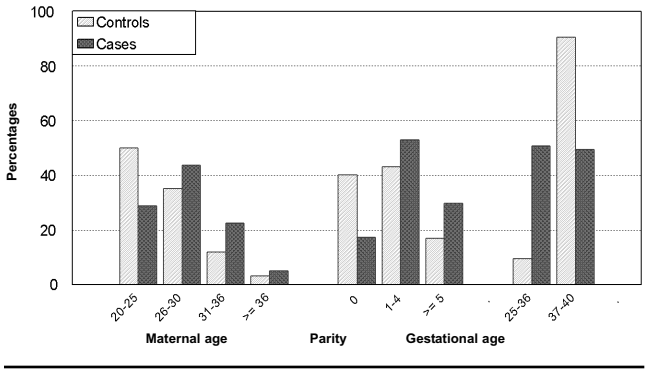

Figure: Percentages of maternal age, parity and gestational age among cases and controls.

The mean foetal birth weight was 2400 gms. Sex of baby was female in 52%. The perinatal mortality rate was 66% (54/81). Retroplacental blood clots, due to placental separation was associated with perinatal mortality. Perinatal loss was associated with a minimum of 200 cc, and with no live birth at loss of 1000cc of blood loss.

Multivariate logistic regression analysis was used for categorical variables maternal age, parity, gestational age, foetal weight and gender, among cases and controls. This model did not show any association of abruptio placenta with maternal age ($p < 0.997$), gender ($p < .946$) and foetal weight, between the two groups. However, significant association of abruptio placenta was seen with parity and gestational age ($p < 0.031$ and $p < 0.001$ respectively), when cases were compared with controls (Figure).

Discussion

This study was done at a public sector hospital, which mainly receives patients from peripheral hospitals in the province.

Literature search shows that abruptio placenta complicates 1% of pregnancies.[6] The frequency of AP in our study group was 3.75%. Earlier, Sarwar et al, reported a prevalence of 4.4% in their population.[7] Similar , high rates have been observed in studies from Middle East.[8,9]

Majority of the studies which have been done on the subject are from the West. A local literature search revealed very few studies on the above subject. Studies from West have taken maternal age > 35 years as a significant risk factor for AP.[10] Our study did not show significant association of AP with maternal age. Similarly grand multiparity has been found to be significantly associated with AP,[10] though we found it more commonly in third gravida. The study by Sarwar et al.[7] also showed 49% of their population with parity between 1-4. History of previous stillbirth and gestational hypertension was seen in 10% and 7% in our population. Both these factors are found to be significantly associated with AP in other studies.[9] In our study, 8% of women gave past history of AP. Past history of abruptio placenta in previous pregnancy was found to be associated with poor perinatal outcome.[11] Toivonen et al, reported a recurrent abruption rate of 11.9%, in women with previous history of AP.[12] Thus, it is recommended that in women with past history of AP, delivery should be considered between 34-37 weeks of gestation, once the lung maturity has been documented.[11]

Bleeding per vaginum (84%) was found as the most common clinical manifestation of AP, followed by blood stained amniotic fluid in 45%. Similar results were also seen in a study by Tikkanen et al.[3] Table-2 also shows the mean haemoglobin concentration of 7gm/dl, in our study population. This reflects poor nutritional status of our population. In another study from Asia, decreased body mass index, again reflecting poor nutritional status was found as an etiologic factor for AP.[13]

Majority of our women (50%) had vaginal delivery, followed by Caesarean section in 45%. In study by Tikkanen et al,[3] Caesarean section rate was as high as 91%.

We had two maternal deaths in our study group, both due uncontrolled haemorrhage. They were referred late to the unit, with unrecordable vital signs, and disseminated intravascular coagulation. Coagulopathy is usually seen in AP, along with concealed haemorrhage.

Perinatal mortality has been strongly associated with AP in both local and international literature. A local study from our Northern province, found the perinatal mortality around 59%.[7] In above study, there were a total of 54 (65%) foetal deaths. Statistical analysis in our study showed significant association with gestational age. Increased perinatal mortality was seen with preterm gestation. In our study, the association was found much stronger for moderately preterm gestation in conflict with Ananth study, where association was far stronger with very preterm gestation.[5] This may be attributed to sample size as well as different limits of viability in our setup. Male gender was not found associated with AP in our population, 45% versus 52% for female gender, though male gender has been associated with AP in numerous other studies.[14] The mean birth weight was found to be 2400 gms. In a study by Nath et al, among abruption cases, 60.3% (n = 94) were low birth weight in comparison with 11.2% (n = 19) of controls (OR, 13.7; 95% CI, 7.4-25.2). The authors attributed this to the gestational age, and ruled out other confounders viz thrombophilia.[4]

Abruptio placenta is a catastrophic obstetrical condition, commonly seen in the labour suite. Prevalence of this disease is higher in our set-up, though very few data has been published in international literature from our part of world. Can the condition be prevented? No definite

etiological factor has been identified; neither the disease can be predicted with good sensitivity and specificity. The rate of recurrence in subsequent pregnancies is higher and is also associated with poor prognosis.[12] Planned delivery, once foetal lung maturation has been observed between 34-37 weeks has been recommended.[11] Recently, use of low molecular weight heparin has been found to improve pregnancy outcome in above class of women, irrespective of thrombophilia status.[15] There may be a role of heparin in improving pregnancy outcome in diseases involving the utero-placental interface.[16] Though, this needs to be tested in large randomized trials.

Conclusion

Abruptio placenta is associated with poor maternal and foetal outcome. It may recur in subsequent pregnancy. Improved nutritional status, antenatal care and delivery between 34-37 weeks of gestation, once lung maturity is established, may improve outcome in subsequent pregnancies.

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