

Maternal and Perinatal Outcome in Abruptio Placentae

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ABSTRACT

Background: Antepartum haemorrhage is one of the greatest obstetric emergency, is defined as bleeding per vagina occurring after the fetus has reached the period of viability but before its birth. Among antepartum haemorrhage, abruptio placentae and placenta previa head the list of causes endangering the life of the mothers and a great risk to high unfavourable perinatal outcome. Placental abruption is a bleeding from premature separation of a normally situated placenta. It occurs in about 0.4-1 % of all pregnancies worldwide, contributing to a high maternal morbidity and perinatal mortality.

Aims and Objectives: To study the maternal and perinatal outcome in patients of abruptio placentae.

Material and Methods: Prospective observational study conducted over a period of one year on 150 pregnant women with gestation more than 28 weeks admitted on account of abruptio placentae (diagnosed clinically and/or sonographically).

Results: Mean age of study population was 24.67 ± 4.03 years. Vaginal bleeding was present in 115(76.66%) women and abdominal pain in 35(23.33%) women. A total of 119 (79.33%) were multigravida and 31 women (20.66%) were primigravida. Mean period of gestation age was 34.56 ± 3.75 weeks. Mean uterine height 34.08 ± 8.15 weeks and SFH 34.43 ± 3.89 cm. A total of 148(98.6%) women were found to be cephalic presentation and 2(1.33%) were having breech. Regular fetal heart sound was found in 62(41.33%) , irregular in 34(22.66%) and absent in 54(36%). Mean induction delivery interval of study population was 4.82 ± 4.42 hours. Most common indication for cesarean delivery was fetal distress (77.27%) followed by poor bishop score 4 (9.09%), breech 2 (4.54%), eclampsia 1 (2.27%), NPOL 1 (2.27%) and previous 2 LSCS 2 (4.54%). Maternal mortality was found in 2 cases (1.33%). A total of 98 live birth (including 2 twins) and 57 (including 3 twins) still birth were observed and 16 neonates expired.

Conclusion: The incidence of abruptio placentae is significantly higher with poor maternal and fetal outcome. It is common in women with high parity, hypertensive disorder of pregnancy, smokers, premature rupture of membranes (PROM), polyhydramnios and in women with history of abruptio in previous pregnancy. Placental abruption should be closely monitored and prompt delivery should be carried out with adequate maternal neonate intensive care facilities.

INTRODUCTION

Antepartum haemorrhage is one of the greatest obstetric emergency, is defined as bleeding per vagina occurring after the fetus has reached the period of viability but before its birth. Among antepartum haemorrhage, abruptio placentae and placenta previa head the list of causes endangering the life of the mothers and a great risk to high unfavourable perinatal outcome. It occurs in about 0.4-1 % of all pregnancies worldwide, contributing to a high maternal morbidity and perinatal mortality. The incidence varies slightly in different populations over the globe.^{2,3} The overall incidence of abruptio placentae is about 1 in 200 pregnancies.⁴ The incidence appears to be increasing, possibly due to increase in the prevalence of risk factors for the disorder. There are three types of abruptio placentae (1) Revealed Haemorrhage- Commonest type (80%), (2) Concealed Haemorrhage (20%) and (3) Mixed Haemorrhage.

Abruptio placentae is associated with various adverse maternal outcomes. Disseminated Intravascular Coagulation (DIC) is more common in severe abruption with fetal death. Various studies have postulated that DIC due to placental abruption varies from 4.16% to 16.5%. There is an increased incidence of operative deliveries in the pregnancies complicated by abruptio placentae. Post partum hemorrhage (PPH) is very common ranging from 3 % - 18.3%.^{5,6,7} Around 20-40% of patients with abruptio placentae land up in shock.⁸ Another important morbidity associated with abruptio placentae is acute renal failure which has an association rate of 2 – 6.25%. There is a high rate of ICU admissions 1-1.45%. In the most severe of forms, abruptio placentae may result in maternal mortality with a rate as high as 5-32%.⁹

The perinatal mortality can be as high as 60% in developing countries but in developed countries it is in the range of 9-12%.⁸ Such high perinatal mortality rates are highly linked to preterm deliveries. Thus with such adverse effects abruptio placentae continue to be major cause of maternal and perinatal morbidity and mortality.

MATERIAL AND METHODS

This study was conducted over a period of one year on 150 pregnant women with gestation more than 28 weeks admitted on account of abruptio placentae (diagnosed clinically and/or sonographically) in the Department of Obstetrics and Gynaecology, Pt. B.D. Sharma Postgraduate Institute of Medical Sciences, Rohtak. The antenatal women having vaginal bleeding due to any cause other than abruptio placentae were excluded from the study. Information like maternal age, gestational age, parity, history of smoking, history of abruptio in previous pregnancy, current obstetrical complications like preeclampsia, preterm labour, premature rupture of membranes, chronic hypertension was collected. Detailed history regarding the duration and severity of abruptio placentae like vaginal bleeding and/or pain abdomen was recorded. The general physical, systemic and obstetrical examination was carried out. All the routine antenatal investigations i.e. complete hemogram with platelets, ABORH, HIV, STS, HBsAg, urine complete examination along with coagulation profile, liver and renal function tests was done.

Procedure

After admission, amniotomy and augmentation of labour was done with oxytocin. Caesarean delivery was planned in cases of live fetus with poor Bishop, deteriorating maternal condition, signs of fetal distress or if prolonged labour longer than six hours. Examination of placenta was carried out at the time of delivery for any evidence of retro placental clot. Maternal outcome like mode of delivery, induction delivery interval, requirement of blood components, ICU admissions, complications like PPH, couvelaire uterus, DIC, renal failure, length of hospital stay was recorded. Perinatal outcome was recorded like birth weight, apgar score at 1 and 5 minutes, neonatal hospital stay and neonatal complications. Neonates were observed till discharge.

Statistical Analysis

At the end of study, collected data was analyzed by using student 't' test. A probability of <0.05 was considered as statistically significant.

RESULTS

Total deliveries during this period were 10286 and 150 women who presented with abruptio placentae were included in the present study. The incidence of abruptio placentae was 1.45%. Mean age of study population was 24.67±4.03 ranging from 19-40 years. Vaginal bleeding was present in 115 women and abdominal pain in 35 women. A total of 119 (79.33%) were multigravida and 31 women (20.66%) were primigravida. Mean period of gestation age was 34.56±3.75 weeks with a range of 23-41 weeks. Risk factors for abruption in these patients showed abruption in previous pregnancies in 3 (2%) cases, smoking in 1 (0.66%) patient, hypertensive disorder in pregnancy 17 (11.33%), PROM in 10 (6.66%), multiple pregnancy in 5 (3.33%), polyhydramnios in 4 (2.66%). No significant risk factor were found in 110 (73.33%) cases.

Mean uterine height was 34.08±8.15 weeks and SFH was 34.43±3.89. A total of 148(98.6%) women were found to be cephalic presentation and 2(1.33%) were having breech. Regular fetal heart sound was found in 62(41.33%), irregular in 34(22.66%) and absent in 54(36%). The uterus was tense and tender in 72(48%) women. Mean Hb before delivery was found to be 8.73±1.75 gm/dl, blood urea 26.52±15.23 mg/dl, S. creatinine 1.22±1.46 mg/dl, PTI/INR 1.26±1.28 and mean Hb after 24 hours of delivery 8.53±0.96 gm/dl. Mean bishop scoring before induction was 8.12±0.82. One hundred forty one patients were induced with 2.5 units of oxytocin after amniotomy. Mean induction delivery interval of study population was 4.82±4.42 hours. In nine patient, no induction was done and direct caesarean section was done in view of abruptio with poor bishop in 4(2.66%) cases, abruptio with breech in 2(1.33%) cases and abruptio with eclampsia in 1(1.33%) and

abruptio with previous 2 LSCS in 2(1.33%) cases. In remaining 141 cases which were induced 106(75.17%) patients had normal vaginal delivery and 35(24.82%) patients underwent lower segment caesarean section in view of fetal distress in 34 (22.66%) cases and for non progressive of labour(NPOL) in 1 (0.66%) case. Most common indication for caesarean delivery observed was fetal distress i.e. 34 (77.27%) cases followed by poor bishop score 4 (9.09%) cases, breech 2 (4.54%) cases, eclampsia (2.27%) cases, NPOL (2.27%) cases and previous 2 LSCS 2 (4.54%) cases. Retroplacental clot was present in 137 (91.33%) of cases and absent in 13 (8.66%) cases.

Table I: Maternal complications (n=150)

Investigations	Number of patients	Percentage
Post partum haemorrhage(PPH)	25	16.66
Managed medically	24	
Balloon temponade	1	
Disseminated intravascular coagulation (DIC)	8	5.33
Couvellaire uterus	5	3.33
Renal failure	7	4.66
Dialysis done	4	
Maternal mortality	2	1.33
Length of hospital stay (days)	5.37±4.19	-

Abruptio placentae was associated with maternal complications like PPH in 25 (16.66%) cases. In 24 cases, PPH was managed by medical management which includes oxytocin drip, tablet misoprostol rectally, injection prostadin. In one case PPH was managed by mechanical compression method in the form of balloon tamponade. Abruptio was associated with increased rate of blood transfusions. Maximum number of women received only one FWB i.e. 61 (40.66%) followed by two units of FWB in 24 (16%) patients. Only one (0.66%) women received 4 units of FWB. Mean fresh whole blood transfusion was 1.85±0.79. Thirty (20%) women received 2 FFP followed by 13(8.66%) women who received 4 FFP. Mean fresh frozen plasma transfusion was 2.12±0.94.

Signs of DIC were present in 8 (5.33%) cases which was managed by transfusion of fresh frozen plasma (FFP). Mean of 2.12±4.19 FFPs were transfused per patient. Couvellaire uterus was evident in 5 cases (3.33%) during cesarean section. Renal failure occurred in 7 cases (4.66%) out of which 4 cases underwent dialysis. There were two cases of maternal mortality (1.33%).

Table II: Perinatal outcome(n=155)

Parameters	Number of patients	Percentage
Live	96+2 (twins) =98	63.22
IUD/Still birth	54 + 3 (twins) = 57	36.77
Term	70+2 = 72	46.45
Preterm	80+3 = 83	53.54
Birth weight(grams)	2013.26±758.77	
NICU admission	48	30.96
Stay in NICU(days)	7.29±6.37	
Total mortality	16	10.32
Immediate	2	1.29
Within 7 days	12	7.74
More than 7 days	2	1.29
Mean apgar score at 1 minute	6/10	

Abruptio was associated with various perinatal morbidity and mortality. A total of 98(63.22%) live births (including 2 twins) and 57 (36.77%) still births (including 3 twins) were observed in the present study. Out of these term babies were 72(46.45%) and preterm were 83(53.54%). Mean birth weight was 2013.26 ± 758.77 grams. A total of 48(30.96%) NICU admissions took place and 16(10.32%) neonates expired during the study period.

DISCUSSION

In the present study, mean age of study population was 24.67 ± 4.03 years. Nandonde et al reported mean age group of participants was 28.04 ± 6.03 years.¹⁰ The difference in mean age was due to early age of marriage in rural area of Haryana. Complaints of vaginal bleeding accounted for 115 cases (76.66%) and abdominal pain in 35 (23.33%) cases. Coleman et al studied 223 cases and concluded that patient presented with abdominal pain in 158 (79%) cases, vaginal bleeding in 174 (87%) cases, abnormal hypertonic uterine contractions in 156 (78%).¹¹

Most of the patients were multigravida 119 (79.33%) cases and primigravidae were 31(20.66%). Jabeen et al observed 151 cases over a period of 1st September 1994 to 31st August 1995.¹² They found that multigravida were 64(42.3%) cases, grand multigravida were 80(52.98%) cases and primigravida were 7 (4.63%) cases.

Mean gestational age was 34.56 ± 3.74 weeks in our study. Pitaphrom et al studied 103 cases over a period of 1st January 1995 to 31st December 2004.¹³ They observed that the mean gestation age among studied groups was 35.3 ± 3.4 weeks. A study by Pariente et al was done on 1365 cases between years 1998 to 2006.¹⁴ Women in study group with abruptio placentae was between 37-41 weeks of gestation accounting for 42.2% cases, women less than 36 weeks of gestation were 56% and women more than 42 weeks were 1.8%.

Patients included in the present study were having high risk factors which included hypertensive disorders in pregnancy in 17(11.33%) cases, premature rupture of membrane in 10(6.66%) cases, multiple pregnancy in 5(3.33%) cases, polyhydramnios in 4(2.66%) cases, previous pregnancy with abruptio in 3(2%) cases and among smokers in 1 (0.66%) cases. No significant risk factor were found in 110(73.33%). Jabeen et al¹² reported association of risk factors of hypertensive disorders of pregnancy in 20(13.20%) cases, smoking in 4 (2.6%) cases, hydraamnios 4(2.6%) cases, PROM in 5(3.3%) cases. Pitaphrom et al¹³ evaluated pregnancy outcomes in placental abruption. They found that abruptio placentae was associated with risk factors of pregnancy induced hypertension in 31(30.1%) cases, PROM in 1(0.9%) cases, smoking in 7(6.8%) cases.

Mean uterine height was 34.08 ± 8.15 weeks and SFH 34.43 ± 3.89 in our study. A total of 148(98.6%) women were found to be cephalic presentation and 2(1.33%) were having breech. Regular fetal heart sound was found in 62(41.33%), irregular in 34(22.66%) and absent in 54(36%). The uterus was tense and tender in 72(48%) women. Bhandiwad et al studied the maternal and perinatal outcome in APH.¹⁵ A total of 40 cases of APH were studied. They found that among APH, abruptio placentae was associated with regular fetal heart sounds in 34.8% cases, fetal bradycardia in 47.8% and absent fetal heart sounds in 17.4%.

On investigations, study groups were having hemoglobin (Hb) before delivery with mean of 8.73 ± 1.75 gm/dl, blood urea with mean of 26.52 ± 15.23 mg/dl, serum creatinine with mean of 1.22 ± 1.46 mg/dl, PTI/INR with mean of 1.26 ± 1.28 and Hb after 24 hours of deliveries with mean of 8.53 ± 0.96 gm/dl. A study was done by Coleman et al on 223 women with abruptio placentae over a period of 1st February 2008 to 31st January 2010.¹¹ Abruptio was associated with mild pallor in 78(39%) cases, moderate pallor in 50(25%) cases and severe pallor in 48(24%) cases. In the same study it was found the abruptio placentae associated with DIC in 22 (11%) cases and acute renal failure in 12(6%) cases. Nandonde et al studied materno fetal outcomes of abruptio placentae on 95 women over a period of October 2012 to April 2013. From study, it was observed that abruptio was associated with anaemia in 89(93.7%), coagulopathy in 3(3.5%) cases and acute renal failure in 30(31.6%) cases.¹⁰

Mean bishop scoring before induction was 8.12 ± 0.82 . One hundred forty one patients were induced with 2.5 units of oxytocin. Mean induction delivery interval of study population was 4.82 ± 4.42 hours. In nine patient, no induction was done and direct caesarean section was done in view of poor bishop in 4(2.66%), breech in 2(1.33%), eclampsia in 1(1.33%) and previous 2 LSCS in 2(1.33%). In remaining 141 cases which were induced, 106(75.17%) had normal vaginal delivery and 34(24.82%) patients underwent lower segment caesarean section in view of fetal distress in 34 (22.66%) cases and for non progressive of labour (NPOL) in 1 (0.66%) cases. In the study by Nandonde et al, induction by amniotomy and oxytocin was done in 38(69.1%) cases. 45(47.4%) cases delivered vaginally and 49(51.6%) cases delivered by caesarean section.¹⁰ As observed by Jabeen et al, 124(82.1%) delivered normal vaginal delivery, 12 (7.49%) by caesarean section, 7 (4.63%) by breech, 6 (3.97%) by forceps and 2(1.32%) by vacuum extraction.¹²

In the present study PPH was observed in 25(16.66%) cases, signs of DIC in 8 (5.33%) cases, couvelaire uterus in 5(3.33%) cases, renal failure in 7(4.66%) cases, maternal mortality in 2 (1.33%) cases. Average length of hospital stay was 5.37 ± 4.19 days. As studied by Jabeen et al, abruptio placentae was associated with DIC in 25(16.55%) cases, PPH in 22(14.56%) cases, renal failure in 3 (1.98%) cases and maternal death in 2 (1.32%) cases.¹² In a study by Nandonde et al, abruptio placentae was associated with prolonged hospital stay in 82 (86.3%) cases, maternal death in 3 (3.2%) cases, acute kidney failure in 30 (31.6%) cases, DIC in 31 (3.5%) and PPH in 35 (36.8%) cases.¹⁰

Maximum number of women received only one FWB i.e. 61 (40.66%) followed by two units of FWB in 24 (16%) patients. Only one(0.66%) women received 4 units of FWB. Mean fresh whole blood transfusion was 1.85 ± 0.79 . Similarly 30(20%) women received 2 FFP followed by 13(8.66%) women who received 4 FFP. Only one(0.66%) women received 8 FFP. Mean fresh frozen plasma transfusion was 2.12 ± 0.94 . Coleman et al gave recommendations to minimise poor outcomes in abruptio placentae.¹¹ According to study, there was 3.5% mean increased in blood transfusion in abruptio placentae. In the study by Nandonde et al, need of blood transfusions was required in 66 (69.5%) cases of abruptio placentae. Blood transfusions should be carefully done under supervision to avoid transfusion reactions.¹⁰

Most of babies born to abruptio placentae mother have a mean apgar score of 6/10. Total of 98 (63.22%) live births and 57 (36.77%) of still birth were observed. Out of these births 72 (46.45%) were term and 83 (53.54%) were preterm. Average birth weight was 2013.26 ± 758.77 grams. 48 (30.96%) of newborns were admitted to nursery. Out of these 16 died in NICU and rest were discharged. Average number of stay in NICU was 7.29 ± 6.37 days. Jabeen et al found that 78 (49.36%) of alive birth and 80 (50.6%) of still birth were born.¹² Total 92 (58.22%) of newborn were between 2.5 - 3.5 kg.

CONCLUSION

Abruptio placentae is a premature separation of normally situated placenta. The incidence of abruptio placentae is significantly higher with poor maternal and fetal outcome. It is common in women with high parity, hypertensive disorder of pregnancy, smokers, premature rupture of membranes (PROM), polyhydramnios and in women with history of abruptio in previous pregnancy. Majority of mother with abruptio placentae had complications like postpartum haemorrhage (PPH), couvelaire uterus, renal failure, prolonged hospital stay, increased blood transfusion and maternal deaths. Perinatal complications associated with abruptio includes low birth weight, birth asphyxia, low apgar score and still birth. Therefore, placental abruption should be closely monitored and prompt delivery should be carried out at tertiary care centre with adequate maternal neonate intensive care facilities.

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