ORIGINAL ARTICLE

Frequency of Risk Factors and Feto-Maternal Outcome in Cases Diagnosed as Abruptioplacentae

RUBINA NAURIN, SHAZIA JAVED, ROZINA NAURIN, TAYYABA MAJEED, ZAHID MAHMOOD*

ABSTRACT

Background: Abruptioplacentaie separation of placenta before delivery of fetus, is an obstetric emergency and associated with high maternal and perinatal mortality and morbidity, so it is necessary to know about the risk factors and its effects in our population so that effective measures can be taken to avoid it.
Aim: To determine the risk factors and feto-maternal outcome in cases diagnosed as abruptioplacentae
Methodology: This retrospective case series was done at department Of Gynecology and Obstetrics Unit –II, BITH, Central Park Medical College, over one year period from May 2016 to May 2017. All 100 women presenting at or after 28thweeks of gestation, diagnosed as abruptioplacentae after excluding placenta previa, ruptured uterus, local causes of vaginal bleeding and unexplained vaginal bleeding both clinically and with the help of U/S
Results: The mean age of patients was 27.67±5.411 years. There were 28(28.0%) booked and 76(76.0%) had no education. A total of 54% cases had anemia and (25%) females had thrombocytopenia. A total of 30(30%) cases were hypertensive and prolonged rupture of membrane was seen in 4(4%) cases. Previous history of Cesarean Section was reported by 18(18%) females while Polyhydramnios was diagnosed in 2(2.0%) cases.
Conclusion: Most of the females were uneducated, unbooked, belonged to lower social class, hypertension was common among risk factors. A total of 94% cases had cesarean section and two patients needed cesarean hysterectomy for controlling PPH while one patient developed renal failure. Intrauterine fetal death and low birth weight was the highest among fetal poor outcome.
Keywords: Frequency, Abruptio placentae, Risk factors, Feto-maternal outcomes.

INTRODUCTION

The premature rupture of placenta prior to delivery is called placental abruption. In most cases of vaginal bleeding during second or third trimester, placental abruption is responsible[1]. It affects almost 0.4 to 1% of all pregnancies[1,2]. It is one of the commonest risk factors of maternal and perinatal mortality as well as morbidity particularly in developing countries[4]. Also, in developed countries, approximately 10% preterm births and 10 to 20% of overall perinatal mortality is due to placental abruption[1]. Though rare, maternal mortality with placental abruption is seven times higher than overall maternal mortality[1,9]. The clinical symptoms are critical to diagnose this problem that include dark colored bleeding, uterine contractions and abdominal cramps[3].

The effects of placental abruption are different for maternal and perinatal outcomes. The severity of problem mainly determines the maternal outcomes whereas, both severity as well as gestational age of occurrence of abruption determine the perinatal outcome[2]. Some of the major risk factors of abruption are smoking, multifetal gestation, preeclampsia, hypertension, thrombophilias, advanced maternal age, intrauterine infections, drugs, trauma, hydramnios, and trauma[2]. Additional risk factors include history of abruptio placentae, previous cesarean section delivery, less antenatal visits and high parity[4,5]. Moreover, maternal risks of abruption are obstetric hemorrhage, disseminated intravascular coagulopathy, emergency hysterectomy, renal failure and requiring blood transfusions.

Department of Obstetrics & Gynaecology, Central Park Medical College, Lahore
**Professor of Surgery, Lahore Medical & Dental College, Lahore*
Correspondence to Prof. Tayyaba Majeed Email: dr.tayyaba@hotmail.com Cell: 0300-4315535

Fetal death may occur if abruption involves greater than 50% of placenta and the chances of maternal mortality cannot be denied in severe cases[6,7,8]. The perinatal outcomes are preterm delivery, low birth weight, stillbirth, asphyxia and perinatal mortality. Therefore it is crucial to identify risk factors of placental abruption among pregnant women in order to avoid worse maternal and feotal outcomes[4]. The current study is designed to determine the risk factors and feto-maternal outcome in cases diagnosed as abruptioplacentae.

PATIENTS AND METHODOLOGY

This retrospective case series was done at department Of Gynecology and Obstetrics Unit II BITH, Central Park Medical College, over one year period from May 2016 to May 2017. All 100 women presenting at or after 28th weeks of gestation, diagnosed as abruptioplacentae after excluding placenta previa, ruptured uterus, local causes of vaginal bleeding and unexplained vaginal bleeding both clinically and with the help of ultrasound. All cases were taken with prior diagnosis of placental abruption with any parity and age 20-45 years. The study was completed in 12 months and data was collected using non-probability consecutive sampling. Diagnosis of abruptio placentae was based on routine clinical examination and ultrasound performed by the attending physician. The diagnosis was based on clinical features such as vaginal bleeding, abdominal pain, abdominal tenderness, hypertonic uterus and hard abdomen with the fundal height greater than the gestational age. Protocol for management was restoration of circulating volume followed by delivery which was in most cases by cesarean section for live baby and for dead baby cesarean section was done for transverse lie, previous cesarean section and heavy vaginal bleeding with failure to progress.

RESULTS

Table 1: Descriptive statistic of mother's age (years)

	Age
Mean	27.67
S. D	5.41
Range	23
Minimum	20
Maximum	43

Table 2: Frequency distribution of maternal characteristics and outcome

	Frequency	Percent
Booking status		
Booked	28	28
Un booked	72	72
Education status		
Educated	24	24
Non educated	76	76
Socioeconomic status		
Low	76	76
Middle	24	24
Hypertension		
Yes	30	30
No	70	70
Multiple Pregnancy		
Yes	8	8
No	92	92
Prolonged rupture of membranes>24 hours		
Yes	4	4
No	96	96
History of folic acid intake in first Trimester		
Yes	44	44
No	56	56
Previous history of Cesarean section		
Yes	18	18
No	82	82
Polyhydramnia		
Yes	2	2
No	98	98
Intra uterine fetal death		
Yes	21	21
No	79	79
Blood transfusion		
Yes	82	82
No	18	18
Postpartum hemorrhage		
Yes	11	11
No	89	89
Renal failure		
Yes	1	1
No	99	99
Mode of Delivery		
SVD	6	6
C/s	94	94
Thrombocytopenia(<150,000/cmm)		
Yes	25	25
No	75	75

Table-3: Frequency distribution of neonatal outcome

	Frequency	Percent
Early neonatal death		
Yes	8	8.0
No	92	92
Preterm Birth(<37Wks)		
Yes	27	27
No	73	73
Fetal Weight		
Low birth weight (<2.5Kg)	96	96.0
Normal weight	4	4.0
Intra Uterine Fetal Death		
Yes	21	21
No	79	79

The mean age of patients was 27.67±5.411 years. The mean of parity was 1.75±0.73 with the minimum and maximum parity was 1 and ≥5. According to social economic status there were 76(76%) who belonged to lower and 24(24%) belonged to middle class. There were 28(28%) booked and 72(72%) unbooked cases, 24(24%) female were educated and 76(76%) had no education. A total of 54% cases had anemia. According to platelet count 25(25%) females had thrombocytopenia. A total of 30(30%) cases were hypertensive, there were 8(8%) females who had multiple pregnancy and prolonged rupture of membrane was seen in 4(4%) cases, history of Folic acid intake in first trimester was reported by 44(44%) cases. Previous history of Cesarean Section was reported by 18(18%) females while Polyhydramnios was diagnosed in 2(2%) cases. Postpartum hemorrhage occurred in 11(11%) while 1(1%) female had renal failure, according to mode of delivery only 6(6%) females delivered vaginally while 94(94%) cases delivered through cesarean section and 2(2%)patients needed hysterectomy for control of PPH. Intrauterine fetal death was seen in 21(21%) females, early neonatal death was occurred in 8(8%) of the cases, 96(96%) babies had low birth weight, blood transfusion was done in 82(82%) of the cases.

DISCUSSION

The placental abruption is a critical health issue that remains a common cause of various worse feto-maternal outcomes. Hemorrhage at the decidual placental interface is one important pathophysiological factor for this problem[3]. Though the exact etiology of this problem remains unknown, but most often it occurs in hypertensive pregnant women, or those with uterine growth restriction (IUGR), with trauma, increased age, male gender of baby, and having a history of placental abruption[5]. Many factors are responsible for this problem, such as drugs and alcohol consumption and smoking to name a few[5]. A study with similar objectives reported the most frequent age group of patients was >30 years 51(44.35%) with mean ± SD age of 30.02±7.648 years[10]. In another study reported by Mukherjee et al average age of patients was 34.5 years

(range: 18-44 years) and 45% of patients were above 30 years[11]. According to another study, in women with abruption placentae, 50% patients were in the age of 30-40 years[12]. Sarwar et al showed that ages of patients in his study ranged from 18 to 45 years, with a mean age of 31.55 ± 6.21 years. [13]Another study by Saeed et al reported that the maternal age ranged between 16-42 years[12]. In current study the mean age of patients was 27.67±5.411 years. The mean age is almost similar to above cited studies.

Mukherjee et al reported that in his study, among the cases of abruptio placentae there were **t**wo-third who belonged to lower socioeconomic status. [11] In another study the majority of patients 41(77.4%) belonged to the poor socio-economic group, while the remaining patients 12(22.6%) were in the middle (satisfactory) socio-economic group[13] whereas there were 76(76%) patients who belonged to lower and 24(24%) belonged to middle class. They also reported that among women with pregnancies complicated by abruptio placentae, **p**arity ranged from 0 to 11 children, with a mean of 3.92±2.56[19]. The parity distribution in study by Sarwar et al was found to be 0 in 06 patients (11.3%) (Primigravida), 1-4 in 26 patients (49.1%) (Multigravida) and 21 cases (39.6%) had parity more than 4 (Grand Multigravida)[13]. Abu-Heija et al showed that the incidence of abruptio placenta was found to be higher in women with high parity[14]. While another study reported mean±SD parity of 4.98±3.068 yrs[10]..

Out of the various risk factors associated with abruption placentae some were studied and compared in current study. One study showed that almost all patients were anemic with 80.7% having a haemoglobin range of 6-10gms and 19.3% were severely anemic with hb level below 6 gms[15]. In another study, most of the patients (89%) with abruptio placentae were anaemic at the time of admission. [16] Another study by Saeed et alreported that 28% patients had anaemia[12]. In current study a total of 54% cases had anemia. In one study the univariate analysis for variables associated with abruptio placentae revealed an association between bleeding and platelet count <60,000/mm^3.[17].

A study reported that among 115 cases only 11 (9.57%) were booked [10]whilst Saeed et al published that 30% patients in his study were booked whereas 70% were unbooked. [12]According to another study all cases of abruptio placentae presented as unbooked.[13] In current study there were 28(28.0%) booked and 72 (72.0%) unbooked cases. We found that history of Folic acid intake in first trimester was reported by 44(44.0%) cases. In a study women with pregnancies complicated by PROM were more than three times as likely to develop placental abruption (OR 3.05, 95% CI 2.16–4.32).[18]A retrospective analysis of all patients with prolonged, preterm PROM led to an estimated risk of 4% for the development of abruptio placentae during the course of expectant management of such patients and a high index of suspicion for abruptio placentae is appropriate when patients with prolonged, preterm PROM develop vaginal bleeding[19] In a study reported by Hossain et al women with abruptio placentae, Prelabour premature rupture of membranes was present in 8%(7/81)[20.]

In current study a total of 30(30.0%) cases were hypertensive, whereas in another study higher hypertension i.e. 72.4% was reported [21] This may be due to the fact that most patients would have been having ongoing bleeding that masked the underlying hypertension[22] According to another study, women with abruption placentae had significant association with chronic hypertension and pre-eclampsia/eclampsia. Incidence of eclampsia, chronic hypertension and preeclampsia of 23.6%, 10% and 2.3% respectively have been reported previously and is consistent with our results[22]. Another study by Macheku et al reported that the risk factors of abruptio placentae in the subjectsincluded chronic hypertension (OR 4.1; 95% CI 1.3–12.8) and preeclampsia/ eclampsia (OR 2.1; 95 % CI 1.1–4.1)[23]. A total of 13 cases (9.3%) of gestational hypertension were reported in another study[21] and 25%, 11%, & 10.4% of cases were associated with hypertension in a different study[11] while 50% pts had pregnancy induced hypertension in one study[12].

In current study there were 8(8.0%) females who had multiple pregnancies and prolonged rupture of membrane was seen in 4(4.0%) cases. Out of the various risk factors associated with abruption placentae, the ones that were found influential in the study include multigravidity and multiparity, 45.7%.(1) Another study by Saeed et al reported that 10% patients had multiple pregnancy[12]

Studies report that past cesarean section increases the risk of placental abruption by approximately 40% and short interpregnancy interval after cesarean section further increases this risk[24] Macheku et al reported that previous caesarean delivery was associated with abruptio placentae (OR 1.3; 95% CI 1.2-4.2)[25]..

In a study total of 53 cases of abruptio placentae were recorded out of 1194 cases (4.4%) admitted for delivery during the study period with major complication as intra uterine fetal demise (31/53, 58.5%).[13] In current study we found intrauterine fetal death was seen in 21(21.0%) females**.** All patients in the study required blood transfusion depending on the amount of blood lost and whether DIC or anemia was operative. 19 patients (22.9%) required massive transfusion and a total of 47 (56.6%) required component transfusion. Out of those requiring massive transfusion, 6 expired either directly due to irreversible hypovolemic shock or indirectly due to multi organ damage resulting in acute renal failure or transfusion induced lung injury[15]. In a study PIH was most common risk factor of the abruptio placentae where most of the patients (89%) were anaemic at the time of admission and majority of them required blood transfusion. [16] In this study blood transfusion was done in 82(82%) of the cases. In a study, among women with pregnancies complicated by abruptio placentae, post-partum haemorrhage occurred in 10(18.9%) cases, while 43 (81.1%) cases did not have any post-partum haemorrhage. Hysterectomy for controlling post-partum haemorrhage was performed in only one (1.9%) case[13] which is exactly the same as in our study i.e., 2%, while another study reported by Macheku et al reported that postpartum haemorrhage had much higher risk of abruptio placentae (OR 17.9; 95% CI 8.8–36.4)[23]. Mukerjee et al study showed that obstetric hysterectomy was required in seven patients for control of postpartum hemorrhage (PPH) .[11]According to another study, in women with abruption placentae risk of Postpartum infection was in 6.96% cases.[10] Another study

by Dudhrejia et al reported that primary postpartum hemorrhage was found in 12 (14.4%) patients[15]. In current study postpartum hemorrhage occurred in 11(11%). In current study 1(1%) female had renal failure while another study showed similar statistics that 48 patients (1.87%) had abruptio placenta among whom renal failure was present in 6.25% cases of abruption[26]. A study by Dudhrejia et al reported that among cases of abruptio placentae, acute renal failure was present in 13 (15.6%)[15].

In another study, adverse fetal outcomes associated with abruptio placentae included low birth weight (OR 5.9; 95% CI 3.9-8.7)[25]. In a study by Hossain et al the mean foetal birth weight was 2400 gms[20]. Pitaphrom et al also showed that the mean birth weight was 2,269.4 ± 737.7 grams[28]. In current study 96% neonates had low birth weight that was higher than other discussed studies. In current study according to mode of delivery only 6(6%) females delivered vaginally while 94(94%) cases delivered through cesarean section. In one study reported by Dars, among cases of abruptio placentae **w**omen who delivered vaginally were 74(64.35%) whereas 41(35.65%) underwent operative delivery[10]. Another study reported by Sumangala Dwvi showed that the mode of delivery in cases of abruption studied was caesarean section in 81 cases (57.9%) and in 58 cases (41.4%) vaginally[21]. According to another study **t**he mode of delivery was vaginal in 37(69.8%) cases, while caesarean section was performed in 16(30.2%) cases[13]. In a study a rate of 44 cases of abruptio placentae per 1000 deliveries was observed, and caesarean section was performed in 16 (30.2%) cases[13]. In another study on the foetal outcomes, early neonatal death was associated with abruptio placentae (OR 5.3; 95% CI: 3.8–17.9)[25]. A retrospective cohort study conducted by Berhan et al, 50(11.6%) early neonatal deaths were reported[27]. In current study we found 8% early neonatal death[15].

CONCLUSION

Most of the females were uneducated, unbooked, belonged to lower social class, hypertension was common among risk factors. A total of 94% cases had cesarean and two patients needed cesarean hysterectomy for controlling PPH while one patient developed renal failure.

REFERENCES

1. Tikkanen M. Placental abruption: epidemiology, risk factors and consequences. Acta obstetr et gynecologica Scandinavica 2011;90(2):140-9.
2. Oyelese Y, Ananth CV. Placental abruption. Obstetr & Gynecol 2006;108(4):1005-16.
3. Hall DR. Abruptio placentae and disseminated intravascular coagulopathy. Semin Perinatol 2009;33(3):189-95.
4. Macheku GS, Philemon RN, Oneko O et al. Frequency, risk factors and feto-maternal outcomes of abruptio placentae in Northern Tanzania: a registry-based retrospective cohort study. BMC Pregnan Childbirth 2015;15:242.
5. Ghaheh HS, Feizi A, Mousavi M. Risk factors of placental abruption. J Res Med Sci 2013;18(5):422-6.
6. Tikkanen M, Nuutila M, Hiilesmaa V,. Clinical presentation and risk factors of placental abruption. Acta obstetricia et gynecologica Scandinavica 2006;85(6):700-5.
7. Boisramé T, Sananès N, Fritz G, Boudier E et al. Placental abruption: risk factors, management and maternal–fetal prognosis. Cohort study over 10 years. Europ J Obstetr Gynecol Reproduct Biol 2014;179(Supplement C):100-4.
8. Bibi S, Ghaffar S, Pir MA, Yousfani S. Risk factors and clinical outcome of placental abruption: a retrospective analysis. J Pak Med Assoc 2009;59:672-4.
9. Ananth CV, Lavery JA, Vintzileos AM et al. Severe placental abruption: clinical definition and associations with maternal complications. Am J Obstetr Gynecol 2016;214(2):272.e1-.e9.
10. Dars S, Sultana F, Akhtar N. Abruptio placentae: Risk factors and maternal outcomes at a tertiary care hospital. JLUMHS 2013;12(3):198-202.
11. Mukherjee S, Bawa AK, Sharma S, Nandanwar YS, Gadam M. Retrospective study of risk factors and maternal and fetal outcome in patients with abruptio placentae. J Nat Sci Biol Med 2014;5(2):425-8.
12. Saeed M, Rana T. Fetomaternal outcome in pregnancies complicated with placental abruption. Hypertension 2011;50:50.
13. Sarwar I, Abbasi A, Islam A. Abruptio placentae and its complications at Ayub Teaching Hospital Abbottabad. JAMC 2006;18(1):27-31.
14. Abu-Heija A, Al-Chalabi H, El-lloubani N. Abruptio placentae: risk factors and perinatal outcome. J Obstetr Gynaecol Res 1998;24(2):141-4.
15. Dudhrejia K. An observational study of feto-maternal outcome in cases of abruptio placentae. Int J Reproduc Contracep Obstetr Gynecol 2017;6(8):3264-70.
16. Kapadia D, Dhrangiya B. Study of Maternal and Perinatal Outcome in 100 Cases of Abruptio Placentae. International Journal of Medical Research & Health Sciences 2017;6(7):84
17. Witlin AG, Saade GR, Mattar F, Sibai BM. Risk factors for abruptio placentae and eclampsia: analysis of 445 consecutively managed women with severe preeclampsia and eclampsia. American journal of obstetrics and gynecology 1999;180(6):1322-9.
18. Ananth CV, Savitz DA, Williams MA. Pracental abruption and its association with hypertension and prolonged rupture of membranes: A methodologic review and meta-analysis. Obstetrics & Gynecology 1996;88(2):309-18.
19. Nelson D, Stempel L, Zuspan F. Association of prolonged, preterm premature rupture of the membranes and abruptio placentae. J Reproduc Med 1986;31(4):249-53.
20. Hossain N, Khan N, Sultana SS, Khan N. Abruptio placenta and adverse pregnancy outcome. Hypertension 2010;13:16.
21. Sumangala Devi D, VijayKumar B, Joshi M. Feto Maternal Outcomes in Abruptio Placenta. IJSR 2015;5(11):669-72.
22. Abdella TN, Sibai BM, HAYS Jr JM, Anderson GD. Relationship of hypertensive disease to abruptio placentae. Obstetr Gynecol 1984;63(3):365-70.
23. Macheku GS, Philemon RN, Oneko O, Mlay PS, Masenga G, Obure J, et al. Frequency, risk factors and feto-maternal outcomes of abruptio placentae in Northern Tanzania: a registry-based retrospective cohort study. BMC Pregnancy Childbirth 2015;15(1):1-10.
24. Yang Q, Wen S, Oppenheimer L, Chen X, Black D, Gao J, et al. Association of caesarean delivery for first birth with placenta praevia and placental abruption in second pregnancy. BJOG 2007;114(5):609-13.
25. Macheku GS, Philemon RN, Oneko O, Mlay PS, Masenga G, Obure J, et al. Frequency, risk factors and feto-maternal outcomes of abruptio placentae in Northern Tanzania: a registry-based retrospective cohort study. BMC Pregnancy Childbirth 2015;15(1):1-4.
26. Abbasi RM, Rizwan N, Mumtaz F, Farooq S. Feto maternal outcome among Abruptio placentae cases at a University hospital of Sindh. JLUMHS 2008;2:106-9.
27. Berhan Y. Predictors of perinatal mortality associated with placenta previa and placental abruption: an experience from a low income country. J Pregnancy 2014;2014:1-10.
28. Pitaphrom A, Sukcharoen N. Pregnancy outcomes in placental abruption. J Med Assoc Thai 2006; 89(10): 1572-8.