ORIGINAL ARTICLE

A Retrospective Analysis of Risk Factors and Fetomaternal Outcome of Placental Abruption

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ABSTRACT

Objective: To determine the risk factors, fetal outcome and maternal outcome of placental abruption.

Study Design: Retrospective observational study

Place and Duration of Study: January 2017 to June 2018, Gynaecology Department, Bolan medical complex Quetta.

Materials and Methods: During the study, 189 patients with placental abruption Data wes collected from records of labor room, obstetrical ward and Neonatal Intensive Care Unit. All diagnosed placental abruption cases were included in this study. The clinical data of the patients presented with placental abruption in our facility was reviewed and the fetomaternal outcome was analyzed. Information collected from record included demographics, parity, gestational age, HB% at arrival and risk factors for placental abruption. Data was analyzed using MS Excel version 13 and results were presented as averages and percentages.

Results: During study period 189 cases of placental abruption were recorded. Grandmultiparity (94.17%) and Anemia (83.59%) were identified as major risk factors for placental abruption. The frequency of PIH as a risk factor for placental abruption was recorded in (8.9%) cases and history of trauma was noted in [2.6%] cases. Maternal deaths were found to be (2.11%) and the women undergone surgical intervention were (15.87%) with (14.28%) developed PPH. Only (28.57%) fetuses survived in this study population. Intrauterine death was diagnosed at arrival in (60.84%) cases. Early neonatal deaths were recorded in (13.22%) cases.

Conclusion: Abruption is a frequent and major cause of maternal morbidity and perinatal mortality. Anemia and grand multiparty are identified as major risk factors. The frequency of PIH and Trauma as a risk factor for placenta abruption is found lower than expectation.

Key Words: *Anemia, Maternal Outcome, Placental Abruption, PIH, Fetal Outcome.*

Introduction

Placental Abruption is defined as complete or partial separation of placenta prior to birth. Placental Abruption is an important cause of maternal and fetal morbidity and mortality. It occurs in around 1% of all pregnancies.[1] Placental abruption is a major cause of maternal morbidity and perinatal mortality globally and specially in the developing world.[1,2] The rates of abruptio placentae as high as 4.4-4.5% have been reported in developing countries.[2,3] A study conducted by Dar A et al reported an incidence of 3.5 -3.8 % in Pakistan.[4] The incidence appears to increasing in the USA, Canada, and several Nordic countries possibly due to increase in prevalence of risk factor.[5]

It is one of the major causes of obstetric haemorrhage and common cause of maternal morbidity and mortality.[6] It is also a significant cause of perinatal mortality.[7] Although etiology of Abruptio placentae is not fully understood, its generally multifactorial, that is, abnormal placentation, placental insufficiency, vascular malformations and increased fragility of vessels predispose to hematoma formation resulting in separation of the placenta.[8] The risk factors for placental abruption are hypertensive disorders of pregnancy, polyhydramnios, advanced maternal age, maternal trauma, cigarette smoking, alcohol consumption, cocaine abuse, short umbilical cord, sudden decompression of the uterus, retro placental fibro myoma, amniocentesis, previous miscarriage, grand

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multiparity, preterm rupture of membranes (PROM),low socioeconomic status and/or low pre pregnancy body mass index.[9,10,11,12] The clinical hallmarks of abruption include vaginal bleeding accompanied by tetanic uterine contractions, uterine hypertonicity, and a non-reassuring fetal heart rate pattern.[13] The signs and symptoms of Abruptio Placentae vary depending on the severity of bleeding and degree of separation of the placenta.[14]In two third of cases placental abruption is classified as sever due to associated fetomaternal morbidity and mortality.[15] The most common presentations include vaginal bleeding, uterine and abdominal pain and tenderness, abnormal uterine contractions, premature labor, maternal hemodynamic instability, fetal distress, and fetal death.[14] Ultrasound examination is useful in diagnosis of placental abruption with reported accuracy of 87.5% due to improved technology.[16] The risk of recurrence of abruptio placentae is reported as 4%-12%.[17] Receiving increasing number of women with this grave complication and non-availability of reliable data about Baluchistan was the motivation to carry out this study. As BMCH Quetta is a tertiary care hospital and we receive patients referred from most of the peripheral hospital, so the results of study to some extent may reflect the situation in Baluchistan. The objective to conduct this study was to determine the risk factors for abruptio placentae in women of Baluchistan seen at BMCH emergency ward with placental abruption and to describe the fetomaternal outcome for these patients.

Materials and Methods

This retrospective observational study was conducted to analyze all the cases of placental abruption seen at gynecological department of BMCH Quetta between January 2017 to June 2018.189 cases of placental abruption were included in this study. Data was collected from records of labor room, obstetrical ward and Neonatal Intensive Care Unit (NICU) by authors. Permission of ethical review board was obtained and all ethical issues were addressed. All diagnosed placental abruption cases were included in this study and other patients presented with antepartum haemorrhage due to other causes like placenta Previa were excluded. We reviewed the clinical data of patients presented with placental abruption in our facility and analyzed the fetomaternal outcome. Information collected from record included demographics, parity, gestational age, HB% at arrival, risk factors for placental abruption i.e. History of trauma, PIH, PROM, Previous abruption, Anemia, socioeconomic status, fetal outcome i.e. intrauterine death, early neonatal death, prematurity and maternal outcome i.e. Shock, massive transfusion, operative intervention, PPH and mortality. Data was analyzed using MS Excel version 13 and results were presented as averages and percentages.

Results

During study period 189 cases of placental abruption were recorded. Most of the cases were unbooked 165 (87%) Table I. Average Gestational age at presentation was 35, 72 weeks (Range, 28-41 Weeks) Table IV. Grand multi parity 178 (94.17%) and Anemia 158 (83.59%) were identified as major risk factors for placental abruption. 145 (76.71%) women belonged to poor socioeconomic strata. The frequency of PIH as a risk factor for placental abruption was recorded in 17(8.9%) cases and history of trauma was noted in 5(2.6%) cases. 25(13.22%) women presented with history of PROM and 4(2.1) had previous history of abruption.(Table I). Average Maternal age was recorded as 36 years (range 22-45). Table 4. Placental abruption resulted in 4 (2.11%) maternal deaths during study period. 92 [48.67%] presented in labor room in the state of shock and 105(55.55%) required massive transfusion.30 (15, 87%) women needed surgical intervention and 27(14.28%) developed PPH (Table II) Only 54 (28.57%) fetuses survived in this study population. Intrauterine death was diagnosed at arrival in 115 (60.84%) cases of placental abruption. Early neonatal deaths were recorded in 25 (13.22%) cases.35 (18.51%) babies were delivered prematurely as a result of placental abruption. Table III.

Table I: Risk factor for Placental Abruption

Risk factor for Placental Abruption	No. of Cases	Percentage
PIH	17	8.99%
Trauma	5	2.64 %
PROM	25	13.22%
Un booked	165	87 %
Previous history of abruption	4	2.11 %
Poor socioeconomic status	145	76.71%
Anemia	158	83.59%
Multiparty	178	94.17 %

Table II: Maternal Outcome of Placental Abruption

Maternal outcome	No. of cases	Percentage
Shock	92	48.67%
Massive transfusion	105	55.55%
surgical intervention	30	15.87%
PPH	27	14.28%
Maternal mortality	4	2.11%

Table III: Fetal Outcome of Placental Abruption

Fetal outcome	No. of cases	Percentage
Intrauterine death	115	60.84 %
Early neonatal death	25	13.22 %
Prematurity	35	18.51 %
Alive	54	28.57 %

Table IV: Average Maternal Age and Gestational Age of Fetus at the Time of Presentation

	Average	Range
Gestational age	35,72 %	28-41 weeks
Maternal age	36 years	22-45 years

Discussion

Abruptio placenta occurs in 0.8 - 1.0% of all pregnancies and 1.2% in twin pregnancies worldwide.[8,19,20] Hossain et al reported an incidence of 3.7% among Pakistanis women.[21] Placental abruption is a major cause of obstetrical haemorrhage and perinatal deaths. Increased maternal mortality and morbidity associated with placental abruption is due to haemorrhage.[22]

During this study period 189 women presented to BMCH emergency with placental abruption. 2.11% maternal deaths due to abruptio placentae were recorded. One mother was received dead in emergency with the diagnosis of placental abruption made by a general practioner. Another woman developed DIC after placental abruption and died. Two women died as a result of irreversible shock and uncontrolled PPH. Like other developing countries, maternal deaths due to hemorrhage are common in our country due to either delay in reaching the health facility or non-availability of blood. 48.67% presented in labor room in the state of shock and received active resuscitation. 55.55% required massive transfusion both due to antepartum and postpartum haemorrhage.15, 87% women needed surgical intervention in the form of emergency caesarean section (24), application of B-Lynch suture (7) and internal Iliac artery ligation (3) for sever PPH 27 women (14.28%) developed PPH Table II. In the Western world, maternal deaths due to placental abruption are rare; for instance a study done in Finland found that, between 1972 and 2005 placental abruption had a maternal mortality rate of 0.4 per 1,000 cases (which means that 1 in 2500 women who had placental abruption died); this was similar to other Western countries during that period. Without any form of medical intervention, as often happens in many parts of the world, placental abruption has a high maternal mortality rate. The prognosis of this complication depends on whether treatment is received by the patient, on the quality of treatment, and on the severity of the abruption.[23] only 28.57% fetuses survived in this study population. Intrauterine death was diagnosed at arrival in 60.84% cases of placental abruption. Early neonatal deaths were recorded in 13.22% cases. 18.51% babies were delivered prematurely as a result of placental abruption. Table III Poor perinatal outcome characterized by high intrauterine deaths observed in our study is consistent with other reports from developing countries.[24,25] The intrauterine death rate, maternal death rate, mean gestational age and PPH rates reported by H. Nazli et el are consistent with results of our study.[25] Another study conducted by Ohhashi M. et. al. reported that placental abruption accounts for 58% of perinatal deaths and 26 % of cases involving brain damage.[26] The fetal prognosis is mostly worse in case of placental abruption. Currently, in the UK, about 15% of fetuses die following this event.[23] The maternal effect of abruption depends primarily on its severity, whereas its effect on the fetus is determined both by its severity and the gestational age at which it occurs. Fetal morbidity is caused by the insult of the abruption itself and by issues related to prematurity when early delivery is required to alleviate maternal or fetal distress. Delivery is required in cases of severe abruption or when significant fetal or maternal distress occurs, even in the setting of profound prematurity. In some cases, immediate delivery is the only option, even before the administration of corticosteroid therapy in this premature infants.[27] Average Gestational age at presentation was 35, weeks (Range, 28-41 Weeks). Table IV Grand multiparty (94.17%) and Anemia (83.59%) are identified as major risk factors for placental abruption in our study. 83% women with placental abruption were found anemic (HB% less than 8) according to their blood samples drawn at arrival before the commencement of treatment.

Knowing the fact that HB% will remain unchanged initially (as both plasma and RBCs are lost equally during haemorrhage, before the commencement of intravenous fluids, 4 women, though anemic were not included among these women as they had been received treatment outside and referred to BMCH for management of placental abruption, in order to avoid the Bias that whether the Anemia is the cause or consequence of the placental abruption. Most of the cases were unbooked 87% and 76.71% women belonged to poor socioeconomic strata. This seems that the lack of antenatal care and poor socioeconomic status are significant contributory factors. The frequency of PIH as a risk factor for placental abruption was recorded in 8.9% cases and history of trauma was noted in 2.6% cases. The frequency of PIH and Trauma as a risk factor for placenta abruption are found lower than expectation. The 8.9% incidence of hypertensive disorder observed in our study may be an underestimate owing to masking of hypertensive disorder by lower blood pressures due to vaginal bleeding in patients with Abruptio Placentae. 13.22% women presented with history of PROM and 2.1 had previous history of abruption. Table I A review article by Downes et el confirm our study results that placental abruption is associated with significant risk of maternal mortality, perinatal mortality, PPH and caesarean section.[28] We acknowledge the limitations of our study that it doesn't describe the long term effects of placental abruption on fetus and mother as it is a retrospective study involving the record's analysis and most of these women are lost from follow up. The second limitation of this study was small sample size. A greater sample size is needed to better investigate the causal relationship between the risk factors of placental abruption. To conclude, Abruptio Placentae is a potentially serious obstetrical complication that tends to compromise maternal wellbeing and fetal viability. Increased frequency of Placental abruption is observed in women with low socioeconomic status, no antenatal checkup, and poor nutritional status. The results of our study provide important information to the obstetrician regarding the early identification of risk factors for placental abruption and developing individual antenatal care plans for women at risk of developing this complication. Proper management of these risk factors may reduce the risk of placental abruption and associated adverse outcome for mother and fetus. Furthermore, the results of our study highlighted the need for better equipped labor rooms and NICU to improve fetomaternal outcome in high risk pregnancies like placental abruption. Poor socioeconomic status, lack of antenatal care and delay in getting medical help due to long distances were found to be the major contributory factors in bad outcome in our study. The results of this study reflect insufficiencies of our health care management system. As morbidity and mortality associated with placental abruption can be decreased by good antenatal care, correction of Anemia, provision of contraceptive services and development of hospitals at far areas. The results of our study can be used to convince the policy makers to take in account the special circumstances of our province keeping in view the dynamics of this area.

Conclusion

Abruption is a frequent and major cause of maternal morbidity and perinatal mortality. Anemia and grand multiparty are identified as major risk factors. The frequency of PIH and Trauma as a risk factor for placenta abruption is found lower than expectation. Results of maternal and fetal outcome warrant the establishment of well-equipped labor rooms and NICU at tertiary care centers.

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