

Abruptio Placentae: Risk Factors and Maternal Outcomes at a Tertiary Care Hospital

Saira Dars, Farhat Sultana, Naheed Akhter

ABSTRACT

OBJECTIVE: The objective of this study was to determine risk factors and maternal complications in cases of abruptio placentae.

STUDY DESIGN: It was an observational and descriptive study.

SETTING: This study was conducted in Obstetric and Gynaecology Unit-I of Liaquat University Hospital Hyderabad from November 2011 to October 2012 (12-months).

METHODOLOGY: All the pregnant women with gestational age 24 weeks or greater on ultrasound having retroplacental clot on ultrasound and/or painful vaginal bleeding were included in this study by using non-probability purposive sampling technique whereas women presenting with vaginal bleeding due to causes other than abruptio placentae were excluded from the study.

RESULTS: During the study period total 3329 women delivered among which 115 presented with abruptio placenta making the proportion of 3.46%. Among these 115 cases only 11 (9.57%) were booked. Women delivered vaginally were 74 (64.35%) whereas 41 (35.65%) underwent operative delivery. In this study the most frequent age group was >30 years (51, 44.35%) with mean±SD age of 30.02±7.648 years. Majority (62, 53.91%) were grandmultiparous with mean±SD parity of 4.98±3.068. Most of the women (76, 66.09%) presented with gestational age >37-weeks. Gestational age >37 weeks was most frequent risk factor followed by hypertension (59.13%), grandmultiparity (53.91%), anemia (38.26%), poverty (19.13%), smoking (12.17%) and trauma (2.61%). Maternal outcomes were postpartum anemia (44.35%), shock (35.65%), PPH (28.70%), PROM (13.91%), postpartum infection (6.96%), DIC (4.35%), renal failure (4.35%) and maternal mortality (2.61%).

CONCLUSION: Abruptio placentae is still one of the major threat to the well being of pregnant women in our population with alarmingly high rate of 3.46% as compared to worldwide rate of 0.7-1%. Gestational age >37-weeks, hypertension, grandmultiparity and anemia are found to be major risk factors for abruptio placentae whereas maternal age does not seem to have any association.

KEY WORDS: Abruptio placentae, disseminated intravascular coagulation, postpartum haemorrhage, anaemia, perinatal mortality and maternal mortality.

INTRODUCTION

Abruptio placentae (AP) implies the premature detachment of otherwise normally implanted placenta between 20-weeks gestation and delivery.¹ It threatens 1% of all pregnancies worldwide and up to 7% in Pakistan.^{2,3} Its exact etiology is still not known, however multiple risk factors have been identified, one or more may be present at a time.⁴ These may include maternal hypertension, trauma, smoking, alcohol use, cocaine use, short umbilical cord, premature rupture of membranes (PROM), first twin delivery, retroplacental fibromyoma, postamniocentesis, idiopathic, history of placental abruption, chorioamnionitis, rupture of membranes for more than 24-hours, extreme maternal age i.e. <20 or >35, male fetus, poverty, raised serum alpha-fetoprotein during second trimester, grandmulti-

parity, and subchorionic hematoma.^{2,4,5,6}

Abruptio placentae can cause a number of maternal and fetal complications that include hemorrhagic shock, disseminated intravascular coagulation (DIC), renal failure, necrotic ischemia (hepatic, adrenal, pituitary), uterine apoplexy, postpartum hemorrhage, anemia, fetal hypoxia, fetal growth restriction, premature birth, neurodevelopmental abnormalities and intrauterine fetal demise.^{2,3,6,7} Though the workup has been carried out and reported since quite a time but studies are being carried out in developing as well as developed countries due to the changing trends and sociocultural values over the years. Hence, this study was carried out to determine the risk factors and the magnitude of maternal outcomes (complications) of abruptio placentae in our setup.

Objective

To determine risk factors and maternal complications with abruptio placentae.

MATERIAL AND METHODS

This descriptive observational study was carried out in the obstetric and gynecological unit-II of Civil Hospital Hyderabad from November 2011 to October 2012 (12-months). The hospital is a tertiary care hospital having sufficient facility for ultrasonography and cardio to-cography (CTG). During the study period total 3329 women delivered among which 115 cases of abruptio placentae were observed.

All the pregnant women with gestational age of 24 weeks or greater as per LMP, on ultrasound (previous or on arrival) having retroplacental clot on ultrasound and/or painful vaginal bleeding were included in this study by using non-probability purposive sampling technique whereas women presenting with vaginal bleeding due to causes other than abruptio placentae were excluded from the study.

Patients with placental abruption were managed on emergency lines. Intravenous line was maintained and hypovolemia was treated with plasma expender and then cross matched blood when it became available. After giving emergency treatment, patients were carefully evaluated by history, clinical examination and laboratory investigations, which included complete blood count, platelets count, detail urine examination, random blood sugar, blood group and Rh factor, coagulation profile and ultrasound.

Expeditious delivery was the main stay of treatment and the cases of intrauterine deaths were preferably delivered vaginally, except in few cases where excessive bleeding led to abdominal route of delivery. Caesarean section was done in cases of fetal distress which was evident by non reassuring CTG.

In our study we looked for rate of spontaneous vaginal deliveries, induction of labour or operative delivery. We also observed the effects of this intervention on mother by determining the indices for maternal morbidity (including gestational age, hypertension, parity, anemia, smoking, economical class, trauma) and mortality.

Means with standard deviations were calculated for age and parity. Frequencies and percentages computed for all variable including smoking, hypertension, socio-economic status and maternal outcome or complications such as DIC, acute renal failure, shock, PPH, postpartum infection, postpartum anaemia and maternal death.

RESULTS

During the study period total 3329 women delivered

among which 115 presented with abruptio placentae making the proportion of 3.46%. Among these 115 cases only 11 (9.57%) were booked. Women delivered vaginally were 74 (64.35%) whereas 41 (35.65%) underwent operative delivery. In this study the most frequent age group was >30 years (51, 44.35%) with mean±SD age of 30.02±7.648 years. Majority (62, 53.91%) were grandmultiparous with mean±SD parity of 4.98±3.068 (Table I). Gestational age >37 weeks was most frequent risk factor followed by hypertension (59.13%), grandmultiparity (53.91%), anemia (38.26%), poverty (19.13%), smoking (12.17%) and trauma (2.61%). Risk factors associated with abruptio placentae are detailed in Table 2. Maternal outcomes were postpartum anemia (44.35%), shock (35.65%), PPH (28.70%), PROM (13.91%), postpartum infection (6.96%), DIC (4.35%), renal failure (4.35%) and maternal mortality (2.61%) as detailed in Table III.

TABLE I: MATERNAL CHARACTERISTICS (n=115)

Characteristic	Frequency	Percentage
Age		
<20 years	16	13.91
20-30 years	48	41.74
>30 years	51	44.35
Parity		
Primiparous	23	20
Multiparous (1-4)	30	26.09
Grandmultipa- rous (>4)	62	53.91
Gestational age		
24-32 weeks	12	10.43
32-37 weeks	27	23.48
>37 weeks	76	66.09

TABLE II: ASSOCIATED RISK FACTORS (n=115)

Risk Factors*	Frequency	Percentage
Hypertension	68	59.13
Anemia	44	38.26
Poverty	22	19.13
Smoking	14	12.17
Trauma	3	2.61

*some patients had multiple risk factors

TABLE III: MATERNAL OUTCOMES (n=115)

Outcomes*	Frequency	Percentage
Postpartum anemia	51	44.35
Hypovolemic shock	41	35.65
Postpartum hemorrhage	33	28.70
PROM	16	13.91
Postpartum infection	8	6.96
DIC	5	4.35
Renal failure	5	4.35
Maternal mortality	3	2.61

*multiple complications occurred in some patients

DISCUSSION

In this study the proportion of abruptio placentae was 3.46%. Clinical studies from developed countries report abruptio placentae from 0.7% to 1%.^{8,9,10} In contrast, studies from developing countries report its incidence up to 7%.^{11,12,13} A similar study conducted at our centre by Bibi S in 2006 reported 4.7% incidence of abruptio placentae.¹⁴ A later study conducted at our centre by Memon NY in 2007 reported 3.62% incidence.¹⁵ Minding 3.46% incidence in this study there seems to be a slight decrease but the rate is still alarmingly high as compared to 1% worldwide incidence.²

Unawareness or rather ignorance of antenatal care is single most important factor that gives way to abruptio placentae. The unawareness of population is mostly due to the ignorance on the hand of authorities. Although the approach of media, especially electronic, has been greatly increased in our country during past years, but any health awareness related programs are rarely seen. The rate of unbooked cases was very high in the present study (91.3%). In the developed world the concept of unbooked cases barely exists, hence this variable is not even mentioned in studies from these parts of the world. In other parts of our country the very low rates of booked cases are reported as well i.e. 0-14%.^{1,13,16}

In this study most frequent age group was >30-years with 44.35% cases, almost equal cases (41.74%) lied in the age group of 20-30 years. Similar results are reported by Pariente G¹⁷ and Qamarunisa¹⁰. In contrast Tariq S reported advancing maternal age to be a major risk factor for abruptio placentae.¹⁸ Gestational

age >37-weeks was the most common risk factor in this study present in 66.09% cases. Dafallah SE¹¹ and Abbassi RM⁶ presented similar results. In contrast Sarwar I¹ reported high association of early gestational age whereas Liaquat NF¹⁶ denied the association of gestational age at all.

Grandmultiparity was present in 53.91% cases in this study. Developed countries have controlled their population by family planning and their population is very concerned about contraceptive measures. On the other hand contraception is still consider socio-cultural and religious taboo in our country, however, the situation is growing better in urban population. Again the electronic media is to be credited for this progress, but it is the foreign channels that seem to promote contraception and population control more than our local channels. Oyelese Yand Pariente have shown that grand multiparity is not associated with the risk of abruptio placentae.^{9,10} On the other hand local studies have reported very high frequencies of grandmultiparous women i.e. up to 52.98%.^{3,7}

Hypertension, anemia, poverty and smoking are other major risk factors encountered in this study respectively. Other studies also support our results and mention these as major risk factors for abruptio placenta in more or less similar frequency.^{1,15,19} However, western studies do not mention poverty and put smoking higher in the order as it is far more frequent in their society whereas the trend of smoking in women of our population is decreasing, especially in urban population, as it is not supported by family and society and we rarely see any women smoking publicly or in social gatherings.

Three (2.61%) cases in this study presented with history of trauma in pregnancy. Women who sustain trauma in pregnancy, such as those in motor vehicle accidents or domestic accidents/violence, are at risk of abruption.⁹ This is usually the result of shearing forces, may occur even without direct abdominal trauma, and is independent of placental location. Current American College of Obstetricians and Gynecologists guidelines recommend that women involved in trauma should have a minimum of 4 hours of fetal monitoring.^{9,19}

WHO considers anemia as a moderate public health problem in Pakistan with the estimated prevalence of 39.1% in pregnant women.¹⁴ Many of these women enter pregnancy in an anemic state and are more prone to develop hemorrhage and its complications.

The high frequency of anemia in this study resulted in need of blood transfusion, and was also reflective of bleeding of abruption placentae. The considerable maternal outcomes in this study were need of blood transfusion (44.35%), shock (35.65%), PPH (28.7%) and PROM (13.91%). International as well as local studies have also reported these outcomes in more or less similar proportion. Pariente G¹⁰, Sumana S²⁰ and Pitaphrom A²¹ have also reported blood transfusion, PPH, shock and PROM as major outcomes; as also reported by other local studies.^{7,14,16,22}

CONCLUSION

Abruptio placentae is still one of the major threats to the well being of pregnant women in our population with alarmingly higher rate of 3.46% as compared to worldwide rate of 0.7-1%.

SUGGESTIONS

It is evident that most of the risk factors are preventable by awareness and provision of good antenatal care. Though the maternal mortality was found low, there is a need of large, well funded and well organized, population based or multi-centric studies for better identification of risk factors as well as outcomes and their long-term effects.

REFERENCES

1. Sarwar I, Abbasi AN, Islam A. Abruptio placentae and its complications at Ayub teaching hospital Abbottabad. *J Ayub Med Coll Abbottabad*. 2006;18(1):27-31.
2. Deering SH. Abruptio placenta. [online] available at [url:http://emedicine.medscape.com/article252810](http://emedicine.medscape.com/article252810).
3. Jabeen M, Gul F. Abruptio placentae: risk factors and perinatal outcome. *J Postgrad Med Inst*. 2004;18(4):669-76.
4. Tuuli MG, Norman SM, Odibo AO, Macones GA, Cahill AG. Perinatal outcomes in women with subchorionic hematoma: a systematic review and meta-analysis. *Obstet Gynecol*. May 2011;117(5):1205-12.
5. Ananth CV, Oyelese Y, Yeo L, Pardhan A, Vintzileos AM. Placental abruption in the United States 1979 through 2001: temporal trends and potential determinants. *Am J Obstet Gynecol*. 2005;192(1):191-8.
6. Abbasi RM, Rizwan N, Mumtaz F, Farooq S. Feo-maternal outcome among abruptio placentae cases at a university hospital of Sindh. *J Liaquat Uni Med Health Sci*. 2008;7(2):106-9.
7. Talpur NN, Memon SR, Jamro B, Korejo R. Maternal and fetal morbidity with abruptio placentae. *Rawal Med J*. 2011;36(4):297-300.
8. Prochazka M, Lubusky M, Slavik L, Hrachovec P, Zielina P, Kudela M, et al. Selected pregnancy variables in women with placental abruption. *Bio-med Pap Med Fac Univ Palacky Olomouc Czech Repub*. 2006;150(2):271-3.
9. Oyelese Y, Ananth CV. Placental abruption. *Obstet Gynecol*. 2006;108(4):1005-16.
10. Pariente G, Wiznitzer A, Sergienko R, Mazor M, Holcberg G, Sheiner E. Placental abruption: critical analysis of risk factors and perinatal outcomes. *J Matern Fetal Neonatal Med*. 2011 May;24(5):698-702.
11. Dafallah SE, Babikir HE. Risk factors predisposing to abruptio placentae. *Saudi Med J*. 2004;25(9):1237-40.
12. Nizam K, Memon N, Laghari MS. Renal failure – a dreadful complication seen in patients with abruptio placentae. *Pak Armed Forces Med J* 2004;54:84-7.
13. Tasleem H, Tasleem S, Siddique MA, Nazir F, Iqbal T. Outcome of pregnancy in placental abruption. *Rawal Med J*. 2011;36(1):57-9.
14. 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(10):672-4.
15. Memeon NY, Mumtaz F, Farooq S. Placental abruption: frequency of its risk factors. *Professional Med J*. 2012;19(3):000-000.
16. LiaquatNF, Shoaib T, Shuja S. A study of abruptio placentae. *J Surg Pak*. 2006;11(1):27-30.
17. Qamarunisa, Memon H, Ali M. Frequency, maternal and fetal outcome of abruptio placenta in a rural medical college hospital, Mirpurkhas Sindh. *Pak J Med Sci*. 2010;26(3):663-6.
18. Tariq S, Ijaz A, Moeen G, Badar N. Clinical presentation and risk factors associated with placental abruption. *Pak J Med Health Sci*. 2010;4(3):215-8.
19. Hossain N, Khan N, Sultana SS, Khan N. Abruptio placenta and adverse pregnancy outcome. *J Pak Med Assoc*. 2010;60(6):443-6.

20. Sumana S. A clinical study of abruptio placentae – maternal and perinatal outcome.[online] Available at URL <http://hdl.handle.net/123456789/5897>.
21. Pitaphrom A, Sukcharoen N. Pregnancy outcomes in placental abruption. J Med Assoc Thai. 2006;89(10):1572-8.
22. Siddiqui SA, Tariq G, Soomro N, Sheikh A, Sabih-ul-Hasnain F, Memon KA. Perinatal outcome and near-miss morbidity between placenta previa versus abruptio placentae. J College Physician Surgeon Pak. 2011;21(2):79-83.



AUTHOR AFFILIATION:

Dr. Saira Dars (*Corresponding Author*)
Registrar, Department of Gynae & Obs. (U-I)
Liaquat University Hospital Hyderabad, Sindh-Pakistan.
Email: sairadars.gull@gmail.com

Dr. Farhat Sultana
Registrar, Department of Gynae & Obs. (U-II)
Liaquat University Hospital Hyderabad, Sindh-Pakistan.

Dr. Naheed Akhter
FCPS Trainee Gynae & Obs. (U-I)
Liaquat University Hospital Hyderabad, Sindh-Pakistan.