

CLINICAL STUDY ON MATERNAL AND FETAL OUTCOME IN ABRUPTIO PLACENTAE

R. Srividya¹, Sindhuri Chennapatni¹, Ode Bindu²

¹Assistant Professor, Department of Obstetrics and Gynaecology, Kakatiya Medical College, Hanamkonda, Telangana, India.

²Senior Resident, Department of Obstetrics and Gynaecology, Kakatiya Medical College, Hanamkonda, Telangana, India.

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Corresponding Author:
Dr. Sindhuri Chennapatni,
Email:
drsindhurichennapatni11@gmail.com
ORCID: 0000-0001-9103-5468

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Abstract

Background: To know the relative frequency of abruptio placenta its prognosis and maternal and perinatal morbidity and mortality. **Materials and Methods:** Study was conducted among 100 consecutive cases with diagnosis of abruptio placenta retrospectively from November 2019 to October 2021. As accidental haemorrhage can also be diagnosed retrospectively, cases with retroplacental clots (Grade-O accidental haemorrhage) were also included in this study. Those with atypical signs and symptoms were also observed till delivery and excluded from the study if there were no clinical evidence of placental abruption. **Result:** The incidence of APH was 1.33% among 11,200 deliveries. Abruptio placenta accounted for 0.89%, placenta previa 0.35% and unclassified 0.08%. Among APH, abruptio placenta had highest incidence 0.89%. Most of them presented with revealed type of abruption 88%, concealed type being the least (2%) in this study. Majority of the patients in this study reported, 4-8 hrs, after the onset of symptoms (45%) and only 9% reported at 4 hours or less. Bleeding time, clotting time, clot observation test, evidence of fibrinolysis and clot retraction tests were abnormal in 9% of cases. 7% cases delivered by oxytocin augmentation, 16% cases delivered by oxytocin after ARM, 5% cases delivered by PG induction, 22% cases delivered by LSCS after failed augmentation by oxytocin after ARM, 40% cases delivered by LSCS, 10% cases delivered by LSCS in view of failed augmentation by oxytocin. 10 cases of LSCS were immediately done on admission, among which 8 cases were for fetal indication and 2 were for maternal indication. 20% of them were complicated with shock, 10% had renal failure, 9% had coagulation failure, 21% had PPH, 40% had Couvelaire uterus. Perinatal mortality was 71.04% the same for vaginal delivery was 64.2% and for LSCS is 74.04%. **Conclusion:** Timely diagnosis and management preferably in a tertiary care centre, appropriate use of blood and blood products can significantly reduce maternal morbidity and mortality.

INTRODUCTION

Abruptio placenta, as the other name accidental hemorrhage. The separation of placenta from its site of implantation before the delivery of the fetus has been variously called Abruptio placenta¹. Much study has been conducted regarding its etiology and effectiveness of its management. Still it has been one of the common obstetric emergency producing significant maternal and fetal morbidity/ mortality, especially in developing countries.

It has wide variation in incidence ranging from 1:80 to 1:250 (Arias) the etiology of placental abruption is not known in majority of the cases (James D. K. et al).^[1] Though it is a Clinical diagnosis the advent of sonography has helped it to differentiate it from the other cause of APH, Placenta previa, with great precision, which has different mode of management.

With liberal availability of blood, blood products and coagulation factors the management of shock and disseminated intra vascular coagulation has produced good results over the last few decades.

There has been increase in the use of cesarean section over recent years in abruptio placenta which has produced good results with regards to mother and fetus. The present study is done to know the impact of this disorder and effect of various parameters on the outcome.^[2,3]

MATERIALS AND METHODS

Study group consisted of Patients admitted to dept. of Obstetrics and gynecology, Government Maternity Hospital, Hanamkonda with clinical diagnosis of abruptio placenta and period of gestation more than 28wks.

As accidental haemorrhage can also be diagnosed retrospectively, cases with retroplacental clots (Grade-O accidental haemorrhage) were also included in this study. Those with atypical signs and symptoms were also observed till delivery and excluded from the study if there were not clinical evidence of placental abruption.

Study was conducted among 100 consecutive cases with diagnosis of abruptio placentae retrospectively from November 2019 to October 2021.

A detailed history of the patient was taken regarding name, age, socio economic status, address, occupation, duration of amenorrhoea or loss of fetal movements, history of trauma, and any history suggestive of PIH, previous medical disorders, and outcome of previous pregnancies. A detailed obstetric history was taken.

Inclusion Criteria

All pregnant women with complaining bleeding per vagina after 28 weeks of gestation and diagnosed as abruption clinically or by USG or after delivery of placenta.

Exclusion Criteria

All pregnant women over 28 weeks of gestation who were admitted with complaint of bleeding per vagina diagnosed as Placenta previa, genital tract trauma, bleeding ulcers in vagina and on cervix, cervical fibroid polyp and carcinoma cervix associated with pregnancy.

General Examination was made with reference to built nutritional status, presence of anemia, cyanosis, jaundice, edema lymphadenopathy. Signs of shock (restlessness, cold clammy skin), were noted temperature, pulse rate, blood pressure, respiration, and condition of tongue were noted. Routine examination of cardio vascular system and respiratory system and central nervous system were done. Per abdomen with detailed obstetric examination was done and parameters were noted down.

When the diagnosis was doubtful and when emergency ultrasound was not available, per speculum examination and per vaginal examination were done in OT with proper emergency facilities being immediately available. Any lesions of the vagina, cervix, amount of bleeding, condition of the Cervix with regard to effacement dilation, presenting part, cephalopelvic disproportion, status of the membranes and more importantly the

differential diagnosis of placenta previa is made. Those with placenta previa, local lesions of the vagina and causes other than abruption were excluded from the study. After this provisional diagnosis is made following investigation are made for definitive diagnosis and further management.

General Management

Correction of shock preferably with blood transfusion, monitoring of pulse, blood pressure, urine output, CVP.

Management of other complication like DIC managed by component therapy and by hastening delivery. Renal Failure by correcting hypovolemia with blood, colloids, crystalloids, by fluid challenge test, monitoring urine output, correction of electrolyte in balance and managing fluid balance depending upon the stage of renal failure.

General principle was to hasten vaginal delivery and, LSCS was done when indicated.

FHS if present was monitored. ARM done even when Bishop score was less than 6 and accelerated with 2.5 units oxytocin — when there is no contraindication for induction of labour; second stage of labour was cut short if necessary and prophylactic methergine was given and care was taken to prevent PPH. Emergency LSCS done when labour is not established within 6-8 hrs of induction. General condition deteriorates inspite of blood transfusion. Fetus is mature, alive and is in distress.

RESULTS

In present study duration November 2019 to October 2021, the total No. of deliveries, with more than 28 weeks of gestation was 11,200. The total No. of Cases of Antepartum Hemorrhage were 150. Abruptio placentae being 100 (0.89%) cases, Placentae Previa 40(0.35%) and Unclassified being 10(0.08%). The incidence of APH was thereby 1.339%. The incidence of abruptio placenta is 0.89%, placenta previa is 0.35%

When the age was analysed based on subgroups displayed, the highest incidence was found among 21- 25 years accounting for 45%. Meanwhile the incidence below 20 years was 23%. The youngest age at which abruption was found in this series was 19 years and highest was 35 years.

Table 1: Socio economic status in present study

Socioeconomic Class	Total Score	Number of Patients
Upper	26-29	5
Upper Middle	16-25	9
Lower Middle	11-15	14
Upper Lower	5-10	20
Lower	1-4	52

Table 2: Parity and grading in present study

Parity	Percentage
Gravida 1	31

Gravida 2	34
Gravida 3	32
Gravida>4	3
Grade	
GA 24	1
GA 26	1
GA 28	2
GA 30	5
GA 32	18
GA 34	30
GA 36	23
Term	22
Grades	
0	2
MILD	16
MODERATE	50
SEVERE	32
Mode of delivery	
NVD	28
LSCS	72
Condition at birth	
IUD	75
Live	30

Incidence according to weeks of gestation at which abruption occurred maximum incidence was found at the range of 33-36 weeks and was about 53%. 2% had grade '0' and diagnosis was made retrospectively. Patient had no signs or symptoms and both babies were born live. RP clots were weighed. Grade I was present in 16%. Grade II was present in 50% which formed the latest group. fetal distress was present in all them and perinatal mortality was 100%. Grade III was present in 32% and was associated with complication. Majority of the babies are IUD reflecting the severity of abruption.

Table 3: Weight of baby

Weight	IUD	Live	Resuscitation	NICU for 48hr	NICU ADM >5days	Perinatal Mortality
<1500gm	6	3	3		3	
1500- 2499gm	46	14	7	5	2	1
2500 +	23	13				
TOTAL	75	30				

This table clearly shows most of the babies are premature.

Table 4: Complications in present study

Complications	Number
Died-Sh+D	3
DIC	5
Couvelaire uterus	40
RF	6
PPH	21

Table 5: Incidence of Abruptio Placentae at various studies

Sl. No.	Study	Year	Total No. of Deliveries	No. of cases of Abruptio	Incidence
1.	Ananth et al, ^[4]	2008	7,46,5858	-	0.59-1.22% (twin gestation and singleton)
3.	Nezli et al, ^[5]	2010	2610	81	3.75%
4.	Mishra R et al, ^[6]	2016-2017	3000	50	1.6%
5.	Fernandes JC et al, ^[7]	2016-2019	6773	65	0.95%
6.	Present study	Nov 2019- Oct 2021	11,200	100	0.89%

Table 6: Age distribution

Sl.No.	Study	Year	<20 YRS.	21-25	25-30	31-35	>35 years
1.	Nazli et al, ^[5]	2010	-	28%	-	-	4.9%
2.	Singhal Nanda, ^[2]	2008	-	55.30%	-	-	-
3.	Mishra R et al, ^[6]	2016-2017	-	10%	30%	40%	20%
4.	Fernandes J C et al, ^[7]	2016-2019	3%	41.53%	29.23%	26.15%	
5.	Present study	Nov 2019- Oct 2021	23%	45%	29%	3%	0%

Table 7: Parity Distribution

Sl. No.	Study	Year	Parity		
			I	II—V	VI and Above

1.	Nazli et al, ^[5]	2010	.14%	43%	24%
2.	Mishra R et al, ^[6]	2016-2017	15%	G2 G3 G4 G5 35% 30% 20%	
3.	Fernandes JC et al, ^[7]	2016-2019	46.1%	G2 G3+ 24.61% 29.23%	
4.	Present study	Nov 2019- Oct 2021	31%	G2 G3 G4+ 34% 32% 3%	-

Table 8: Weeks of Gestation at Abruption

Sl. No.	Study	Year	28-32 Weeks	33-36 Weeks	37 and above
1.	Singhal Nanda, ^[2]	2008	24.14%	18.53%	57%
2.	Sayli Wankhedkar et al, ^[9]	2016-2017	18.2%	52.7%	27.3%
3.	Present study	Nov 2019- Oct 2021	25%	53%	22%

Table 9: Signs / Symptoms at Abruption

Sl. No.	Symptoms / Signs	Ananth et al, ^[4]	Nazli et al, ^[5]	Present study
1.	Vaginal Bleeding		45%	.76%
2.	Pain Abdomen			70%
3.	Tense Uterus			45%
4.	Tender Uterus			31%
5.	FHS absent			69%
6.	Loss of fetal movements			65%
7.	Shock			20%
8.	Hypertension	1.8-5.1 (RR)	16%	57%
9.	Anemia			70%
10.	Edema			66%

Table 10: Aetiological factors

Sl. No.	Etiology	Ananth et al, ^[4]	Nazli et al, ^[5]	Fernandes et al, ^[7]	Present study
1.	Hypertensive complicating pregnancy	.8 to 5.1 (RR)	16%	26.15%	55%
2.	Trauma	-	-		1%
3.	Short cord	-	-		.1%
4.	Hydramnios	-	-		2%
5.	Multiple pregnancy	.5 to 3.0 (RR)	-	3.07%	5%
6.	Uterine pathology	-	-		-
7.	Diabetes mellitus			1.5%	
8.	Previous L.S.C.S			13.84%	3%
9.	Unknown	-	-	50.76%	10%

DISCUSSION

In Present study duration from Nov 2019 to Oct 2021, the total No. of deliveries, with more than 28 weeks of gestation was 11,200. The totals No. of Cases of Antepartum Hemorrhage were 150. Abruption placentae being 100 (0.89%) cases, Placentae Previa 40(0.35%) and Unclassified being 10(0.06%).

The incidence of APH was thereby 1.339%. All authors shown as except Singhal Nanda have found incidence of Abruption placentae higher than placenta previa and the same was found in this series. Wide variation in the incidence of APH. Probably this may be due to wide variety of etiological factors operating upon them and also their variation in incidence in different Socio-geographical conditions. Partly it may be due to different diagnostic criteria applied in diagnosis by different authors. The increased incidence in this series may be due to the institution, being Tertiary referral center covering vast area, many high-risk cases are referred from peripheral health centers.

The incidence quoted by James DK et al,^[1] is about 2-5%. Mondal G.S3 found are incidence of 2.06% in Eden Hospital Calcutta after studying 26,433 cases. Singhal Nanda,^[2] found an incidence of 29.65% which was very much higher than the present study.

In present study the incidence was 0.89% among 11200 cases. Again as in case of APH the incidence is influenced by various factors thereby brining wide variation in incidence. Present study corroborated to the incidence found by Ananth et al.^[4] Mishra R et al,^[6] has incidence of 1.6%, similr to present study. Fernandes J C et al (2021),^[7] found incidence of 0.95%, similar to present study. The various incidence of Abruption Placentae, the year when the study was conducted, the authors and the total deliveries.

When the age was analyzed based on sub groups and the highest incidence was found among 21 to 25 yrs (45%). This was because they formed the largest set of women who delivered in our institute. This was comparable to Fernandes JC et al (2021),^[7] Mondal.^[8] Also found highest incidence in same age group, even Ananth and colleague⁴ and Nezli et al,^[5] 28%. Mishra R et al (2019),^[6] found highest incidence between 31-35 yrs was 40% and that 25-30 yrs was 30%. The incidence of 0% above 35 yrs was because only few women above 35 yrs delivered compared to other age groups in the same period. The youngest age at which abruption Placentae was found in this series was 19 yrs and highest was 35 yrs.

The incidence of abruption was highest among Para 2 to Para 5 because they formed the largest group among those who delivered in our institute. The incidence of abruption in Para 4 and above was 3%,

but only few women in this category delivered during the same period. The grand multiparity was one of risk factor for abruption. This was comparable to the incidence found by Mishra R et al.^[6]

The study is of the opinion that accidental haemorrhage is truly accidental with few warning signs as found out in study conducted by G.S. Mondal,^[8] which significantly had high number of booked cases (40%). However the incidence was 0.89% in the present study there were only 5% of booked cases, probably due to low socio- economic condition. High incidence of low income group was present in our study which according to many was one of the etiological factors.

Maximum incidence was found at the range of 33-36 weeks and was about 53%, found the highest incidence among the same sub group. Sayli Wankhedkar et al,^[9] also found the highest incidence among the same sub group. Also Singhal Nanda 2 found same incidence as that was found by Parikh as far as gestational age is concerned.

The symptom which was found in most of the patient was Vaginal bleeding, being present in 76%. The next commonest complaint was pain abdomen (70%). Those who had pain abdomen also had vaginal bleeding. Tender uterus was present in 31% almost all had fetal bradycardia. FHS was absent in 69% of the 100 fetus. Shock was present in 20% hypertension was present in 57% cases. 70% had anemia- indicated by pallor. Edema was present as a result of PIH or anemia in 66%.

The main etiology recognized was hypertension either pregnancy induced or hypertension from other cause. The incidence in the study was 55% among whom 9 had chronic hypertension and 46 had pregnancy induced hypertension. Hypertension leads to intense Vasospasm causing abruption and associated albuminuria was a result of renal ischemia.

Among the PIH 9 cases were Eclamptic and were treated with low dose magnesium sulphate regimen by Prichard regimen. Reviewing many studies the incidence of Hypertension as on aetiological factor for abruption has wide variation.

The Present study showed incidence closer to that found by Parikh M.N.^[10] 41.6%. There was one case of non-catastrophic blunt abdominal trauma resulting in abruption. Mode of trauma was fall from height. Short cord was found in 1% and fetal distress appeared in II stage of labour probably because of Intrapartum abruption and delivery was hastened by forceps application. Parikh M.N,^[10] reported an incidence of 2.1%. Hydramnios was noted in 2 cases among which one was in 2nd sac of multiple gestations and the other was in 1st sac with breech presentation.

In the present study no coincidental placenta previa was seen. Mal presentation were 5 and among them 5 were breech. Most of them were preterm. Cord prolapse was seen in one of the women with absent cord pulsation and IUD. Anomalies were also noted.

A case of hydrocephalus (1 %) was observed. Grades of placenta were also noted based on PAGE's classification. 2% had grade '0' and diagnosis was made retrospectively. Patient had no signs or symptoms and both babies were born live. RP clots were weighed. Grade I was present in 16%. Grade II was present in 50% which formed the largest group. Fetal distress was present in all them and perinatal mortality was 100%. Grade III was present in 32% and was associated with complication.

In the present series, maximum type of abruption was revealed type (88%). Also. Fernandes et al,^[7] found highest incidence among the same type. Lowest incidence was found in the concealed type, probably due to longer time taken by the patient to reach the hospital due to inefficient transportation, by the time patient reached the hospital, concealed type would have progressed to mixed or revealed type. Majority of the lie were longitudinal, among which cephalic were 94 (89.5%), Breech in 5 cases (8.5%).

Majority (81%) had intact membranes at admission and most of them in latent phase of labour. 19% had premature rupture of membranes and most had unripe cervix and acceleration was done with prostaglandins, especially PGE2 and followed by oxytocin.

2 cases were diagnosed retrospectively and had no signs or symptoms (Grade -0). The maximum incidence was found among those who reported between 4-8 hours followed by 8-12 hours. The interval was arbitrarily divided as 4 hours or less, 4-8, 8-12 hours and more than 12 hours. 12% reported after 12 hours of onset of symptoms and these were the ones who had maximum incidence of complication.

The incidence was 9.0%, and all showed abnormal bleeding time, clotting time and also in clot observation test which also showed evidence of fibrinolysis and 5 of them were corrected with whole blood transfusion. Abnormal clot retraction was seen in same patients. Incidence of severe coagulation failure was 4% and they also had other complications like ARF and shock and they could not be revived. The other cases were corrected with whole blood transfusion.

Maximum blood group was 'A' which corroborated with that seen in general population.

There are 11cases of Rh-ve pregnancies was 0-ve and other was A-ve, both of them received Anti D. In the present series most of them delivered by LSCS (40%)was resorted without any trial, immediately after carefully admission among which 20 were done with a live fetus >34 weeks of gestation and 20 were done for maternal indication where there was intractable vaginal bleeding and poor Bishop score on admission.

Syntocin alone was used in 7 of the cases. It was used in those cases who were in late part of active phase or in second stage of labour, and those with PROM. LSCS was done in 22 cases among which

ARM and syntocinon was used prior to cesarean in 6 cases. The indications were maternal.

In 5 cases, prostaglandins were used especially PGE₂, where there was poor Bishop score and patient had PROM. Patients were monitored carefully for hyper stimulation and tachysystole. After analyzing various studies he found that the incidence of cesarean section in abruptio placentae ranged from 15 to 25%.

The incidence of cesarean section by Fernandes JC et al,^[7] 49.23%, Present study is 72%. It was seen that most of them delivered between 4-8 hours of ARM either they were in late part of latent phase or early part of active phase. Among those who delivered in less than 4 hours, most of them were in late part of active phase. Most of them delivered with combination with 2.5 syntocin.

The maximum incidence was found among those with 150-500 gms and was 51%. Lowest was found in those who had less than 150 gms (9%). Those with more than 500 gms were about 30% and fetal demise was a rule.

In this present series, shock was present in 20% of cases, all of whom were treated with whole blood transfusion, colloids and crystalloids. Catheterization was done to monitor urine output and also fluid over load was monitored. Among them 5 had acute renal failure, manifested by Azotemia and oliguria, who later recovered. 3 cases due to hypo perfusion / renal failure / associated DIC.

If oliguria was also taken as a manifestation of renal failure, the incidence was 10%, of whom recovered. It was present in 9% of the cases and 5 were corrected with whole blood transfusion and 3 died due to associated complications like shock and renal failure.

21% had postpartum haemorrhage, of which 5 were associated with coagulation failure. Those associated with coagulation failure, 3 died either due to shock/ARF. Refractory atonic PPH in those associated with coagulation defect not responding to oxytocic was probably to presence of FDP products causing myometrial relaxation. And PPH was seen all 3 cases of Couvelaire uterus and all of them were controlled by conventional oxytocics.

Among 72 cesarean section, the incidence was 40 out of 72(55%). Among 40,13 were associated with atonic PPH, which was controlled with oxytocics and massage. None of them required hysterectomy. Overall perinatal mortality in this study was 71.04% (75 out of 105 babies – 5 twins) The main cause for high perinatal mortality was either fetus was dead on admission and / or was premature. Fetal fate related to severity route of delivery is shown with grade 0, 1 was allowed for vaginal delivery and survived. There was one case in cesarean section category. In Grade 1, 16 were live fetus babies on admission, among whom 10 were allowed vaginal delivery, 0 died intrapartum and 0 died in neonatal period. In Grade 2, 34 fetus were died on admission 2 were allowed vaginal delivery and 32 cesarean

section was done for maternal indication. The higher mortality was due to mainly because fetus were dead on admission or had severe bradycardia on admission. It was not contemplated in some of the cases either because of lack of consent or adequate blood was not arranged or fetus was moribund enough to survive in the neonatal period.

Grade 3, all the 39 fetus were dead on admission. Among them 14 were allowed vaginal delivery, 25 were delivered by cesarean section, for maternal indication. In Grade II, the fetal salvage by vaginal route was 0% and by cesarean it was 50%. So the present study is of the opinion that cesarean section is a better way to deliver fetus in distress (Grade — II).

Among fetuses weighing 1000-1499 grams, 3 were live on admission and 6 were dead in utero. Among the 3 live fetus all were allowed 1 was allowed for vaginal delivery and survived. Cesarean section was done in other two cases for fetal salvage. In the same group cesarean section was done among 5 fetuses dead in utero for maternal indication.

In the group weighing 1500- 2499 grams, 14 fetus were live on admission, 46 were Intrauterine death. Of the 14 which were live on admission, 4 delivered vaginally intrauterine death. Among the other 10 which were live, cesarean section was done and 9 babies survived and 1 baby died. Cesarean section was done in 40 cases of IUDs for maternal indication. In the group weighing 2500 grams and above, 13 were live on admission and 23 were IUD. Among those which were live on admission, 5 were allowed vaginal delivery among which, 5 survived. The other 8 live fetuses were delivered by cesarean section and survived. Cesarean section was done in cases of IUD for maternal indication.

In the category weighing 2500g and above, 5 out of 5 survived by vaginal delivery and the fetal salvage was 100% in any slightest indication cesarean section was carried out. Among cesarean section 8 survived out of 8 (100%). So the study shows, cesarean section has better fetal salvage rates.

Maternal mortality; The incidence was 3%. The cause of death was case 1: G3P2L2 with 36 weeks of gestation with severe preeclampsia with grade 3 abruptio placentae with IUD. Em LSCS done and delivered a dead fetus of 2.2 kg. 1200 gms of retroplacental clots were present, patient developed atonic PPH, shock and DIC then patient died even after vigorous component transfusion. Case 2: Elderly primigravida with term gestation with antepartum hemorrhage with grade II abruptio labour accelerated, LSCS done for fetal distress, extracted a dead baby of weight 2.6 Kg. 1000gms retroplacental clot noted. Patient developed hypotension during surgery and did not recover also she had DIC even after blood and components transfusion patient did not survive. Case-3: Primigravida with term gestation with severe preeclampsia with grade III abruptio placenta. Emergency LSCS was done in view of unfavorable cervix and grade III abruptio placenta and

delivered baby of weight 2.2 kg with. Couvelaire uterus 1550gms retroplacental clot. Patient developed hypotension after surgery and also DIC. Patient could not be revived inspite of all resuscitative measures.

CONCLUSION

Although great studies have been made in diagnosis and management of abruptio placenta, its application is still lacking in developing country like India. In this study there was significantly high incidence of accidental haemorrhage and associated maternal and perinatal morbidity and mortality. This was probably due to low socio economic conditions, lack of awareness of Health Education, Poor transportation and not availing health services.

Accidental hemorrhage is an obstetric emergency its incidence although cannot be eliminated, care can be taken to decrease the overall incidence and severity of the condition. By avoiding high parity by educating about contraception and family planning, improving socio-economic status, proper antenatal care, anticipation of abruption in high risk cases, timely in patients admission, strict surveillance.

Antenatal care which identifies the risk factors like PIH plays an important role in decreasing the incidence of abruptio placenta and improving the maternal and fetal outcome. Regular antenatal checkup, anemia correction, early diagnosis and identification of gestational hypertension would prevent the maternal and perinatal morbidity and mortality. It should be managed in centres with advanced maternal and neonatal facilities. Though maternal morbidity can be reduced with modern management of abruptio placenta but timely

diagnosis and intervention is necessary. Timely diagnosis and management preferably in a tertiary care centre, appropriate use of blood and blood products can significantly reduce maternal morbidity and mortality.

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