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RISK FACTORS & FETO-MATERNAL OUTCOME OF PLACENTA PREVIA: A PROSPECTIVE OBSERVATIONAL STUDY IN A TERTIARY CARE CENTRE.

Gynaecology

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ABSTRACT

Background: Placenta previa have serious consequence for maternal as well as perinatal mortality & morbidity like antepartum&intrapartum hemorrhage, preterm delivery, emergency hysterectomy as a life saving measure. **Aim:** To study the risk factors & determine the maternal & perinatal outcome in a patient with placenta previa. **Method:**This prospective observational study was conducted in the department of Obstetrics & Gynaecology of N.R.S Medical college from October 2016 to Sept 2017. Women with singleton pregnancy of 28 wks. onward with placenta previa (confirmed by ultrasonography)was included for study population. Every 5 cases flowing a case of placenta previa were taken as control. P value was calculated using student t- test or Chi-square test whichever applicable Odds ratio & confidence interval also calculated using MEDCALIC & GRAPHPAD online software. **Result :** 200 cases of placenta previa fulfilling inclusion criteria was taken .Mean age 23 yrs. , 84% (168) cases multipara,16%(32) cases primipara,33.5%(133)post cs cases,18% (n =36) had h/o abortion (significant p value 0.0001), 8%(n 16) had past h/o preterm birth , 7%(n14) had past h/o placenta previa 45%(n 90) delivered at term & 55% delivered preterm, 33% (n =66) had antepartum hemorrhage ,12%(n 24) needs blood transfusion,35 (6 cases) underwent obstetric hysterectomy (p value 0.02), postpartum hemorrhage 4%(n=8) was significantly associated with placenta previa(p value 0.01), 2 maternal death. Maximum babies (35%) were L.B.W (<1.5 kg) , among them 25%(50) had 1 mint Apgar scores <7 , 6% had 5 min Apgar score < 7, 22%(n=44) requiredNICU admission,8%(n=16) had congenital malformation, perinatal mortality 9%(n=18) p value <0.0001. **Conclusion:** Placenta previa is a rare but one of the most dangerous cause of obstetrical haemorrhage. It poses danger to both mother& baby with maternal morbidity,mortality as well as adverse perinatal outcome. Early detection of risk factors& proper management can bring down the maternal & perinatal morbidity,mortality rate & achieve the standard of developing countries like India.

KEYWORDS

Placenta previa, Risk factor,Maternal & perinatal outcome.

INTRODUCTION:

Placenta previa accounts for significant maternal as well as perinatal morbidity & mortality,Major cause of 3rd trimester hemorrhage, most common cause of peripartum hysterectomy, also contribute to sever postpartum hemorrhage,abnormal presentation,prematurity, preterm delivery & low birth weight baby.Placenta previa describes a placenta that is implanted in lower uterine segment ,either over or very near the internal cervical os ,incidence1in 300 to 400 pregnancy (1).It involves bleeding from the placental site which is located in the lower uterine segment partially or completely& as the lower segment stretches near term or in the labor. Maternal age ,multiparity,multiple gestation,smoking during pregnancy,previous abortion,previous caesarean section , placenta previa in previous pregnancy are several risk factors .There have been substantial reduction in maternal death for placenta previa throughout the globe because of early diagnosis by USG even prior to first bleeding,omission of internal examination,free availability of blood transfusion facilities,wider use of cesarean section with expert anesthesiology,skill & judgement . All these factors reduce maternal death from placenta previa to < 1% or even zero in some center.But in our developing countries due to wider gap of extension of medical facilities & also difference of patient profile between Urban & Rural populations maternal mortality in placenta previa in hospital statistics ranges < 1 to 5% .Repeated bouts of bleeding & often history of vaginal examination, inadequateantenatal care,delay in referral ,transport difficulties contributes poor outcome So it is important to recognize placenta previa early & once diagnosed the case shouldbe judiciously managed only in the centers where 24hrs facilities of operation, blood transfusion& NICU facilities are available.Better ANC & through screening of the suspected patient with second trimester scan, better referral & transport system , more hospital with 24 hrs. blood bank &OT facilities are need to bring down the maternal morbidity & mortality from placenta previa to achieve the standard of developed countries.

MATERIALS &METHODS:

After getting Ethical committeepermission this prospective observational study was conducted in Dept. of G&O, N.R.S Medical college & hospital from October 2016 to September 2017. After taking proper consent women with singleton pregnancy with placenta previa conformed by U.S. G were included. Multiple pregnancy & significant maternal medical disorder not related to pregnancy was excluded. Every five cases following a case of placenta previa was taken as control.Maternal age, parity, prior abortion, prior caesarian delivery,period of gestation at diagnosis & delivery was recorded. Regarding maternal outcome- antepartum hemorrhage,blood transfusion requirement, post-partum haemorrhage,obstetric hysterectomy, maternal death was evaluated. As neonatal factor: birth wt,1 mint Apgar score,5 mint Apgar score, NICU admission, perinatal mortality was recorded.

Statistical analysis done by calculating P value using student t test or chi-square test whichever applicable, Odds ratio & confidence interval also calculated using MEDCALC & GRAPHPAD ONLINE SOFTWARE.

RESULT:

Table 1 shows the average age of patient with placenta previa was significantly higher (p value 0.0025) than the age of patient without placenta previa .Though it was statistically significant (23yrs vs 22.5yrs) but clinically it did not have any relevance .Most of patient 84% (168) was multipara (p value < 0.0001) ,previous h/o caesarean section was 33.5% (n 67), abortion 18% (n 36) p value 0.0002, past h/o placenta previa 7% (n14),prior preterm birth was 8% (n 16) , ,p value 0.02. 55% patient with placenta previa delivered at < 37 wks. gestation compare to 24% patient without placenta previa (p value < 0.0001).

Table 1: Baseline characteristic:

	Case (n= 200)	Control (n = 1000)	P value
Maternal age			
Mean age	23 2.3	22.5 2.1	0.0025 (Student T test)
Parity			
Primipara	32 (16 %)	424 (42.4%)	< 0.0001 (Chi-square test)
Multipara	168 (84%)	576 (57.6%)	
H/ O previous LSCS:			
Yes	67 (33.5%)	123 (12.3 %)	<0.0001(Chi-square test)
No	133 (66.5%)	877 (87.7%)	
Past H/0 Abortion:			
Yes	36 (18%)	88 (8.8%)	< 0.0002 (Chi-square test)
No	174 (87%)	912 (91.2%)	
Past H/O placenta previa			
Present	14 (7%)	8 (0.8%)	< 0.0001(Chi-square test)
Absent	186 (93%)	992 (99.2%)	
Past h/o preterm birth			
Yes	16 (8%)	40 (4%)	< 0.02(Chi-square test)

No	184 (92%)	960 (96%)	
Gestational age at delivery:			
<34 wks.	30 (15%)	80 (8%)	< 0.0001(Chi-square test)
34 – 36 wks.	80 (40%)	160 (16%)	
37 – 41 wks.	90 (45%)	760 (76%)	

Table 2 shows maternal outcome – 33 % patient with placenta previa had antepartum bleeding compare to 2.8% patient without placenta previa – it indicates antepartum hemorrhage is more common in patient with placenta previa (p value <0.0001), blood transfusion required for about 12% (n = 24) cases compared to 4% (n = 40%) without placenta previa. Obstetric hysterectomy was more common in patient with placenta previa 3% (n=6) p value 0.02 ,4%(n=8) complicated with post-partum hemorrhage. There were 2% maternal death associated with placenta previa.

Table 2: Maternal outcome:

	Case (n=200)	Control (n=1000)	P value
Antepartum Bleeding:			
Yes	66 (33 %)	28 (2.8%)	< 0.0001 (Chi-square test)
No	134 (67 %)	972 (97.2%)	
Requirement of blood transfusion:			
Yes	24 (12%)	40 (4%)	< 0.0001 (Chi-square test)
No	176 (88%)	960 (96%)	
Obstetric hysterectomy			
Yes	6 (3%)	8 (0.8%)	0.02(Chi-square test)
No	194 (97%)	992 (99.2%)	
Postpartum hemorrhage			
Yes	8 (4%)	12 (1.2%)	0.01 (Chi-square test)
No	192 (96%)	988 (98.8%)	
Maternal Mortality			
Yes	2 (1 %)	2 (0.2%)	0.26(Chi-square test)
No	198 (99%)	998 (99.8%)	

Table 3 : Babies outcome : 92% (n=182) delivered by mother with placenta previa were of <2.5kg compare to 58% of those delivered by mother without placenta previa (p value < 0.0001),25% (n= 50) & 6% (n=12) showed <7 Apgar score at 1mint & 5 mints respectively compared to that of 8% (n=80) & 2% (20%) of babies of mother without placenta previa – this shows significant association between placenta previa & low Apgar score. 22% babies of mother with placenta previa had NICU admission compared to 9% of those without placenta previa. Higher rate of congenital malformation 8% (n= 16) with placenta previa compared to 2% (n= 20) without placenta previa (p value < 0.0001) ,9% (n=18) perinatal mortality in placenta previa compared to 2% (n=20) in those without placenta previa .The table shows significant association of placenta previa with low birth wt., poor Apgar score, NICU admission ,congenital malformation & perinatal mortality.

Table 3: Neonatal outcome:

	Case (n=200)	Control (n=1000)	P value
Birth wt. (kg)			
< 1.5	70 (35%)	184 (18.4)	< 0.0001(Chi-square test)
1.5 -2.5	112 (56%)	400 (40%)	
> 2.5	18 (9%)	416 (41.6%)	
1 mint Apgar score			
< 7	50 (25%)	80 (8%)	< 0.0001(Chi-square test)
> 7	150 (75%)	920 (92%)	
5 mint Apgar score			
< 7	12 (6%)	20 (2%)	0.003(Chi-square test)
> 7	188 (94%)	980 (98%)	
NICU admission:			
Yes	44 (22%)	120 (12%)	0.0003(Chi-square test)
No	156 (78%)	880 (88%)	
Congenital malformation			
Yes	16 (8%)	20 (2%)	< 0.0001(Chi-square test)
No	184 (92%)	980 (98%)	
Perinatal Mortality			
Yes	18 (9%)	20 (2%)	< 0.0001(Chi-square test)
No	182 (91%)	980 (98%)	

DISCUSSION:

In this prospective study 200 cases of placenta previa were studied. The study found significant association between placenta previa & risk factors such as increased maternal age, multiparity, prior caesarean section, prior history of induced abortion, h/o of placenta previa on previous pregnancy, history of prior preterm birth. Mean maternal age with placenta previa 23 yrs. which is similar to studies done by Michele William (2) ,Gurol Urganci (3)where the maximum age distribution of placenta previa was 20 -29 yrs. There was significant association between placenta previa & multiparity (84% multipara & 16% primipara). M Kallmann et al found 57% was multipara (4). Study showed significant association between placenta previa & previous caesarian section - 33.5 % pt had h/o previous c/ s compare to 12.3% without placenta previa , it is similar to study by Sarojini Malini et al (5) where 36.8% pt with previous c/s had placenta previa .It signify that incidence of placenta previa increases with increase in number of previous caesarean section. In this study 18% pt (n=36) with placenta previa had h/o abortion compare to only 8.8% without placenta previa – significant association (p value 0.0001) between placenta previa & previous abortion ,the study is similar to Kollmann et al - 22.8% had h/o previous abortion (4) .55% pt with placenta previa had h/o prior preterm birth which is similar to studies by Tai-HO.Hung et all (6) . 33% pt with placenta previa experienced antepartum bleeding in this study ,similar to M.Kollmann et al (4) showed 42.3% antepartum bleeding .There is significant association between placenta previa & blood transfusion in our study (p value .0010) which corroborate with study by Tom Rosenberg et al (7) ,other associated were obstetric hysterectomy (p value 0.02), emergency peripartum hysterectomy (6 cases), post-partum haemorrhage(2 cases) ,similar result found in studies of Tom Rosenberg et al (7),Suk-joo-Choi et al (8) .Maximum number of babies were low birth weight ,25%babies had 1mint Apgar scores <7,22% required NICU admission & 8% had congenital malformation in placenta previa in the study group –similar to study by Ton Rosenberg et al(7)& Tai–Ho-Hung (6) .Perinatal mortality also significantly associated with placenta previa (p value 0.0001) – 9% perinatal mortality occurred in the study ,almost similar to study by Ananth CV et al (9) which was 10.7% . 2 Maternal death in patient with placenta previa in our study & it was five times more in comparison to those without placenta previa.

After logistic regression analysis the independent risk factors & outcome associated with placenta previa were age, parity, history of previous caesarian section, history of prior preterm birth & placenta previa, gestational age, antepartum bleeding, postpartum haemorrhage & birth weight of baby.

The limitation of the study was that this study was observational study & is weak compare to Randomized control trail, duration, sample size also short, follow up of patient about their next pregnancy outcome was not possible during the study period.

CONCLUSION:

Placenta previa is one of the dangerous causes of obstetrical hemorrhage. It is responsible for maternal as well as foetal morbidity, mortality. After logistic regression analysis it was observed that there were various independent risk factors for placenta previa. Early detection of risk factors, early diagnosis by USG & proper management can bring down the maternal as well as perinatal morbidity & mortality. So, we should be aware about various risk factors from early antenatal visit as a lifesaving measure of mother &babies.

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