Original Research Paper Gynaecology

Perinatal outcome in early onset PIH in a tertiary care hospital- A five year retrospective study.

Dr Narahari Agasti Associate Professor, Department of Obstetrics & Gynecology. KIMS & PBMH, Bhubaneswar, Odisha.

Dr Pramila Jena Associate Professor. (corresponding author), Department of Obstetrics & Gynecology, KIMS & PBMH, Bhubaneswar, Odisha.

Dr Sayantani Nag Student, Department of Obstetrics & Gynecology. KIMS & PBMH, Bhubaneswar, Odisha.

ABSTRACT

Introduction & background- Pregnancy Induced Hypertension (PIH) is a multiorgan disorder causing significant maternal and fetal morbidity and mortality. Early onset PIH (< 32 weeks) is associated with more feto-maternal risk than PIH occurring at term.

Materials and Methods: This was a Retrospective Observational Study which include 50 patients with early onset PIH (> 24 and < 34 weeks of gestation) admitted and treated in our hospital in the last 5 years (1st January, 2007 to 31stAugust, 2011).
Retrospective analysis of the medical records done and perinatal outcome analyzed with suitable statistical method.

Results: During the study period 1594 women were delivered in our hospital. Out of 83 cases of PIH only 50 women had early-onset PIH.76 % presented with mild form and 24% presented with severe form of PIH. Most of them presented between 32-34 weeks of gestation. The Overall Perinatal Survival Rate was 88 % and Perinatal Mortality was 12%. 90.91 % of expectantly managed group had a good perinatal outcome. The perinatal outcome was better in caesarean section group (94.74 % survival rate) compared to vaginal delivery (50 % survival rate). 40 % of the babies were admitted to the NICU. Major neonatal complications observed were IUGR (45.83 %), Respiratory Distress Syndrome (12.5 %) and Septicaemia (12.5 %).

Conclusion & Interpretation: Perinatal mortality and morbidity is significantly higher in early onset PIH. Gestational age, birth weight, mode of delivery, onset and severity of hypertensive disease, method of management (expectant vs aggressive), availability of neonatal intensive care unit remains the key determinant of perinatal mortality and morbidity.

KEYWORDS : Early onset PIH, pre-eclampsia, perinatal outcome, expectant versus aggressive management.

Introduction :-

Pregnancy Induced Hypertension is a multiorgan disorder unique to human pregnancy causing significant maternal and fetal morbidity and mortality. The maternal mortality is increased by 10 - 15 % where as perinatal morbidity and mortality is increased by 15 - 25 %.[1] Early onset PIH (< 32 weeks) is associated with significant feto-maternal risk than PIH occurring at term.[2,3]

The ultimate treatment of PIH is delivery. But for the patients presenting between 26 and 34 weeks, expectant management with serial feto-maternal Surveillance has been seen to improve outcome without increasing maternal morbidity much.[4] Perinataloutcome of infants born to pre-eclamptic mother is closely related to gestational age at delivery.[2]

Aims and Objectives :-

1. To evaluate the Incidence and Prevalence of early onset PIH in our hospital.
2. To evaluate perinatal outcome in terms of mortality and morbidity.

Material and Methods :-

This was a Retrospective Observational Study conducted from 7th July to 7th September 2011.The study included 50 patients with early - onset PIH (> 24 and < 34 weeks of gestation) who were admitted and treated in Kalinga Institute Of Medical Science & PBMH, Bhubaneswar, Odisha during 1st January, 2007 to 31st August, 2011.

Retrospective analysis of the medical records with the diagnosis of PIH, PET and Eclampsia were done. Informations obtained regarding the age, Parity, socio-economic status , literacy, gestational age, booking status, past history of PIH, duration of hospital stay, mode of delivery and perinatal outcome in terms of birth weight, APGAR score, neonatal intensive care [NICU] admission, complications, mortality and morbidity.

PIH is defined in this study as new onset hypertension with blood Pressure > 140/90 mm Hg recorded on at least two occasion 6 hours apart developing after 20 weeks of gestation in a previously normotensive non-proteinuric patient.[4] It is usually associated with edema and or proteinuria. All fetal deaths in utero (stillbirth) and all early neonatal deaths (in the first week of neonatal life) after 28 weeks of gestation were included in the perinatal mortality. The perinatal mortality rate (PMR) was determined out of 1000 total births among women included in this study.

Exclusion criteria:- Pregnancy>34 wks, multiple pregnancy and hydatidiform mole.

Data collected were observed and analyzed with suitable statistical method such as chi-square test (with Yate's Correction), odd's ratio, calculation of the Mean, Median and the Standard Deviation where appropriate. A p-value of less than 0.05 was considered significant.

Observations and Results :-

During the study period 1594 women were delivered in our hospital. Out of 83 (5.21 %) cases of PIH only 50 women had early-onset PIH. 38 (76 %) presented with mild form and 12 (24%) presented with severe form of PIH. The common gestational age at presentation was 32-34 weeks (80 %). 78% of patients, had admission to delivery Interval < 72 hours. The LSCS (Lower Segment Caesarian Section) rate was 80%.

TABLE 1 :- SOCIO-DEMOGRAPHIC PROFILE

Variables	no of cases(n-50)	Percentage
Age distribution		
< 20 years	3	6 %
20 -35 years	46	92 %
> 35 years	1	2 %
socio-economic status		
Low	32	64 %
Middle	18	36 %
High	0	0 %

Booking status PERCENTAGE (%)		
Booked	42	84 %
Unbooked	8	16 %

TABLE 2 :- OBSTETRIC HISTORY

Variables	Number of cases	Percentage
Gravida/Parity		
Primi	40	80 %
Multi	10	20%
Gestational age at diagnosis		
24 to 28 weeks	2	4 %
28 to 32 weeks	8	16 %
32 to 34 weeks	40	80 %

In our study 39 patients (78%) managed aggressively and 11 (22%) received expectant treatment

with antihypertensive (49.23%), anticonvulsant (13.85%), Steroid (30.77%) and followed up with serial feto-maternal monitering. The duration of hospital stay was 1-17 days, Mean 6.42 day with Standard Deviation +3.195.

TABLE 3 :- OBSTETRIC INTERVENTIONS

Method	Cases	Percentage
Vaginal delivery		
Spontaneous	1	2 %
Induced	8	16 %
Instrumental /operative delivery		
Ventouse	2	4 %
Forceps	0	0 %
(LSCS)	39	78 %
Emergency	19	48.72 %
Elective	20	51.28

TABLE 4 :-FETAL OUTCOME

Variable	No of cases	Percentage
Birth weight		
Normal (> 2500 gms)	29	58 %
Low birth weight (1500 – 2499 gms)	15	30 %
Very low birth weight (1000 – 1499 gms)	4	8 %
Extremely low birth weight (<1000) gms)	2	4 %
NICU admission		
YES	20	40 %
NO	30	60 %
Neonatal complications		
IUGR	11	45.83 %
Respiratory distress syndrome	3	12.50 %
Septicaemia	3	12.50 %
Pneumonia	2	8.33 %
Convulsion	2	8.33 %
Hyperbilirubinaemia	1	4.17 %
Necrotising enterocolitis	1	4.17 %
Intraventricular heamorrhage	1	4.17 %

TABLE 5 :- GESTATIONAL AGE AND PERINATAL MORTALITY

gestational age	No of cases	mortality (%)
24-28 WEEKS	2	1 (50 %)
28-32 WEEKS	8	2 (25 %)
32-34 WEEKS	40	3 (7.5 %)

FIGURE 1 :-

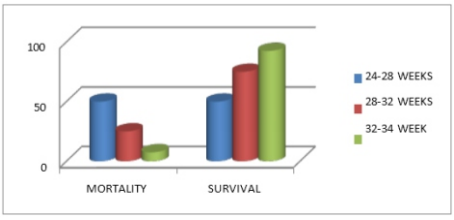


FIGURE 2 :- APGAR SCORE OF BABIES

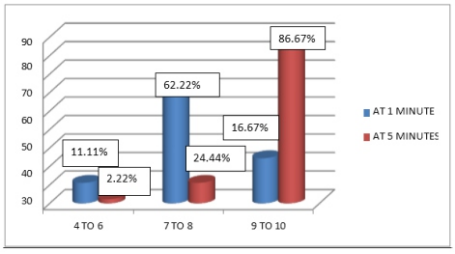
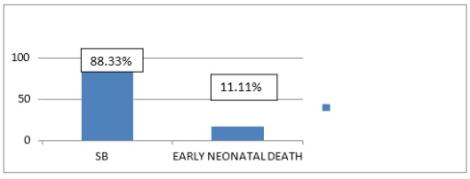


FIGURE 3 :-11.11% PERINATAL MORTALITY



DISCUSSION :-

In developing countries about 5-10 % pregnancies are complicated with PIH .[5] In India incidence of PIH among hospital deliveries is about 7-10 %.[6]

The incidence of early onset PIH in our study is found to be 5.21 %, which is comparable to Indian study by Shruti S Dubhashi et al.[6]

Most of the patients were aged between 20 to 35 yrs (92 %). 84 % of the women were booked with regular antenatal follow up and 16 % were referred cases similar to the study done by Ebeigbe PN.[7]

Primigravida were more commonly affected which was consistent with the study of Shazia Shaheen,[4] Sibai,[8] , Long and Oat[9] and majority presented between 32-34 weeks of gestation. 4 % had PIH in their previous pregnancies. This has also been observed by Ebeigbe PN,[7] Shazia Shaheen[4] , Campbell DM and Macgillarvy.[10] Family history of hypertension was found in 4% similar to the finding of Shazia Shaheen[4], Chesley and Cooper[11] Similar to the study of Ebeigbe PN[7] the disease was severe at presentation or rapidly progressive in 78 % cases leading to delivery within 72 hours of presentation.

In the expectantly managed group 90.91 % had a good perinatal outcome with 9.09 % of intra-uterine fetal death /stillbirth. Our perinatal outcome was little better than the study done by Shazia Shaheen[4] and Sarsam DS.[12] Because most cases presented at 32-34 weeks of gestation in comparison to the above studies where the mean gestational age of presentation was lower.

18 % patients delivered Vaginally, 78 % had caesarean Section, 4 % had instrumental deliveries. Our result was no different from DR Hall and HJ Odendaal .[13] The perinatal outcome was better in caesarean section group (94.74 % survival rate) compared to vaginal delivery (50 % survival rate) which was comparable to study of PN Ebeigbe.[7]

Out of 45 live babies, 2.22 % had APGAR Score < 6 at 5 minutes. The birth weight of babies ranged from 600 - 3507 gms, Mean 2506.67 gms with a Standard deviation of 752.39, Median 2601gms. Our observation was found to be better than that of DR Hall and HJ Odendaal [13]. This might be because we had majority of cases around 32-34 weeks contrast to their study where majority belonged to 28-

32 weeks. Babies presenting below 32 weeks were 3.41 times more likely to be born with Low Birth Weight (OR = 3.41) than those presenting above 32 weeks. This implies birth weight increases with gestational age.

With regards to birth weight on perinatal survival showed that among the 44 surviving fetuses 42 (95.45 %) had birth weight 1.5 kg or above and 2 (4.55 %) had birth weight below 1.5 kg. In contrast to the fetuses that had fresh still births or early neonatal deaths, only 2 (33.33 %) weighed 1.5 kg or above while 4 (66.67 %) weighed between 0.5 kg to 1.5 kg. After doing the Chi-Square test (with Yate's Correction), the 2-tailed P-value was less than 0.0001 which was statistically significant. Higher the birthweight babies were more likely to survive. Survival was significantly higher when they weighed > 1.5 kg (OR = 42) than when they weighed < 1.5 kg.[7]

The Neonatal Outcome depend on Neonatal Intensive Care facilities and gestational age at birth. Although Neonatal Intensive Care remains a key requirement, it is expensive with limited availability particularly in developing countries. Odendaal et al.[13] in arandomized controlled trial found that in expectant management smaller number of neonates required ventilation (P < 0.05). In a similar, but larger trial Sibai et al. found that expectant management was associated with a lower incidence of admission to NICU (P=0.002) and shorter stay (P < 0.0001). In our study only 40 % of the babies were admitted to the NICU. Babies had 0.672 times more risk to be admitted in NICU when aggressively managed (OR = 0.672) than when expectantly managed. These babies stayed a median number of 6 days with a range of 1-30 days. Mean duration of stay was 7.53 days with a SD of 7.42 days. Our finding was almost similar to DR Hall and HJ Odendaal .[13]

The overall perinatal survival rate was 88 % and perinatal mortality was 12 %. This was comparable to that of DR Hall and HJ Odendaal.[13] The survival rate was 87.18 % in the Aggressively managed group and 90.91% in the expectantly managed group. Babies have 68 times more chance of survival when managed expectantly (OR=68) than when managed aggressively. Our survival rate was found to be little better than the survival rate seen in the study done by Sarsam DS .[12] This may be because the majority of our case belonged to the gestational age 32-34 weeks.The fetuses presenting between 32 to 34 weeks of gestation had 28.78 times more chance of survival (OR=28.78) than fetuses presenting below 32 weeks of gestation, i.e, survival rate increases with increase in the gestational age. In our study the Perinatal Survival Rate between 24-28 weeks was 50 %, between 28-32 weeks was 75 %, between 32-34 weeks was 92.5 % depicting higher survival at greater gestations.This observation was similar to DR Hall and HJ Odendaal,[13] In 1987 Odendaal et al. showed increased perinatal survival as birthweight increased and later ,Moodley et al. [14] demonstrated improved survival with increasing gestational age.

Measures of perinatal outcome showed that the still birth rate was 10 %, 2 % babies had severe birth asphyxia leading to Early Neonatal Death. Our observations were little favourable than that of PN Ebeigbe.[7] 1.68 % mother had placental abruption, but it did not cause any intrauterine death. 22 % of babies were found to be Small for Gestational age (SGA).[13]

With regard to major neonatal complications, in the index study, we have observed IUGR (45.83 %), Respiratory Distress Syndrome (12.5 %) and Septicaemia (12.5 %). Odendaal and Sibai also reported lower numbers of neonatal complications in randomized controlled trials. These factors further emphasize the importance of expectant management for this category of patient. Schiff et al. found that fetuses of women with pre-eclampsia do not exhibit accelerated pulmonary maturation. Septicaemia is a particular problem for preterm infants in over populated wards and delivery of more mature babies would thus help to address this problem. Other non infective complications were uncommon.[13]

CONCLUSIONS :-

PIH continues to be one of the leading causes of perinatal morbidity and mortality. Despite ongoing research, due to its complications, management of severe PIH still remains a challenge for the clinicians.

Improvement of antenatal care, early recognition, referral to tertiary care center, timely intervention and availability of Intensive Care Unit can increase the scope of expectant care in early onset PIH improving the feto -maternal outcome and preventing the severity of complications.

ACKNOWLEDGEMENTS

We thank Indian Council Of Medical Research (ICMR) for supporting this research work STS-2011.

CONFLICT OF INTEREST:

None declared

REFERENCES :-

1. Shruti S. Dubashi, RJ Wani, Priti Chikhal, CV Hedge:- Bombay Hospital Journal, vol. 50 no.1 2008.
2. Jelle M. Schaaf, Hein W. Bruinse et al.:- Human Reproduction, Vol. 00, No. 0 pp. 1-7, Advance Access published December 6, 2010.
3. MacKay AP, Berg CJ, Atrash Hk. Pregnancy-related mortality from Pre-eclampsia and Eclampsia. Obstet Gynecol 2001; 97:533-538.
4. Shazia Shaheen *Sumara Tahir *, Management and outcome of severe pre-eclampsia. A.P.M.C Vol:2 No.1 January 2008.
5. Omole-Ohonsi A & Ashimi OA, Pregnancy induced hypertension – a study of risk factors, Journal of Medicine and Rehabilitation; Maiden Edition, March / April 2007.
6. National High Blood Pressure Program : Working group report on high blood pressure in pregnancy. American J Obstet Gynecol 2000; 183.
7. Ebeigbe PN, Aziken ME. Early onset pregnancy - induced hypertension / eclampsia in benin city Nigeria. Nigerian Journal of Clinical Practice Dec 2010 Vol. 13(4) : 388-393.
8. Sibai BM, El-Nazer A. Severe Pre-eclampsia in young Primigravida women subsequent pregnancy outcome and remote prognosis. Am J Obstet 1986 b, 155:1011.
9. Long PA, Oats IN. Pre-eclampsia in twin pregnancy severity and pathogenesis. Aust New Zealand J Obstet Gynecol 1987; 27:1-5.
10. Campbel DM, Macgillirray F. Pre-eclampsia in 2nd pregnancy. Br J Obstet Gynecol 1985; 92: 131-40.
11. Chelsey LC, Cooper DW. Genetics of hypertension in pregnancy. Possible single gene control of pre-eclampsia and eclampsia in descendant eclampsia women. Br J Obstet Gynecol 1986, 23:874.
12. Sarsam D S, et al. Expectant versus aggressive management in severe preeclampsia remote from term. Singapore Med J 2008; 49(9) : 698.
13. Hall DR, Odendaal HJ et al. – Expectant management of early onset, severe pre-eclampsia : perinatal outcome. British Journal of Obstetrics and Gynaecology October 2000, Vol 107, pp. 1258-1264.
14. Moodley J, Koranteng SA, Rout C. Expectant management of early onset of severe pre-eclampsia in Durban. S Afr Med J 1993; 83 584-587.