

## Pregnancy Induced Hypertension

P. Padmasri Devi\*, M. Kiran Deedi\*\*, Ch. Ganapathy Swamy\*\*\*

### Abstract

**Background:** Our objective was to identify potentially modifiable risk factors for preeclampsia in a Teenage Pregnancy. **Materials and Methods:** A longitudinal study was conducted in department of gynecology and obstetrics GSL Medical College and General hospital. The Universal sampling method was employed and every antenatal woman with age above 15 years were registered and included as the study subjects. **Results:** There was significant association between mother's age, parity, complications of mother and complications of fetus in all hypertensive subjects ( $P < 0.05$ ). It was found there was insignificant association was found with gestational age and mother in hypertensive subjects ( $P > 0.05$ ). **Conclusion:** PIH cases delivered, with raised diastolic blood pressure & neonate with low birth weight were found risk factors for prenatal death. Fetal morbidity & mortality can be reduced by early recognition & institutional management.

**Keywords:** PIH; Preeclampsia; Fetal Complications and Mother Complications.

### Introduction

Worldwide, 10% of all pregnancies are complicated by hypertension, with pre-eclampsia and eclampsia being the major

causes of maternal and prenatal morbidity and mortality [1] pregnancy induced hypertension (PIH) is one of hypertensive disorders in pregnancy, and affects about 5% - 8 % of all pregnant women globally [2]. PIH is defined as when BP more 140/90 mmHg, taken after a period of rest on 2 occasions or  $\geq 160/110$  mmHg on one occasion in a previously normotensive woman [3]. In pregnancy hypertensive disorders were classified into 4 categories, by the National High Blood Pressure Education Program Working Group on High Blood Pressure in Pregnancy: 1) chronic hypertension 2) preeclampsia-eclampsia 3) preeclampsia superimposed on chronic hypertension, 4) gestational hypertension [4]. Approximately 30% of hypertensive disorders in pregnancy was due to chronic hypertension even as 70% of the cases diagnosed as gestational hypertension or preeclampsia [5]. PIH have been seen in 12% of teenage group in comparison to 5% in adult group. The consensus on etiology of pregnancy induced hypertension is not entirely agreed and immunological factors seem to trigger the placental diseases where genetic arrangement governs maternal vulnerability [6]. So, this study had been planned to observe specifically the frequency of induced hypertension in pregnancy to identify the burden of this diseases and to take efficient steps in reducing the maternal and fetal morbidity and mortality.

### Material and Methods

A longitudinal study was conducted in department of gynecology and obstetrics GSL Medical College and General hospital. The Universal sampling method was employed

\*Associate Professor,  
Department of Gynecology  
and Obstetrics \*\*Tutor,  
Department of  
Biochemistry

\*\*\*Assistant Professor,  
Department of Community  
Medicine, GSL Medical  
college and General  
Hospital, Rajahmundry,  
Andhra Pradesh 533296,  
India.

### Corresponding Author:

M. Kiran Deedi

Tutor, Department of  
Biochemistry,  
GSL Medical College and  
General Hospital,  
Rajahmundry, Andhra  
Pradesh 533296, India.

E-mail:  
kirandeedi@yaho.com

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and every antenatal woman with age above 15 years were registered were included as the study subjects. The study was approved by institutional ethical committee.

#### *Inclusion and Exclusion Criteria*

All ANC subjects with in age of above 15 years registered department of gynecology and obstetrics, GSL Medical College and General hospital within 32weeks of their gestational age were included as the study subjects.

Total 989 pregnant women registered (booked, unbooked patients), at the time of registration, we have taken their informed consent, information on age, religion, education, and occupation of women, information on family income per month, menstrual and obstetrical history was recorded. Antenatal profile was done for each individual; blood pressure (B.P), weight of pregnant women was noted. Systolic blood pressure above 140 mm/ Hg or a diastolic blood

pressure above 90 mm/ Hg was considered as hypertensive patients and who are under hypertensive medication also considered as hypertensive subjects. All the hypertensive subjects are divided into two groups depending upon the age (teenagers 15 to 19 years and adults, above 19 years.) After the delivery of each individual, the weight of the baby is measured using standard Weigh machine with nearest 50g. All the complications occurred to the infants and to the mothers were identified and noted. Statistical analysis was performed by using SPSS trail version 16.0 . Association between was done by using chi-square test.  $p$  value  $<0.05$  consider as statistically significant.

## Results

There were totally 197 subjects were identified as hypertensive patients out of total 989 pregnant patients, it comprises about 19.9%. There were 99

**Table 1:** The association between mother's age and parity

Parity	>15 to <20years	>20 years	<i>p</i> value
Multi (56)	16	40	<0.05
Primi (141)	83	58	

Data was shown as number  $p<0.05$  as statistically significant

**Table 2:** The association between mother's age and gestational period

Gestational period	>15 to <20years	>20 years	<i>p</i> value
Post term(3)	2	1	>0.05
Preterm(41)	24	17	
Term(153)	73	80	

Data was shown as number  $p<0.05$  as statistically significant

**Table 3:** The association between mother's age and maternal complications

Complications	N	>15 to <20years	>20 years	<i>p</i> value
Placental Abruptions	24	14	10	<0.05
Anemia	1	1	0	
Acute renal failure	1	0	1	
Atonic postpartum hemorrhage	12	10	2	
Breech	3	1	2	
Coagulation failure	2	1	1	
Diabetes	2	0	2	
Diabetes with acute renal failure	1	1	0	
Eclampsia	38	12	26	
Fetal distress	1	0	1	
Hemolysis, elevated liver enzymes and low plate let count		1	0	
Hypothyroidoidism	3	2	1	
large fetus	1	0	1	
Low uterine segment caesarean section		1	0	
Oligohydramnios	8	1	7	
Post Mitral valve replacement	1	0	1	
PT ECCLAMPسيا	2	2	0	
PTL	12	7	5	

Rh negative	1	0	1
thrombocytopenia	1	0	1
Twins	4	4	0
No complications	94	38	56

Data was shown as number  $p < 0.05$  as statistically significant

**Table 4:** Association between mother's age and fetal complications

Complications	N	>15 to <20years	>20 years	p value
Birth Asphyxia	55	30	23	<0.05
Hypoxia Ischemic Encephalopathy	3	3	0	
Intrauterine Death	17	7	10	
Intrauterine growth retardation	23	6	17	
Low birth weight	1	0	1	
Meconium aspiration syndrome	17	12	5	
Preterm fetus	16	10	6	
No complications	55	18	37	

Data was shown as number  $p < 0.05$  as statistically significant

hypertensive patients were under teenage pregnant category and 98 hypertensive patients were above >20 years category. Complications like eclampsia (19.2%), Placental Abruptions (12.1%), Atonic postpartum hemorrhage (6.0%) and Oligohydramnios (4%) were note in hypertensive mother individuals. A higher number complications like birth asphyxia (26.9%), Intrauterine growth retardation (11.6%), Meconium aspiration syndrome, Intrauterine Death (8.6%) were seen fetal born to mother having hypertension.

There was a significant association between mothers age, parity, Maternal complications and fetal complications ( $p < 0.05$ ). There was a no significant association between mothers age and gestational period ( $p > 0.05$ ).

## Discussion

Women with pregnancy induced hypertensive disorder may progress from mild disease to a more serious (life threatening) condition [7]. Hypertensive disorders which include preeclampsia/ eclampsia, represent a significant proportion of maternal deaths worldwide [8], Pregnancy induced hypertension which occurs after 20 weeks gestation, in labour or within 48 hours of delivery. The mortality is closely associated with the severity of hypertension, being more evident in patients with eclampsia. Neonatal and infant mortality rates are consistently higher in preterm infants than in term infants. Preeclampsia and eclampsia can lead to higher frequency of induced labor, fetal growth restriction, neonatal respiratory difficulties, and increased frequency admission to neonatal intensive care unit [9].

Pairu J et al [10], maternal complications were significant higher in preeclampsia group when compared to PIH group. Preterm deliveries, restriction of foetal growth and still birth were more general in preeclampsia group. The frequency of vaginal deliveries was more frequent in group with PIH than in preeclampsia. Presence of proteinuria is a predictor for poor maternal and perinatal outcome in hypertensive disorders of pregnancy

## Conclusion

In the present study, PIH cases who delivered in emergency, with raised diastolic blood pressure & neonate with low birth weight were found risk factors for perinatal death. Fetal morbidity & mortality can be reduced by early recognition & institutional management.

## Acknowledgement

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*Conflict of Interest:* None

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