Original Research Article

Comparative study on maternal outcomes between normal and PIH mothers with serum albumin level

D Jayalakshmi[1], Sheba Rosatee Victor[2*]

[1]Assistant Surgeon, Department of Obstetrics and Gynecology, Puliyangudi Government Hospital, Tirunelveli, India
[2]Professor, Department of Obstetrics and Gynecology, Tirunelveli Government Medical College, Tirunelveli, India
[*]Corresponding author email: **shebarosatte@yahoo.com**

International Archives of Integrated Medicine, Vol. 6, Issue 3, March, 2019.

Available online at http://iaimjournal.com/
ISSN: 2394-0026 (P) **ISSN: 2394-0034 (O)**
Received on: 18-02-2019 **Accepted on:** 23-02-2019
Source of support: Nil **Conflict of interest:** None declared.
How to cite this article: D Jayalakshmi, Sheba Rosatee Victor. Comparative study on maternal outcomes between normal and PIH mothers with serum albumin level. IAIM, 2019; 6(3): 32-37.

Abstract

Background: Perinatal outcome is strongly influenced by gestational age and the severity of hypertension as expressed by the need for antihypertensive treatment, irrespective of the underlying syndrome. Severe preeclampsia is associated with different degrees of fetal injury. The main impact on the fetus is under nutrition as a result of uteroplacental vascular insufficiency, which leads to growth retardation. There are short and long-term effects. The immediate impact observed is altered fetal growth resulting in greater fetal liability. Fetal health, as well as its weight, is highly compromised, leading to various degrees of fetal morbidity, and fetal damage may be such as to cause fetal death.

Aim of the study: To compare maternal outcomes between normal and PIH mothers in correlation with a serum albumin level.

Materials and methods: The study was conducted in Obstetrics and Gynecology OPD of Tirunelveli Medical College. Duration of study was from March 2018 to November 2018. Routine antenatal investigations were done. The maternal outcomes were analyzed between two categories

Results: The normal, forceps and LSCS deliveries among the total mothers were 42.4%, 2.0%, and 55.6% respectively. The difference between PIH and normal mothers was not statistically significant (P>0.05). The pre and term among the total mothers were 12.1%, and 87.9% respectively. The difference between the pre and term babies among the PIH and normal was very highly statistically significant (P>0.001). The pre and term among the total mothers were 11.1%, and 88.9% respectively. The difference between the APO and NPO of babies between the PIH and normal mothers was very

highly statistically significant (P>0.001). The complicated and normal outcome among the total mothers was 4.0%, and 96.0% respectively. The difference between the complicated and normal outcome between the PIH and normal mothers was very highly statistically significant (P>0.001).

Conclusion: Perinatal outcome is strongly influenced by gestational age and the severity of hypertension as expressed by the need for antihypertensive treatment, irrespective of the underlying syndrome. Severe preeclampsia is associated with different degrees of fetal injury. The main impact on the fetus is under nutrition as a result of uteroplacental vascular insufficiency, which leads to growth retardation. There are short and long-term effects. The immediate impact observed is altered fetal growth resulting in greater fetal liability. Fetal health, as well as its weight, is highly compromised, leading to various degrees of fetal morbidity, and fetal damage may be such as to cause fetal death.

Key words

Preeclampsia, Hypertensive disorder of pregnancy, β HCG, Screening.

Introduction

High blood pressure complicates almost 10 percent of all pregnancies, and the incidence is higher if the women are nulliparous or carrying multiple fetuses. Preeclampsia is a major cause of maternal mortality in developed and developing countries. It is also a major cause of perinatal morbidity and mortality, and it is very strongly associated with fetal growth retardation [1]. The kind of lifestyle an expectant mother has or any particular kind of health conditions that she may be suffering from will have an effect on the baby's health and weight. A low-weight newborn can be due to the fact that the mother is suffering from hypertension, heart ailments or she may have been smoking, having alcohol or illicit drugs during her pregnancy [2]. Many women suffer from diabetes or get gestational diabetes during pregnancy which can make the baby large for gestational age and weigh more than normal [3]. The obstetrician needs to monitor a baby's growth and progress in the womb and any factors which can affect the baby's weight or general health should be taken care of [4]. Perinatal outcome is strongly influenced by gestational age and the severity of hypertension as expressed by the need for antihypertensive treatment, irrespective of the underlying syndrome. Severe preeclampsia is associated with different degrees of fetal injury. The main impact on the fetus is under nutrition as a result of uteroplacental vascular insufficiency, which leads to growth retardation [5]. There are short and long-term effects. The immediate impact observed is altered fetal growth resulting in greater fetal liability. Fetal health, as well as its weight, is highly compromised, leading to various degrees of fetal morbidity, and fetal damage may be such as to cause fetal death [6]. Long-term follow up studies have demonstrated that babies who suffered intrauterine growth retardation are more likely to develop hypertension, coronary artery disease, and diabetes in adult life [7]. There is growing evidence to suggest that patterns of early growth and other life course factors play an important role in the origins and development of cardiovascular disease (CVD), but understanding the processes which mediate these effects is limited [8].

Materials and methods

The study was conducted in Obstetrics and Gynecology OPD of Tirunelveli Medical College. Duration of study was from October 2018 to January 2019. Routine antenatal investigations were done. The maternal outcomes were analyzed between two categories.

Inclusion criteria

Pregnant women with

- Nonproteinuric.
- Normotensive.
- Primi/Multi gravida.

- Singleton.
- Gestational age 13-20 weeks as determined by last menstrual period or ultrasound scan.

Exclusion criteria

- Chronic hypertension.
- Molar Pregnancy.
- Diabetes mellitus.
- Anomalous foetus.
- Multiple pregnancies.

All the women were subjected to detailed history regarding age, parity, past obstetric history, medical history, and family history. Height, weight, blood pressure was measured. Gestational hypertension was defined as blood pressure 140/90 mmHg on two occasions at least 6 hours apart after 20 weeks of gestation. Preeclampsia was defined as gestational hypertension and proteinuria of at least 1 + on the dipstick. The patients who developed preeclampsia were followed until 6 weeks after delivery.

Statistical analysis

The data were analyzed and interpreted according to the type of variables. The continuous variables were analyzed in terms of mean and interpreted by student's t-test. The discontinuous variables were described in terms of percentages and interpreted by χ^2 (Chi-square) test.

Results

Table - 1 compares the mode of deliveries between the PIH and normal mothers. The normal, forceps and LSCS deliveries among the total mothers were 42.4%, 2.0%, and 55.6% respectively. The difference between PIH and normal mothers was not statistically significant (P>0.05).

Table - 1: Comparison of mode of delivery between the PIH and normal.

Type of delivery	PIH		Normal		Total		χ^2	df	Sig
	No	%	No	%	No	%			
Normal	3	3.0	39	39.4	42	42.4	3.578	2	P>0.05
Forceps	0	0.0	2	2.0	2	2.0			
LSCS	11	11.1	44	44.4	55	55.6			
Total	14	14.1	85	85.9	99	100.0			

Table - 2: Comparison of term of babies between the PIH and normal mothers.

Term/Preterm delivery	PIH		Normal		Total		χ^2	df	Sig
	No	%	No	%	No	%			
Pre term	7	**7.1**	5	5.1	12	12.1	21.964	1	P<0.001
Term	7	**7.1**	80	80.8	87	87.9			
Total	14	14.1	85	85.9	99	100.0			

Table - 3: Comparison of perinatal outcome between pih and normal mothers.

Perinatal outcome	PIH		Normal		Total		χ^2	df	Sig
	No	%	No	%	No	%			
APO	6	6.1	5	5.1	11	11.1	21.964	1	P<0.001
NPO	8	8.1	80	80.8	88	88.9			
Total	14	14.1	85	85.9	99	100.0			

Table - 2 compares the term of babies between the PIH and normal mothers. The pre and term among the total mothers were 12.1%, and 87.9% respectively. The difference between the pre and

term babies among the PIH and normal was very highly statistically significant (P>0.001).

Table - 3 compares the perinatal outcome between PIH and normal mothers. The pre and term among the total mothers were 11.1%, and 88.9% respectively. The difference between the APO and NPO of babies between the PIH and normal mothers was very highly statistically significant (P>0.001).

Table - 4: Comparison of maternal outcome between the PIH and normal mothers.

Maternal Outcome	PIH		Normal		Total		χ^2	df	Sig
	No	%	No	%	No	%			
Complicated	4	4.0	0	0.0	4	4.0	18.476	1	P<0.001
Normal	10	10.1	85	85.9	95	96.0			
Total	14	14.1	85	85.9	99	100.0			

Table - 5: Prediction of urine albumin.

Prediction		Mothers		
		PIH	Normal	Total
Urine Albumin	Positive	13	0	13
	Negative	1	85	86
	Total	14	85	99

Table - 4 compares the maternal outcome between PIH and normal mothers. The complicated and normal outcome among the total mothers was 4.0%, and 96.0% respectively. The difference between the complicated and normal outcome between the PIH and normal mothers was very highly statistically significant (P>0.001).

Table - 5 predicts the positive and negative of urine albumin among the PIH and Normal mothers. The sensitive of the test was 92.9%. The specificity of the test was 100 %, The false positive was 0 %, The false negative was 1.2%.

Discussion

Hypertensive disorders of pregnancy are the prime causes for early hospitalization, labor induction, maternal and fetal morbidity, and mortality. Though perfect remedy is not available it is possible to minimize the hazards through early detection and prompt action [10]. Effective health education about hypertensive disorder helps pregnant women to take care of herself and to have better childbirth. So that it can reduce the further complication which may ultimately effect on the fetus and mother [11]. Pregnancy Induced Hypertension (PIH) affects approximately one out of every 14 pregnant women. Although PIH more commonly occurs during first pregnancies, it can also occur in subsequent pregnancies [12]. PIH is also more common in pregnant teens and in women over age 40. Many times, PIH develops during the second half of pregnancy, usually after the 20th week, but it can also develop at the time of delivery or right after delivery [13]. PIH can prevent the placenta (which gives oxygen and food to your baby) from getting enough blood. If the placenta doesn't get enough blood, the baby gets less oxygen and food. This can cause low birth weight and other problems for the baby [14]. Most women who have PIH still deliver healthy babies. A few develop a condition called eclampsia (PIH with seizures), which is very serious for the mother and baby, or other serious problems [15]. Fortunately, PIH is usually detected early in women who get regular prenatal care, and most problems can be prevented organized by the National Institute of Child Health and Human Development [16]. A study was conducted at Tianjin Medical University to determine the risk factors of Pregnancy Induced Hypertension in 3205 women and 219 cases were

found to have Pregnancy Induced Hypertension [17]. Data was collected by using a questionnaire. An increased incidence was seen in parity. The family history of hypertension 8.955(95%), weight gain during pregnancy 3.062 (95%), number of natural abortions 8.955 (95%), were related to risks of Pregnancy Induced Hypertension [18]. The study shows that antenatal mothers with advanced age, family history of hypertension, number of natural abortions weight of pregnancy is necessary to strengthen the screening programme in the prevention strategy. An evaluative study was conducted to find out the effectiveness of self-instructional module on pre-eclampsia and its self-care management among Pregnancy Induced Hypertension mothers [19]. The risk of eclampsia decreased by 3.0% per 1-year increase in maternal age, and increased 2.6-fold and 35.4-fold in nulliparous women and women with PIH, respectively. From the present study, it can be concluded that pregnancy-induced hypertension adversely influences the weight of the placenta and fetal outcome [20].

Conclusion

Long-term follow-up studies have demonstrated that babies who suffered intrauterine growth retardation are more likely to develop hypertension, coronary artery disease, and diabetes in adult life. There is growing evidence to suggest that patterns of early growth and other life course factors play an important role in the origins and development of cardiovascular disease (CVD), but understanding the processes which mediate these effects is limited.

Acknowledgments

The authors would like to thank the Professors, Associate Professor, and Postgraduate students Department of Obstetrics and Gynecology, Tirunelveli Government Medical College, Tirunelveli for helping with data collection and laboratory analyses.

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