

Frequency of Prematurity in Gestational Protein Urea Versus Non Protein Urea Pregnancy Induced Hypertension

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ABSTRACT

Aim: To compare frequency of prematurity in protein urea versus non-protein urea pregnancy induced hypertension.

Methods: This cohort study carried out in Department of Obstetrics and Gynecology, Bahawal Victoria Hospital Bahawalpur from 01-05-2011 to 31-01-2012. Total 144 pregnant women were included in this study.

Results: Mean gestational age among protein urea group was 34±3 and among non-protein urea group was 36±2. Out of 72 protein urea patients, 51(72.9%) were premature while 21(28.1%) were full term babies. Out of 72 non protein urea patients, 19(27.1%) were premature while 53(72.9%) were full term. Relative risk of prematurity among protein urea and non-protein urea group was 2.68.

Conclusion: In this study, women with protein urea pregnancy induced hypertension are 2.68 times more at risk of delivering premature babies as compared to women with non-protein urea pregnancy induced hypertension. Prematurity increases perinatal morbidity and mortality rates with possible immediate or late sequels, requiring public policies that offer support to these neonates.

Keywords: Pregnancy induced hypertension, Protein urea, Non protein urea, Prematurity.

INTRODUCTION

Gestational hypertension is defined as systolic blood pressure ≥ 140 mmHg and/or diastolic blood pressure ≥ 90 mmHg in a previously normotensive pregnant woman who is ≥ 20 week of gestation and has no proteinuria. The blood pressure readings should be documented on at least two occasions at least six hours apart. It is considered severe when sustained elevations in systolic blood pressure > 160 mmHg and/or diastolic blood pressure ≥ 110 mmHg are present for at least six hours. Preeclampsia, a human-pregnancy-specific disease defined as the occurrence of hypertension and significant proteinuria in a previously healthy woman on or after the 20th week of gestation, occurs in about 2–8% of pregnancies¹. Gestational hypertension is one of several causes of hypertension in pregnant women. It occurs in about 6 % of pregnancies². It is the most common medical complication of pregnancy whose incidence has continued to increase worldwide, and it is associated with significant maternal morbidity and mortality, accounting for about 50,000 deaths worldwide annually³. Thus reducing maternal mortality by 75% between 1990 and 2015 has been considered as part of the millennium development goals of the WHO Nations⁴.

METHODOLOGY

This Cohort Study was conducted at Department of Obstetrics and Gynecology from 01-05-2011 to 31-01-2012. Total 144 patients were included in this study. An approval was taken from institutional review committee and informed consent was taken from every patients. Pregnant women between age group 15 to 35 years and having gestational age between 20-32 weeks, patients with pregnancy induced hypertension with protein urea, patients with pregnancy induced hypertension without protein urea were included in this study. Mothers with other chronic illnesses like diabetes mellitus, cardiac problem, renal problem, anemia, mothers with APH and all previously known hypertensive mothers were excluded from the study.

Complete history and clinical examination including blood pressure was taken. We divided all pregnant hypertensive women into two groups on the basis of presence and absence of protein urea and they received standard treatment. Pregnant hypertensive with protein urea (Exposed group), pregnant hypertensive without protein urea (Non exposed group). Both exposed and non exposed groups followed till delivery to look for presence and absence of prematurity (delivery before 37week gestation). Prematurity characterized as delivery of baby before 37 completed week of gestation. Gestational hypertension labelled when systolic blood pressure > 140 mm Hg and a diastolic BP > 90 mm Hg on two successive measurements 4-6 hours apart. Protein urea labelled as presence of 300 mg or more

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in 24 hour urine specimen. Newborns were assessed for maturity using modified Ballard scoring. We recorded data on a specially designed Performa. All data was entered and analyzed through SPSS version 20.

RESULTS

In our study total 144 patients with gestational hypertension were included, out of these 10(6.9%) patients were <20 years, 109(75.5%) patients between age group 20-30years and 25(17.4%) patients were above 30 years (Table 1). Out of 72 protein uric patients minimum age was 19 years and maximum age was 32 years, mean age was 25±4 years. Out of 72 non proteinuric patients minimum age was 20 years and maximum age was 36 years, mean age was 29±4 years. According to gestational age, out of protein uric patients minimum gestational age was 28 weeks and maximum gestational age was 38 weeks and mean was 34±2 weeks. In non proteinuric group minimum gestational age was 30 weeks and maximum gestational age was 39 weeks and mean was 36±2 weeks (Table 2). Out of protein uric group 51(72.9%) were preterm babies, while 21(27.1%) were not preterm. P value was 0.001 and relative risk was 2.68. Out of non-protein uric group 19(27.1%) were preterm while 53(71.6%) babies were full term, p value was 0.001 and relative risk was 0.373 (Table 3). According to gestational age in protein uric group 7(9.7%) patients were <30week, 61(84.7%) were between 30-35 week gestation and 4(5.6%) patients were >35 week gestation. Out of non-protein uric group 3(4.2%) patients were <30 week gestation, 48(66.7%) patients were between 30-35 week gestation and 21(29.2%) patients were >35 week gestation (Table 4).

Table 1: Baseline Clinical Characteristics

Age Group	n	%age
< 20	10	6.9
20 – 30	109	75.7
>30	25	17.4
Protein Urea	72	50
Non Protein Urea	72	50
Preterm	70	48.6
Full term	74	51.4

Table 2: Age of patients

Groups	n	Ranges	Mean±S.D
Protein Urea	72	19-32	25±4
Non Protein Urea	72	20-36	29±4
Gestational age of patients			
Protein Urea	72	28-38	34 ± 3
Non Protein Urea	72	30-39	36 ± 2

Table 3: Comparison of Outcome Variable

Groups	Pre maturity	
	Yes	No
Protein Urea	51(72.9%)	21(28.1%)
Non Protein Urea	19(27.1%)	53(72.9%)

P value 0.01 Relative risk 2.68

Table 4: Gestational age

Gestational age (week)	Protein urea	
	Yes	No
< 30	7 (9.7%)	3 (4.2%)
30 – 35	61 (84.7%)	48 (66.7%)
> 35	4(5.6%)	21(29.2%)
Non - Protein Urea		
< 30	3(4.2%)	7(9.7%)
30 – 35	48(66.7%)	61(84.7%)
> 35	21(29.2%)	4 (5.6%)

P value 0.01

DISCUSSION

In our study frequency of prematurity in non protein urea gestational hypertension is 26.4%, while frequency of prematurity in protein urea gestational hypertension is 70.8%. A similar study was done by Homer CS et al in 2008 revealed that the frequency of preterm deliveries in non protein urea gestational hypertension is 11.3% as compared to 30.2% in protein urea gestational hypertension⁵. This study of Homer CS et al favors our study that prematurity is more common among protein urea hypertensive pregnant women. A study done by Solange R et al in 2008 regarding the gestational age, the findings showed that 12(10.6%) newborns were preterm⁶. This study of Solangi only Considered the gestational age but not the presence or absence of protein urea, but this also showed that Prematurity is common in gestational hypertension. A study done by Shingairai A F in 2004 showed Frequency of prematurity among live births was 16.4%⁷. A study performed by Coelho TM et al in 2004 showed a higher prevalence (11.3% to 78.3%) was, performed with 334 Hypertensive pregnant women⁸.

A study performed by Oliveira CA found a higher relative risk (RR=1.36) for prematurity in pregnant women with chronic hypertension compared to a group with pregnancy-induced hypertension⁹. There was a significant association (p=0.013) between diastolic blood pressure levels and gestational age. The group of women with diastolic blood pressure ≥ 110 mmHg presented a higher percentage of preterm new born (17.9%). A study done by Vidyadhar BB et al in 2011 Showed the frequency of prematurity in mild pregnancy induced hypertension 17.9%, in severe pregnancy induced hypertension 47.6% and in eclampsia 52.6%¹⁰.

CONCLUSION

In this study Relative risk was found to be 2.68, which means women with protein urea pregnancy induced hypertension are 2.68 times more at risk of delivering premature babies as compared to women with non protein urea pregnancy induced hypertension. There is clear evidence that pregnancy induced hypertension is associated with preterm deliveries and this frequency is more in those pregnant hypertensive mothers who are protein urea as well. Prematurity is a common complication of hypertensive disease, either due to the spontaneous labor or to the obstetric conduct of interrupting the pregnancy due to the compromised maternal-fetal health. Prematurity increases perinatal morbidity and mortality rates with possible immediate or late sequels, requiring public policies that offer support to these neonates. A premature baby is at risk of many problems at birth like, respiratory distress syndrome, birth asphyxia, neonatal sepsis and intraventricular hemorrhage as well as long term complications like, growth failure, post hemorrhagic hydrocephalus and cerebral palsy. A substantial burden of stillbirth and neonatal mortality is associated with Pregnancy induced hypertension, especially among multiparous women, which may be due to more Severe Pregnancy induced hypertension, or to a higher burden of underlying disease.

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