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Research Article

**A COMPARATIVE RESEARCH TO ASSESS THE GESTATIONAL
PROTEIN AND NON-PROTEIN UREA AMONG PREGNANCY INDUCED
HYPERTENSION PATIENTS**¹Rao Maaz Bin Shakir, ²Dr Nausheen Wazir, ³Dr Ali Farooq¹Nishter Hospital Multan, ²BHU Chak Shafi Pakpattan, ³Rural Health Center Rajana, T.T.S.**Article Received:** March 2019**Accepted:** April 2019**Published:** May 2019**Abstract:**

Objective: The objective of this research was to compare prematurity between gestational protein and gestational non-protein urea among pregnancy-induced hypertension patients.

Material and Methods: We carried out this comparative research at Services Hospital, Lahore from July 2017 to February 2018 on a total of 144 pregnancy-induced hypertensive pregnant females in order to compare the gestational protein and non-protein urea. Research commenced after ethical approval of the institution and informed consent of the research participants. The age and gestational age of the patients was respectively in the bracket of (15 – 35) years and (20 – 32) weeks. This research included all those patients who had gestational protein and non-protein urea; whereas, we did not include any pregnant female with cardiac issues, diabetes mellitus, renal problem, mothers with APH, anaemia and previously known hypertensive mothers. Research outcomes were analyzed through SPSS software.

Results: Mean gestational age among different age groups of protein and non-protein urea was respectively (34 ± 3) weeks and (36 ± 2) weeks. The total population was equally divided into two groups having 72 patients in each group named as protein urea and non-protein urea groups. Among 72 protein urea patients, there were 51 premature (72.9%) while 21 full-term babies (28.1%). Whereas, in the 72 non-protein urea patients there were 19 premature (27.1%) while 53 full-term babies (72.9%). Relative prematurity risk among both groups was 2.68.

Conclusion: The outcomes suggest that pregnancy-induced hypertension may lead to premature births 2.68 times higher in protein urea group than non-protein urea groups. Perinatal mortality and morbidity rates are increased in premature cases with immediate or delayed sequels that requires to extend support for such neonates through public policies.

Keywords: Protein Urea, Pregnancy, Pregnancy Induced Hypertension, Non-protein Urea, Mortality, Morbidity, Neonates, Perinatal and Prematurity.

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INTRODUCTION:

Gestational hypertension refers to systolic and diastolic blood pressure with a respective reading of (≥ 140 and ≥ 90) mmHg in previously normotensive pregnant females with no protein urea and gestational age of (≥ 20) weeks. Reading of BP is taken on two different times within a gap of six hours. The state of systolic and diastolic blood pressure is considered severe if it respectively elevates (> 160 and ≥ 110) mmHg which is present for a period of six hours Preeclampsia which is a human-pregnancy-specific disease that refers to onset of hypertension and protein urea among healthy females on 20th gestational week or after 20th gestational week which occurs in 2% – 8% of pregnant cases [1]. Gestational hypertension mostly leads to hypertension among pregnant females which is common among six percent of the ladies [2]. The incidence of hypertension during pregnancy is increasing and it has proved itself as a repeated medical complication. Significant morbidity and mortality are also associated with hypertension induced hypertension all over the world which causes more than 50,000 deaths per year globally [3]. Millennium developed goals set by WHO aims to reduce 75% of the mortality rate all over the world [4].

MATERIAL AND METHODS:

We carried out this comparative research at Services Hospital, Lahore from July 2017 to February 2018 on a total of 144 pregnancy-induced hypertensive pregnant females in order to compare the gestational protein and non-protein urea. Research commenced after ethical approval of the institution and informed consent of the research participants. The age and gestational age of the patients was respectively in the bracket of (15 – 35) years and (20 – 32) weeks. This research included all those patients who had gestational protein and non-protein urea; whereas, we did not include any pregnant female with cardiac

issues, diabetes mellitus, renal problem, mothers with APH, anaemia and previously known hypertensive mothers.

We took a detailed clinical assessment and history of the patients along with documentation of blood pressure. Both protein and non-protein urea groups were monitored for the absence and presence of prematurity. Prematurity refers to delivery before thirty-seven complete gestational weeks. Gestational hypertension refers to systolic and diastolic blood pressure respectively measured as (>140 and > 90) mmHg on two different times in the timeframe of four to six hours. Protein urea was taken as the presence of protein (300 mg or more than 300 mg) in the urine specimen within twenty-four hours. Neonates were evaluated for maturity by the modified scoring system of Ballard. A specially designed Performa and SPSS software was used for outcomes entry and analysis.

RESULTS:

Mean gestational age among different age groups of protein and non-protein urea was respectively (34 ± 3) weeks and (36 ± 2) weeks. The total population was equally divided into two groups having 72 patients in each group named as protein urea and non-protein urea groups. Among 72 protein urea patients, there were 51 premature (72.9%) while 21 full-term babies (28.1%). Whereas, in the 72 non-protein urea patients there were 19 premature (27.1%) while 53 full-term babies (72.9%). Relative prematurity risk among both groups was 2.68.

Detailed outcomes of Stratification of Age, Urea and Term are present in Table – I, Comparison of Age and Gestational Age in Table – II, Comparison of Protein and Non-Protein Urea in Pre-Maturity in Table – III and Comparison of Protein and Non-Protein Urea in Gestational Age in Table – IV.

Table – I: Stratification of Age, Urea and Term

	Age Group	Number	Percentage
Age	< 20 Years	10	6.9
	20 – 30 Years	109	75.7
	> 30 Years	25	17.4
Urea	Protein Urea	72	50
	Non-Protein Urea	72	50
Term	Preterm	70	48.6
	Full term	74	51.4

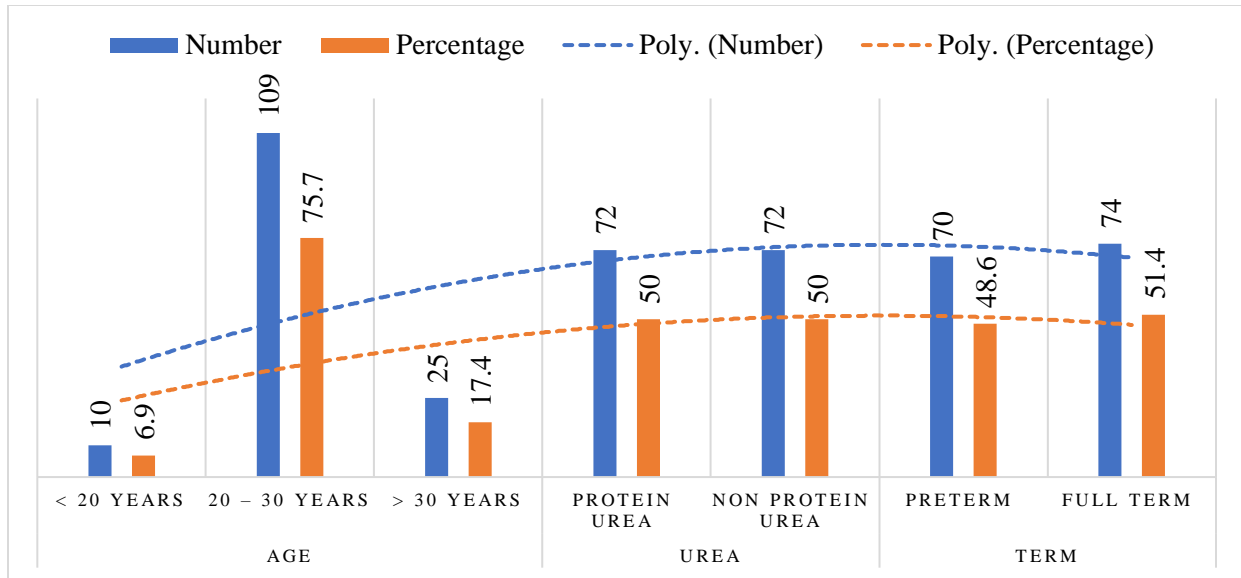
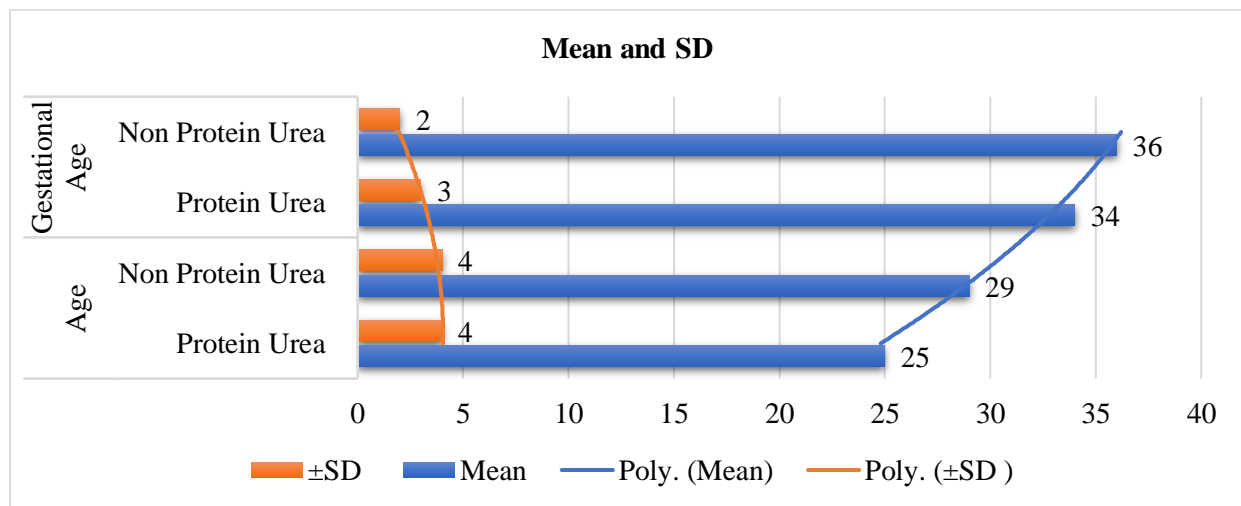


Table – II: Comparison of Age and Gestational Age

Age/Gestational Age		Minimum	Maximum	Mean	±SD
Age	Protein Urea	19	32	25	4
	Non-Protein Urea	20	36	29	4
Gestational Age	Protein Urea	28	38	34	3
	Non-Protein Urea	30	39	36	2



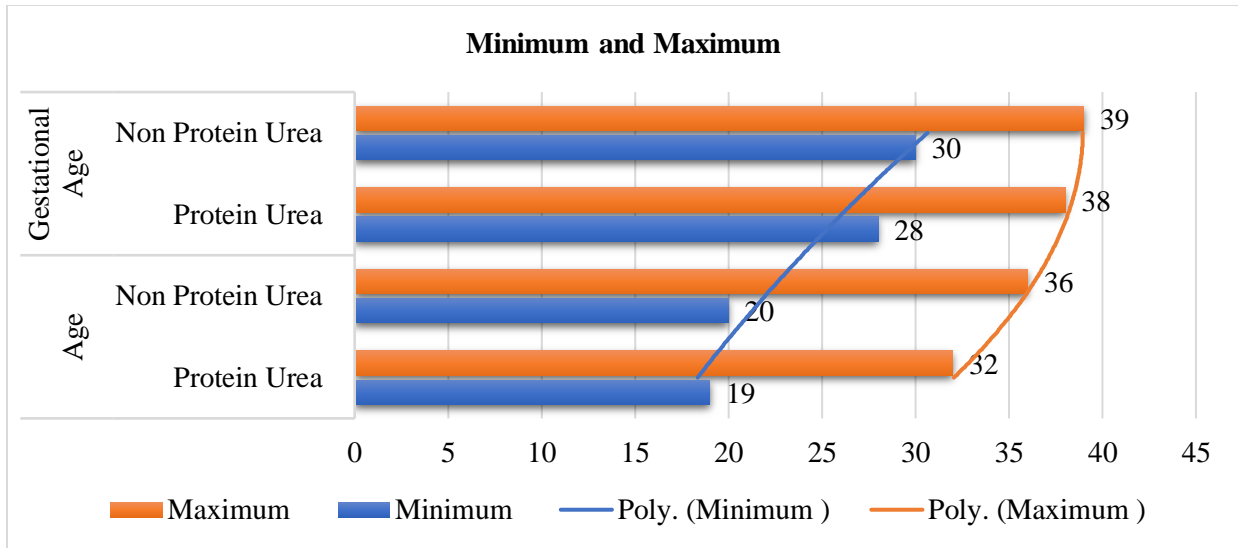


Table – III: Comparison of Protein and Non-Protein Urea in Pre-Maturity

Pre-Maturity	Yes		No		P-Value	Relative Risk
	Number	Percentage	Number	Percentage		
Protein Urea	51	72.9	21	28.1	0.01	2.68
Non-Protein Urea	19	27.1	53	72.9		

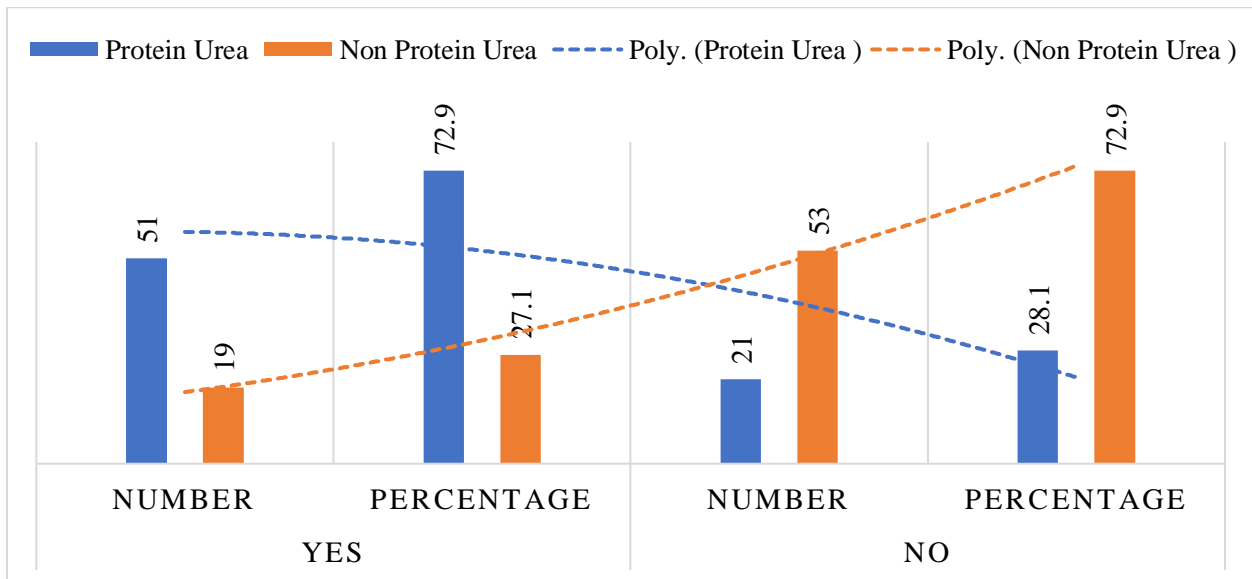
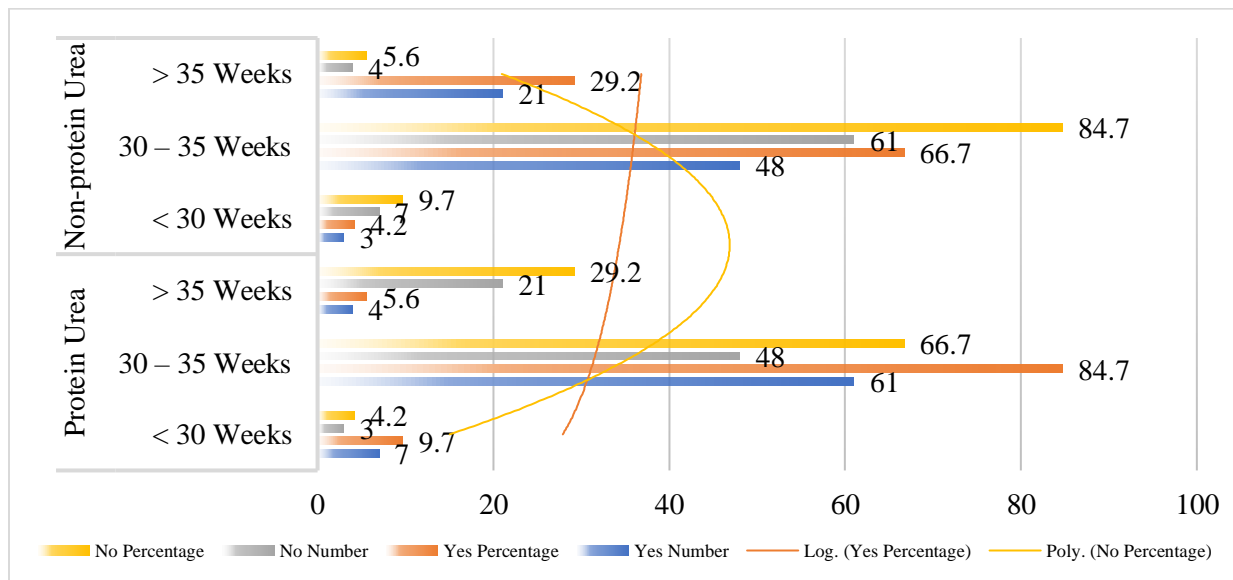


Table – IV: Comparison of Protein and Non-Protein Urea in Gestational Age

Gestational Age		Yes		No		P-Value
		Number	Percentage	Number	Percentage	
Protein Urea	< 30 Weeks	7	9.7	3	4.2	0.01
	30 – 35 Weeks	61	84.7	48	66.7	
	> 35 Weeks	4	5.6	21	29.2	
Non-protein Urea	< 30 Weeks	3	4.2	7	9.7	
	30 – 35 Weeks	48	66.7	61	84.7	
	> 35 Weeks	21	29.2	4	5.6	

**DISCUSSION:**

We reported the occurrence of prematurity among non-protein urea and protein urea gestational hypertension respectively as 26.4% and 70.8%. Homer also conducted similar investigations back in 2008 which revealed preterm delivery occurrences was higher in gestational protein urea hypertensive cases (30.2%) than gestational protein urea hypertensive cases (11.3%) [5]. The outcomes reported by Homer are similar to our outcomes which suggest that prematurity is reduced among non-protein urea hypertensive women. Solange also conducted similar investigations back in 2008 and reported 12 preterm newborns (10.6%) [6]. Solange restricted his research to gestational age; whereas, he did not consider the absence or presence of protein urea among gestational hypertensive women. Another author showed the occurrence of prematurity 16.4% among live births [7]. Coelho TM also conducted a series back in 2004 and showed an increased prevalence from 11.30% to

78.30% among a total of 334 pregnant hypertensive women [8].

According to Oliveira CA, relative higher risk factors was 1.36 for prematurity among expecting females with chronic hypertension than those females diagnosed with pregnancy-induced hypertension [9]. Gestational age and diastolic blood pressure have a significant association (P-Value 0.013). The higher percentage was found among pregnant women having diastolic blood pressure more than 110 mmHg among 17.9% of preterm newborns. Vidyadhar BB reported 17.9% prematurity occurrence among pregnancy-induced hypertension of mild nature, 47.6% of severe nature and 52.6% of eclampsia [10].

CONCLUSION:

The outcomes suggest that pregnancy-induced hypertension may lead to premature births 2.68 times higher in protein urea group than non-protein urea

groups. Perinatal mortality and morbidity rates are increased in premature cases with immediate or delayed sequels that requires to extend support for such neonates through public policies. Preterm deliveries are also associated with pregnancy-induced hypertension and the occurrence of preterm deliveries is even increased among gestational protein urea hypertensive cases. A premature baby has numerous issues as risk factors such as birth asphyxia, respiratory distress syndrome, intraventricular haemorrhage and neonatal sepsis along with long-term complications such as posthemorrhagic hydrocephalus, growth failure and cerebral palsy.

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