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Pregnancy Induced Hypertension and It's Associated Factors Among Women Attending Delivery Center

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Abstract

Background: Pregnancy-induced hypertension (PIH) is a dangerous condition that can arise during pregnancy and has been associated with a number of negative outcomes for both the mother and the fetus. According to estimates from the World Health Organization, the effects of hypertensive diseases during pregnancy claim the lives of at least one woman every seven minutes. Examining pregnancy-induced hypertension and associated risk factors in women receiving prenatal treatment at Jalalabad Hospital is the aim of this study.

Method: During two months, from October 1 to November 30, 2023, a cross-sectional survey was conducted in the maternity hospitals located in Jalalabad. The hospital provided a proportionate amount of the total sample size (620). Using a systematic sampling procedure, study participants were chosen. A p-value of less than 0.05 was deemed statistically noteworthy.

Result: Out of a total of 620 pregnant women, only 8% (50/620) of pregnant women had Hypertensive Disorders in Pregnancy (HDP). The average age of the respondent who visited outpatient department of a maternity hospital in Jalalabad was 27.5± 2 years with the majority 42% in years 25-30. The findings from our study indicate that hypertensive disorder in pregnancy has a significant relationship with risk factors such as increasing maternal age ($p<0.041$), body mass index (BMI) ($P<0.007$), and family history of hypertension in pregnancy ($p<0.026$). Whereas other risk factors assessed in our study had no significant association with HDP.

Conclusion: The findings of our study highlight the importance of factors including obesity, advancing pregnancy age, and a family history of hypertension as risk factors for HDP. It also emphasizes the necessity of appropriate preconceptional counseling, regular ANC monitoring, and HDP treatment in order to minimize morbidity and death associated with this condition.

Keywords: Pregnancy induced hypertension, associated factors, Pregnancy

Introduction

The term "pregnancy" refers to the time when a fetus develops inside a woman's uterus, during which time significant physiological changes occur in women's bodies. Nevertheless, some have issues as they

develop, endangering the health of the moms and the fetus.(1) While the origin of hypertension during pregnancy is unknown, gestational hypertension is a prevalent cause of maternal morbidity. The chance of having gestational hypertension may increase due to certain conditions, such as pre-existing hypertension, a family history of hypertension, or any type of kidney illness.. One of the leading causes of maternal death, especially in developing nations, is still hypertensive disorders during pregnancy. The World Health Organization (WHO) describes hemorrhage, HDP, and infection as the deadly trifecta of pregnancy. These conditions greatly increase maternal mortality and morbidity, taking the lives of at least one woman every seven minutes (2).

The incidence of HDP increased from 16.30 million to 18.08 million worldwide between 1990 and 2019, a total increase of 10.9% over 20 years. Pre-eclampsia and other pregnancy-related hypertension disorders fall under the umbrella term "PIH." Pre-eclampsia is more common in women with antiphospholipid antibodies, pre-existing diabetes, multiple pregnancies, nulliparity, familial history, high blood pressure, and a high body mass index (4). There are several known risk factors for a developing of PIH. Pregnancy-induced hypertension was found to be connected with a number of factors including living in a rural area, being illiterate, having a history of renal illness, having a family history of hypertension, and not eating enough vegetables.(5) Another study found a clear correlation between racial and ethnic differences and the prevalence of maternal hypertensive disorders, with risk variables including obesity, gestational diabetes, education level, and maternal age.(6) Other major risk factors for PIH include extremes in mother age, passive and active smoking, primigravida and multipara (≥5), aided vaginal delivery, elective cesarean section, interval between pregnancies ≥ 4 years, and specific contraceptive methods.(7)

According to a meta-analysis carried out in Ethiopia, women who have hypertension during pregnancy had 3.89 times higher risks of giving birth to infants with low birth weights than women who do not have hypertension. Women who developed pregnancy-induced hypertension gave birth to low-birth-weight babies in excess of one-third of their babies.(8)

The mother is more likely to experience heart attacks, heart failure, kidney failure, and cerebral vascular accidents if she has severe hypertension. Furthermore, problems like inadequate placental oxygen transfer, growth limitation, premature birth, placental abruption, stillbirth, and neonatal death put the fetus at higher risk. (9)

Materials and Methods

Among women receiving antenatal care at Jalalabad Hospital over a three-month period, a descriptive cross-sectional study was carried out to evaluate pregnancy-induced hypertension and its associated variables. This study took place between October 1, 2023, and December 31, 2023. Direct interviews utilizing a series of standardized questionnaires were used to collect the data. A prior study on hypertension during pregnancy served as the basis for the questionnaire.

Study Population:

Our study concentrated on pregnant patients who visited the outpatient department of the maternity hospital in Jalalabad for consultation and whose pregnancy was verified by ultrasound or biological test.

Inclusion and exclusion criteria:

Inclusion criteria: All pregnant women at maternity hospitals who were diagnosed with hypertensive disorder (HDP) and whose gestational age was greater than 28 weeks for an ANC checkup were eligible to participate in the study.
Exclusion Criteria: Study participants who had eclampsia, were critically unwell, or were known to have persistent hypertension were not excluded

Sample size:
The sample size was determined by: $n=t^2 *p*(1-p)/m^2$
n = Minimum sample size for significant results
t = Confidence level = 95% will be 1.96
p = Estimated proportion of population with the characteristic (10%)
m = Margin of error 3%
n= 1.96x1.96x0.1x(1-0.1)/0.0236x0.0236 = 620

Result
Out of total 620 pregnant women from maternity hospitals of Jalalabad for three month period of time only 8% (50/620) of pregnant women had Hypertensive Disorders in Pregnancy (HDP).

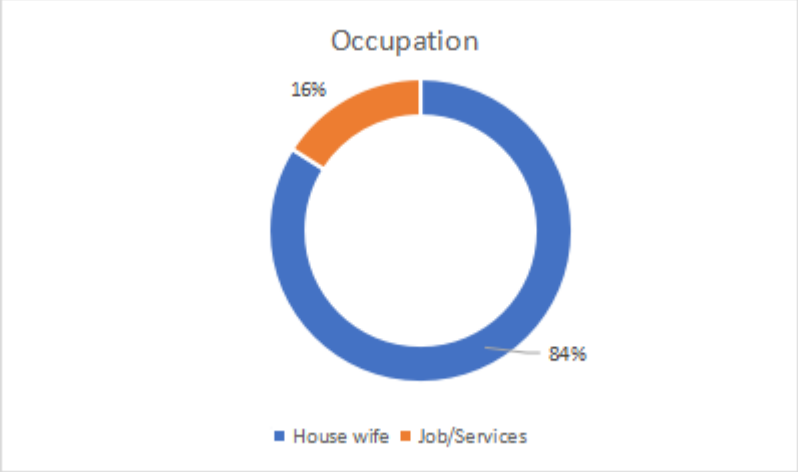
Socio-demographic Information

Table 1: Distribution of respondents according to their socio-demographic information

Responses	Frequency (n=50)	Percentage(%)
Age		
<20	2	4
20-24	9	18
25-30	21	42
>30	18	36
Marital Status		
Married	47	94
Divorced	3	6
Educational Status		
Primary	29	58
Secondary	17	34
University Level	4	8

The average age of the respondent who visited out patient department of maternity hospital in Jalalabad was 27.5±2 year with majority 42% in year 25-30 years. Majority of respondent 94% were married and remaining 6% were leaving single as being divorced. Majority of respondents 58% have only completed their primary level education whereas only 8% have done their Univerisity level higher education. (Table 1)

Figure 1: Distribution of respondents according to their occupation



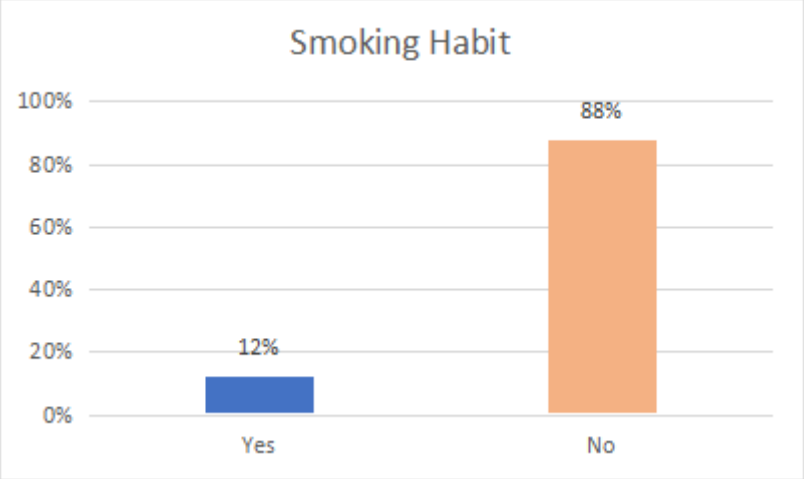
Almost 84% respondents were house wife and remaing 16% were engaged in certain types of job.(Figure 1)

Table2: Distribution of respondents according to the present pregnancy status

Responses	Frequency(50)	Percentage(%)
BMI		
<19	11	22
19-25	16	32
25-30	6	12
>30	17	34
Wanted pregnancy		
Yes	45	90
No	5	10
Gravida		
Primi	8	16
Multi	42	84
Number of ANC visit		
2 ANC Visit	2	4
3 ANC Visit	30	60
=>4 ANC Visit	18	36

Out of 50 HDP patients, 34% of the respondents were having BMI more that 30 (Obesity) similarly 32% of respondents were found to have normal BMI i.e 19-25. Regarding the status of pregancy 90% pregnant women said they have planned for their pregancy whereas remaining 10% said they havent planned for this current pregnancy. Out of 50 respondents, 16% were in primi gravida where as majority 84% of the pregnant women were with multi Gravida status. Most of the pregnant women 60% had done their three ANC visit similarly 36% have done for at least or more than 4 ANC visit as a follow up for their pregnancy. This shows that majority of women in Jalalabad were aware about the importance of having proper regular ANC check-up as per recommeded by WHO for early detection of any abnormality during pregancy. (Table 2)

Figure:2 Distribution of respondents according to their smoking habit



Above figure shows respondents regarding their smoking habit, where majority 88% said they dont smoke.

Table 3: Distribution of respondents according to their past obsteric history

Responses	Frequency(n=50)	Percentage(%)
Previous PIH		
Yes	5	10
No	44	88
I dont know	1	2
Gestational Diabetes		
Yes	2	4
No	46	92
I dont know	2	4

A proportion of 10% of the pregnant women had history of previous PIH and similarly only 4% of the pregnant women said they had gestational diabetes during her previous pregnancy. (Table 3)

Table 4: Distribution of respondents according to their family history of chronic disorders and habits

Family History	Frequency(n=50)	Percentage(%)
Hypertension		
Yes	22	44
No	28	56
Kidney Disease		
Yes	2	4
No	48	96
Diabetes		
Yes	6	12
No	41	82
Smoking Habit		

Yes	22	44
No	28	56

Out of 50 respondents, almost fifty percentage of the respondents family had history of hypertension whereas 96% of respondents said they didnt have any kidney diseases in their family regarding diabetes also only 12% of the resondents said they had family members who are affected with diabetes. Similarly 44% of the respondents said someone in their family members they smokes.(Table 4)

Table 5: Factors associated with Hypertensive Disorders of Pregnant women with socio demographic information

		HDP		p-value
Age	**Total (n=620)**	Yes (n=50)	Percentage(%)	***0.041**
<20	52	2	4	
20-24	153	9	18	
25-30	181	21	42	
>30	234	18	36	
BMI				***0.007**
<19	150	11	22	
19-25	157	16	32	
25-30	98	6	12	
>30	215	17	34	
Family History of Hypertension				***0.026**
yes	246	22	44	
No	374	28	56	
Family history of Diabetes				**0.060**
yes	24	6	12	
No	576	41	82	
I dont know	20	3	6	
Smoking habit				**0.095**
Yes	31	6	12	
No	589	44	88	

* Statistically significant

The variables linked to Hypertensive Disorders in Pregnancy (HDP) in our research study's pregnant participants are shown in this table.The p-value, which indicates the statistical significance of the association, is displayed in the table along with the number and percentage of pregnant women with HDP for each factor. Age, BMI, family history of hypertension in relation with HDP were found to be associated with p-values of 0.041, 0.007, and 0.026, respectively, indicating a statistically significant relationship.There is no statistically significant relationship of family history of diabetes and smoking habits with HDP according to the p-values of 0.060 and 0.095.

Discussion

One of the main causes of maternal morbidity and mortality during pregnancy is hypertensive disorders. According to our study, 8% (50/620) of pregnant women attending delivery services in Jalalabad, Kyrgystan, had hypertensive disorders in pregnancy (HDP). The prevalence of HDP in this study was 7.8%, which was comparable to the study done in India (10). The low prevalence of hypertensive disease during pregnancy in these studies may be attributed to the short study duration and small sample size.

The majority of participants in our study who had pregnancy-induced hypertension (PIH) were over 25 (78%). Comparably, a case-control research conducted in an Indian hospital found that pregnant women in the age group of 25 had a greater prevalence of hypertension (74.6%).(11)

The majority of patients with PIH of those in this study were housewives (42/50) In the same way 43.2% of cases in a study conducted in Public Hospitals in the Wolaita Zone of South Ethiopia were housewives (41/95), which is inconsistent with our research.(12)

About 10% of the respondents reported having prior experience with pregnancy-induced hypertension (PIH), compared to over 88% who had no prior history of the condition. 92% of those surveyed had no prior history of gestational diabetes. Similarly, 98% of participants in a research conducted at a teaching hospital in Bangladesh had no prior history of pregnancy-induced hypertension, which is consistent with the findings of this study. 96% of those surveyed had no prior history of gestational diabetes. (13)

In the present study, 34% (17/50) of patients with hypertension problems during pregnancy had BMIs more than 30. This is consistent with an Indian study that discovered the majority of HDP individuals also had BMIs above thirty.(14) Similar findings have been reported by a few other research, which point to obesity as a risk factor for pregnancy-induced hypertension (15). Therefore, obese and overweight women should lose weight before getting pregnant as there may be an increased risk of gestational hypertension.

Of the 50 participants in the research, 4% had a history of kidney disease. This is in line with findings from Ethiopia, where 7.7% of patients with PIH also had a history of kidney disease.(16).

Factors linked to HDP (10%) included a previous history of preeclampsia or gestational hypertension. This finding is consistent with a study conducted in the city of Parakou, which discovered a similar finding following a review of the literature on preeclampsia risk factors during pregnancy. In our research, a family history of hypertension was found to be statistically linked with HDP ($p < 0.026$). In his research, M. V. Vodouhe1 reported a similar outcome, which supported the notion that a family history of hypertension poses a risk for developing arterial hypertension during pregnancy (17).

The study revealed that the incidence of HDP was correlated with the age, BMI, and family history of hypertension of the participants. The p-values for these factors were 0.041, 0.007, and 0.026, respectively, suggesting a statistically significant link. Obesity raised the incidence of PIH by ten times, according to a prospective research by Bener and Saleh (18). Likewise, additional research has demonstrated that obesity increases the chance of having PIH (19). Consequently if such women were to become pregnant, they would be at higher risk of developing PIH. But in contrast there were no statistically significant relationship of with other variables like, family history of diabetes and smoking habits etc according to the p-values of 0.060 and 0.095.

Limitations

The short study period, small sample size, and single center study were possible limitations. Additional

limitations included recall bias, which was inevitable given that risk factors were assessed at the time of diagnosis.

Conclusion and Recommendation

The prevalence of pregnancy induced hypertension among women attending delivery service was 8%. The results of our study demonstrate the number of variables as significant risk factors for hypertensive disorders in pregnancy, such as obesity,increasing pregnancy age, and a family history of hypertension.It is therefore imperative that weight loss be prioritized, and that appropriate preventative measures be followed to manage hypertensive disorders in families. Early detection and treatment of chronic conditions such as hypertension have also been identified as critical interventions.

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