



**PREVALENCE OF HYPERTENSION IN PREGNANT FEMALES ATTENDING OBSTETRICS AND GYNECOLOGY OPD OF ADESH MEDICAL COLLEGE AND HOSPITAL, MOHRI, SHAHABAD.**

**Physiology**

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**ABSTRACT**

Hypertension is a major problem in pregnancy. The present study was done to find the prevalence of hypertension in pregnant females. Out of 2689 pregnant females who attended OPD during 6 months, 210 were diagnosed with hypertensive disease of pregnancy. They were divided in different groups according to age, no. of pregnancies and gestational age. Prevalence of hypertension in pregnant females was found to be 7.8%. It was most prevalent in females of  $\geq 30$  years age (51.90%), in multigravida ( $>2$  pregnancies) (40%) and in females with gestational age 23-28 weeks (49.04%). Severe diastolic hypertension ( $>110$  mm of Hg) was more prevalent (53.33%) than severe systolic hypertension ( $>190$  mm of Hg) (31.90%) and it also increases with increase in age. This study will help to educate people about risk factors of hypertension which will reduce the prevalence of hypertension in pregnant females.

**KEYWORDS**

Hypertension, Pregnant females, Prevalence, gestational age

**INTRODUCTION:**

Hypertension is one of the major health problems affecting pregnancy. Hypertensive disorders of pregnancy (HDP) leads to 10-15% of maternal deaths especially in developing world and it is one of the major causes of maternal mortality and morbidity<sup>(1)</sup>. There is increased risk of preterm birth, intrauterine growth restriction (IUGR), perinatal death, acute renal or hepatic failure, antepartum haemorrhage, postpartum haemorrhage and maternal death in pregnancies complicated by hypertension<sup>(2)</sup>. Severe HTN raises the risk of heart attacks, cardiac failure, cerebrovascular accidents and renal failure in the mothers<sup>(3)</sup>. National High Blood Pressure Education Program defined following four groups of hypertension in pregnancy: 1) chronic hypertension (blood pressure  $\geq 140/90$  mm Hg before pregnancy or diagnosed before 20th week of gestation, as well as newly diagnosed hypertension during pregnancy that does not resolve post partum) 2) gestational hypertension (transient hypertension of pregnancy if preeclampsia is not presented at the time of delivery and blood pressure returns to normal by 12-week post partum) 3) preeclampsia-eclampsia (blood pressure  $\geq 140/90$  in association with proteinuria  $\geq 300$  mg in 24 h urine), occurrence of seizures in women with preeclampsia known as eclampsia; 4) preeclampsia superimposed on chronic hypertension marked by detection of proteinuria  $\geq 300$  mg in 24 h urine in women with blood pressure  $140/90$  mm of Hg before pregnancy or diagnosed before 20th week of gestation in absence of proteinuria<sup>(4)</sup>.

The perinatal mortality in women with hypertensive disorders was reported as 230/1000 births from Pakistan<sup>(5)</sup>, 144/1000 births from Turkey<sup>(6)</sup>, 165/1000 births from Addis Ababa<sup>(7)</sup>, and 317/1000 births from Jimma/Ethiopia<sup>(8)</sup>. Many theories have been documented to study the pathogenesis of HDP, the most important is the immunologic one. Based on this theory, a raised BP is due to an unnatural implantation and secretion of substances which activates vascular endothelial cells, or damage them, leading to vascular constriction<sup>(9)</sup>.

The present study was done with the aim to find the prevalence of hypertension in pregnant females in this region of India so that management strategies could be planned to reduce the rate of maternal and fetal mortality.

**MATERIAL AND METHODS:**

The present study was conducted on pregnant females (age 15 years to 45 years) attending the Obstetrics and Gynecology Outpatient

department at Adesh medical College and Hospital, Mohri, Shahabad, Ambala. In this hospital based study pregnant females were screened for six months and the females diagnosed with HDP were studied.

A performa was filled and written consent was taken from each subject both in English and in vernacular. A detailed history was taken and the blood pressure readings were taken using mercury sphygmomanometer in sitting position. Female were labeled as the patient of HDP if her BP is  $\geq 140/90$  mmHg on two occasions at least 6 hours apart<sup>(9)</sup>. All pre pregnancy hypertensive females, subjects having history of cardio respiratory disease, Diabetes Mellitus, anemia, blood loss (in any form), addicted to alcohol, smokers and engaged in regular exercises in pre pregnant state were excluded from the study. They were divided into 3 groups according to age: 18-23 years, 24-29 years,  $\geq 30$  yrs. According to no. of pregnancies they were divided in 3 groups: 1, 2,  $>2$ . According to gestational age they were divided in 3 groups: 0-12 weeks, 13-28 weeks,  $>28$  weeks. Prevalence of hypertension in each group was found out. It was also screened that whether systolic hypertension or diastolic hypertension is more common among hypertensive females. Relationship between increase in age with systolic or diastolic hypertension was also found out.

**RESULTS:**

Among 2689 pregnant females, 210 were found to be hypertensive. So, overall prevalence of hypertension was found to be 7.8% as shown in Table 1. Prevalence of hypertension is maximum in age group  $\geq 30$  years as shown in Table 1, 109 females were in the age group of  $\geq 30$  years as compared to 74 in the age group of 24-29 years and 27 in the age group of 18-23 years. Out of 210 hypertensive females, 40% were multigravida females with  $>2$  pregnancies as compared to 34.76% multigravida females with their second pregnancy and 25.23% primigravida females as shown in Table 1. Out of 210, 103 pregnant females with gestational age 13-28 weeks were hypertensive as compared to 73 females with gestational age  $>28$  weeks and 34 females with gestational age 0-12 weeks as shown in Table 1. Table 2 shows that 68.09% females had systolic blood pressure between 140-190 mm of Hg and 31.90% had severe systolic hypertension ( $>190$  mm of Hg) where as 46.66% females had diastolic blood pressure between 90-110 mm of Hg and 53.33% females had severe diastolic hypertension ( $>110$  mm of Hg). So, high diastolic hypertension is more prevalent than high systolic hypertension. It is also seen that systolic and diastolic hypertension increased with increase in age and both systolic and diastolic hypertension was most prevalent in  $\geq 30$  years age group.

### Table shows prevalence of hypertension in pregnant females divided in various groups according to different variables

Variables		No. of Patients	Prevalence (%)
Patients with HDP		210/2689	7.8
Age	18-23	27	12.85
	24-29	74	35.23
	≥30	109	51.90
No. of pregnancies	1	53	25.23
	2	73	34.76
	>2	84	40
Gestational age	0-12 weeks	34	16.19
	13-28	103	49.04
	>28	73	34.76

**Table 2: Systolic and diastolic hypertension in pregnant females**

Systolic blood pressure(mm of Hg)	No. of patients n=210	%	Diastolic blood pressure(mm of Hg)	No. of patients n=210	%
140-190	143	68.09	90-110	98	46.66
>190	67	31.90	>110	112	53.33

**Table 3: Systolic and diastolic hypertension in pregnant females divided in different age groups**

Age group	No. Of patients N=	Systolic blood pressure				Diastolic blood pressure			
		140-190 mm of Hg	%	>190 mm of Hg	%	90-110 mm of Hg	%	>110 mm of Hg	%
18-23	27	18	12.58	9	13.43	25	25.51	2	1.78
24-29	74	56	39.16	18	26.86	35	35.71	39	34.82
≥30	109	69	48.25	40	59.70	38	38.77	71	63.39
Total	210	143	68.09	67	31.90	98	46.66	112	53.33

### DISCUSSION:

The present study was done to find the prevalence of hypertension in pregnant females. Hypertensive pregnant females were grouped in different categories according to various variables and prevalence of hypertension was found in each group. Prevalence of hypertension was found to be 7.8% which was comparable with previous studies which show prevalence to be 7.5% in Brazil and 8.49% in Turkey<sup>(10,11)</sup>. The prevalence of hypertension was found to be highest in ≥30 years of age group. In Singh and Srivastava study<sup>(12)</sup> 64.63% females were in the age group of 18-27 years while others (≈35%) from the age group of 28-36 years<sup>(12)</sup>. In S.Khosravi et al<sup>(3)</sup> study most hypertensive females were in the age group of 21-30 years (55.6%) and 32.3% were aged over 30 years<sup>(3)</sup>. In our study maximum number of hypertensive females were in gestational age 13-28 weeks i.e. out of 210, 103 (49.04%) patients in gestational age 13-28 weeks. Gupta VK et al<sup>(13)</sup> reported that prevalence of hypertension is highest in gestational age ≤ 20 weeks group<sup>(13)</sup>. In our study hypertension is more prevalent in multigravida with more than 2 pregnancies as shown in Table 1, 40% hypertensive females were multigravida with more than 2 pregnancies, 34.76% were multigravida with two pregnancies and 25.23% were primigravida. Khosravi et al<sup>(3)</sup> also reported that prevalence of hypertension is highest in multigravida with more than two pregnancies (36.4%), followed by primigravida (32%) and then multigravida with two pregnancies (27.1%)<sup>(3)</sup>. In our study it was found out that females with severe diastolic hypertension (>110 mm of Hg) were more than females with severe systolic hypertension (>190 mm of Hg). 53.33% females had severe diastolic hypertension as compared to 31.90% females with severe systolic hypertension. This indicates that intensity of disease was severe. S.Khosravi et al<sup>(3)</sup> also had similar results with percentage of females with severe diastolic hypertension being 38.9% and females with severe systolic hypertension 3.7%<sup>(3)</sup>. It was also observed that both systolic and diastolic hypertension increases with increase in age and maximum number of females with systolic or diastolic hypertension were in the age group of ≥30 years age group. Similar results were observed by gupta et al<sup>(13)</sup> and parazzini et al<sup>(14)</sup>.

### CONCLUSION:

Our study concluded that prevalence of hypertension in this region of India was found to be 7.8%. Adverse fetal and maternal outcomes could be reduced by educating people about risk factors of developing hypertension, regular antenatal checkups, early detection in pregnancy and its proper treatment. Management strategies could be planned and awareness camps could be arranged for educating pregnant females to reduce fetal and maternal mortality and morbidity.

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