

**Original article:**

## Prevalence of pregnancy induced hypertension in Churu District

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### ABSTRACT

Hypertension is one of the common problems associated with pregnancy that may be followed by eclampsia, acute renal failure, maternal death, premature delivery, intra-uterine growth restriction and other. This study was conducted to determine the frequency and distribution of different types of hypertensive disorders of pregnancy in patient attending Gynaecology and Obstetrics Department. The study was conducted over a period of one year in Gynaecology and Obstetrics Department, district hospital, Churu. Diagnosed patients as hypertensive disorder of pregnancy were evaluated and data were collected. Total 2105 pregnant women visited the OBG department, out of which 194 patients were diagnosed with hypertension. The overall prevalence of pregnancy induced hypertension was 9.2%. The mean maternal age was 24.7 years during the hospital admission. The percentage of gestational hypertension, Preeclampsia-eclampsia, Preeclampsia superimposed on chronic hypertension and chronic hypertension were 48.97 %, 19.07%, 18.04%, and 13.92 % respectively. Highest incidence of hypertension was occurred in age group of 23-27 years (35.57%) and primigravidae patients (55.67%). Our study concluded that the incidence of hypertensive disorders in pregnancy was high. Early diagnosis and treatment through regular antenatal check-up is a key factor to prevent hypertensive disorders of pregnancy and its complications.

**Keywords:** Hypertension, Churu, pregnancy, prevalence, rural

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### INTRODUCTION

Hypertensive disorders of pregnancy are one of the major causes of maternal morbidity and mortality leading to 10–15% of maternal deaths, especially in developing world [1]. It may complicate about 3–10% of all pregnancies with variable incidence among different hospitals and countries [2]. Pregnancies complicated by hypertension are associated with increased risk of adverse fetal, neonatal and maternal outcomes, including preterm birth, intrauterine growth restriction (IUGR), perinatal death, acute renal or hepatic failure, antepartum haemorrhage, postpartum haemorrhage and maternal death [3].

The American College of Obstetricians and Gynecologists (ACOG) has classified pregnancy induced hypertension (PIH) into four groups of disorders: 1) Gestational hypertension, where resting BP is 140/90 mmHg or higher after the 20th week of gestation; 2) Chronic hypertension, that exists before pregnancy or begins in the first 20 weeks of gestation; 3) Preeclampsia (raised BP and edema or proteinuria)/ Eclampsia (preeclampsia and seizures); and 4) Preeclampsia superimposed on chronic hypertension [4,5,6].

### MATERIALS AND METHODS

The study was conducted over a period of one year in Gynaecology and Obstetrics Department at District Hospital, Churu, Rajasthan. Diagnosed patients as hypertensive disorder of pregnancy were evaluated and data were collected regarding demographic details, presenting complaints, gestational age, obstetrics history, diagnosis, blood pressure monitoring.

### RESULTS

During one year study, 2105 pregnant women visited the Gynaecology and Obstetrics Department, out of which 194 patients were diagnosed with hypertension. The prevalence of Hypertensive Disorders of Pregnancy was 9.2%. The mean maternal age at delivery was 24.7 years. Total distributions of patients with respect to age group shows that highest number of patients

was found in the age group of 23-27 years (35.57 %) and least was above 32 years age group (19.59%). The study population's demographic data are displayed in **Table 1**.

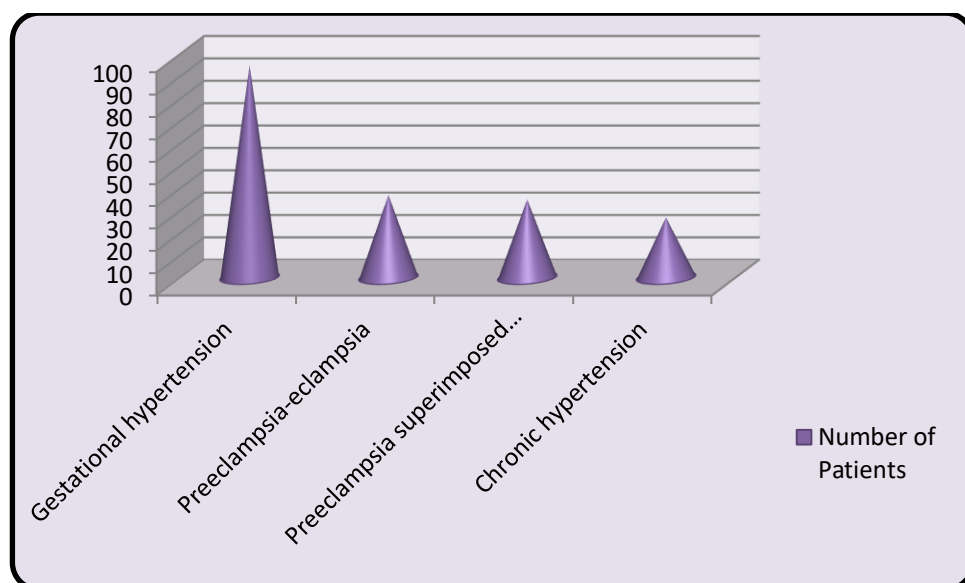
Variables		Number	Percent (%)
Maternal age	18-22	59	30.41
	23-27	69	35.57
	28-32	28	14.43
	≥33	38	19.59
Gravida	Primigravida	108	55.67
	Multigravida	86	44.33
Gestational age	21-24	28	14.43
	25-30	40	20.62
	31-36	54	27.84
	≥36	72	37.11
Type of delivery	NVD	59	30.41
	CS	135	69.59
Birth weight	700-1499	8	4.12
	1500-2499	29	14.95
	2500-3499	152	78.35
	≥3500	5	2.58

In this study, the incidence of hypertension in pregnancy was highest among primigravidae. Out of 194 patients, 108 were primigravida (55.67 %) and 86 were multigravida (44.33%).

In hypertensive mothers, most of newborns were born preterm, 14.43% of newborns (28 cases) were born at a gestational age of 21 - 24 weeks, 20.62% (40 cases) were born at 25 - 30 weeks of gestational age and 27.84% (54 cases) were born at 31 - 36 weeks of gestational age.

The maternal and fetal complications of HTN raise the possibility of perinatal and neonatal mortality and morbidity. Preterm delivery was the most prevalent among such outcomes. Some of these cases were the result of induction or elective termination of pregnancy as the most important measures in controlling and managing hypertensive disorders and reducing the risks to mother and fetus.

Disorders	Number	Percent (%)
Gestational hypertension	95	48.97
Preeclampsia-eclampsia	37	19.07
Preeclampsia superimposed on chronic hypertension	35	18.04
Chronic hypertension	27	13.92



**Figure 1. Types of hypertensive disorders**

Gestational Hypertension was the most common cause of hypertension during pregnancy (48.97%). This was followed by Preeclampsia-eclampsia (19.07 %) population.

**Table 3. Age distribution according to hypertensive disorders of pregnancy**

Age (in years)	Gestational hypertension	Preeclampsia-eclampsia	Preeclampsia superimposed on chronic hypertension	Chronic hypertension
18-22	33	25	1	0
23-27	54	9	4	2
28-32	3	2	12	11
≥33	5	1	18	14

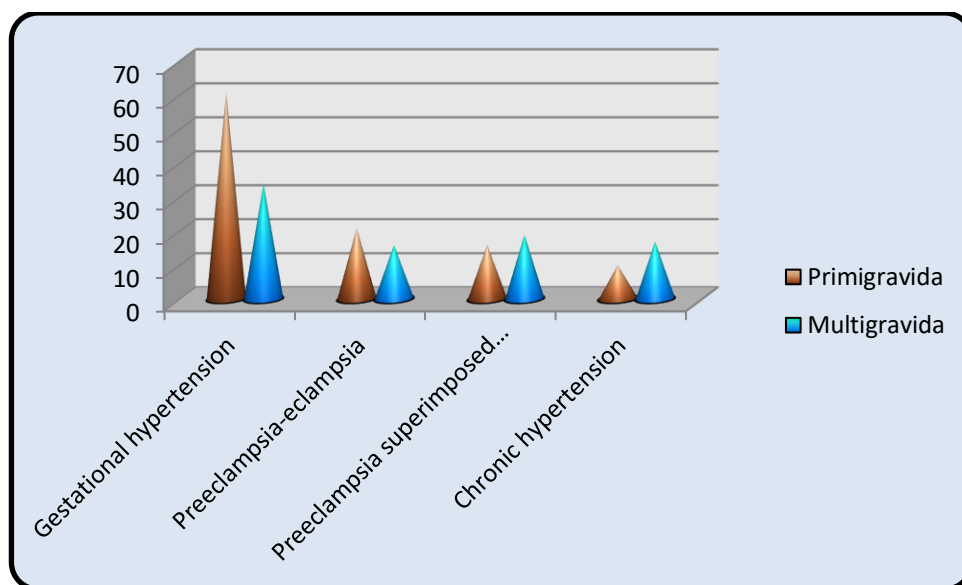
The highest number of patients with Gestational hypertension and Preeclampsia-eclampsia were found in the age group of 23-27 years and 18-22 years respectively.

**Table 4. Gestational age of subjects according to diagnosis**

Gestational Age (weeks)	Gestational hypertension	Preeclampsia-eclampsia	Preeclampsia superimposed on chronic hypertension	Chronic hypertension
21-24	7	2	7	12
25-30	11	7	12	10
31-35	24	17	10	3
>35	53	11	6	2

In this study, the incidence of Gestational hypertension and Preeclampsia-eclampsia was highest among primi-gravidae while the incidence of chronic hypertension in pregnancy was highest among multigravida.

	Gestational hypertension	Preeclampsia-eclampsia	Preeclampsia superimposed on chronic hypertension	Chronic hypertension
Primigravida	61	21	16	10
Multigravida	34	16	19	17



**Figure 2. Gravidity status of subjects**

## DISCUSSION

Hypertensive disorders of pregnancy are considered to be a major worldwide health problem running an increased risk of Perinatal and maternal mortality [7]. In our study the prevalence of hypertension during pregnancy was found to be 9.2%. Sachdeva et al. [8], in Gujarat, reported incidence of pregnancy-induced hypertension (PIH) to be 15% among women of rural background. Hypertensive disorders of pregnancy were reported to be 7.49, 15.5, 5.38, and 8.96%, respectively, in other various hospital-based studies in India [9,10,11,12].

In our study, the distribution of different hypertensive disorders of pregnancy was that, Gestational hypertension of pregnancy was diagnosed in 48.97% cases. 19.07% and 13.92% patients appeared to be preeclampsia/eclampsia and chronic hypertension respectively. Preeclampsia superimposed on chronic hypertension was found in 18.04% patients.

In a population-based study, Roberts et al. (2005) examined hypertensive pregnancy disorders in 250,173 pregnant women and their newborns in Sydney-Australia. On the whole, 24517 (9.8%) of the mothers had PIH disorders; 1411 (0.6%) of these had chronic HTN, 10379 (4.2%) were affected with preeclampsia, 731 (0.3%) had preeclampsia superimposed on chronic HTN, and 10864 (4.3%) had gestational HTN. Mothers affected with hypertensive disorders were more exposed to maternal mortality and morbidities as compared to those who were not affected [13].

Another study conducted in Nigeria on 2393 deliveries found 127 (5.3%) cases affected with PIH disorders. Gestational HTN, preeclampsia superimposed on chronic HTN and preeclampsia/eclampsia were observed in 26.2%, 19.7% and 54.1% cases, respectively [14].

Age has an important influence on the incidence of hypertensive disorders of pregnancy. Young primigravidae and all patients over 30 years have an increased chance of hypertension [15]. In our study highest incidence of the hypertensive disorders occurred among those aged 23 to 27 years. The age distribution of eclampsia patients in our study is similar to other reports and suggests that eclampsia is, probably, a disease of young women [16]. Preeclampsia is more frequent in patients younger than 21 years of age and in older than 35 years [17]. In our study majority of preeclampsia/eclampsia patients were between the ages of 18 to 22 years. The frequency of chronic hypertension appears to be higher in woman aged  $\geq 30$  years [18] and same is indicating in our study also.

The incidence of PIH is distributed unevenly throughout late gestation, increasing with advancing gestation. More than half of PIH cases occur after 35 weeks of gestation. The mean gestational age at presentation was 33.4 weeks which is comparable with other study done by Jun Zhang et al. [19].

In Moodley et al.'s study (1999) in South Africa, the 760 mothers with PIH kept under observation, 46.3% had preterm deliveries [20]. In our study however, 62.89% of the pregnancies ended up in preterm deliveries, 14.43% of which was terminated between 21 - 24 weeks.

Preeclampsia usually occurs in the 32nd week and after. Ninety-four percent (94%) of the cases Saleh et al. (2003) followed had been affected with PIH at the 32nd week and onwards [21]. In Bozhinova et al.'s study (2004) the severe forms of preeclampsia/eclampsia were seen to begin in the 25 - 30 weeks of pregnancy in 60% of cases, whereas the semi-severe forms of the disease began during 31 - 36 weeks in 50% of cases [22].

Preeclampsia is primarily regarded as a disease of first pregnancy. In our study, 55.67% were primigravidas and 44.33 % were multigravidas. In Xu Xiong et al.'s study (2004) the incidence of eclampsia was more in primigravida [23].

Granguly et al. Reported a 34.3% rate of cesarean section among hypertensive mothers [24], concluding that PIH was clearly associated with increased caesarean. Zibaenezhad et al. reported a 45.8% rate of cesarean section among hypertensive mothers [25]. In our study, 69.59% of pregnancies had been terminated by cesarean.

In our study 19.07% of the babies born to hypertensive mothers had birth weights less than 2500 g. Out of this 19.07%, 4.12% weighed less than 1500 g. The study conducted by Moodley in South Africa (1999) found that the mean birth weight was 2.4 kg and 2.8 kg in hypertensive cases with proteinuria and without proteinuria respectively as compare to 3.2 kg in control as per [26].

## CONCLUSION

Pregnancy-induced hypertension is associated with multiple complications in the mother and baby, can sometimes prove fatal to mother and fetus. Therefore, the timely diagnosis of PIH and provision of specialized antenatal maternal care could reduce the impacts of such complications. Early diagnosis and treatment through regular antenatal check-up is a key factor to prevent PIH and its complications.

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