



ORIGINAL RESEARCH PAPER

Medicine

INCIDENCE OF HYPERTENSION IN RURAL POPULATION OF HARYANA REGION

KEY WORDS: Hypertension, pregnancy, Haryana, Age, blood pressure

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ABSTRACT

BACKGROUND: The incidence of hypertensive disorders in pregnancy is increasing and is associated with maternal mortality. Current study was conducted to observe the incidence of hypertension in relation to various parameters in pregnant females of rural population of Haryana region.

MATERIAL & METHODS: In this hospital based study, pregnant females visiting the Obstetrics & Gynaecology department were screened and age of pregnant females, period of gestation, systolic and diastolic hypertension at different gestational ages were evaluated.

RESULTS: Incidence of hypertension was observed to be 14.9%. Preeclampsia accounted for 26.2%, gestational hypertension for 53.5%, chronic hypertension in pregnancy for 15.6%, and eclampsia for 3.6%.

CONCLUSION: There is significant burden of hypertension in rural areas because of low education level and less availability of healthcare services. By reducing the environmental, social and behavioural risk factors we can monitor progress towards health promotion.

INTRODUCTION

Around 15% of pregnant women are expected to develop life-threatening complications during pregnancy, at delivery or postpartum. Hypertensive disorders of pregnancy (HDP) are significant contributors to these complications and sufferings⁹⁻¹¹. Hypertension is the most common medical problem encountered in pregnancy and remains an important cause of maternal and fetal morbidity and mortality. The incidence of hypertensive disorders in pregnancy is increasing and is associated with maternal mortality worldwide⁸. Hypertensive disorders of pregnancy can be classified into 4 categories: gestational hypertension, preeclampsia-eclampsia, chronic hypertension, and preeclampsia superimposed upon underlying hypertension.¹ Gestational hypertension is defined as a systolic BP >140 mmHg or a diastolic BP >90 mmHg, with no proteinuria. In addition, the hypertension must have developed after 20 weeks of gestation. The prognosis is good for both maternal and fetal outcomes.² Preeclampsia is defined as a BP >140/90 mmHg, with proteinuria >0.3 g in a 24-hour urine collection; or as organ dysfunction defined by a platelet count <100,000/mm³, a creatinine level >1.1 mg/dL, transaminitis, congestive heart failure, or neurologic symptoms.² Chronic hypertension is defined as a BP ≥140/90 mmHg, recorded before pregnancy and before 20 weeks of gestation.² The incidence of this disorder is higher in women who are older, obese, or black.³ Chronic hypertension increases morbidity and is associated with superimposed preeclampsia, placenta abruption, prematurity, growth restriction, and congenital heart disease.⁴⁻⁶ Establishing the diagnosis of preeclampsia superimposed on chronic hypertension can be difficult.⁷ This condition should be suspected in women who have a sudden increase in BP and proteinuria, or who develop transaminitis or thrombocytopenia. Increased maternal mortality is associated with eclampsia, hemolysis, elevated liver enzymes, and low platelet count syndrome, hepatic or central nervous system hemorrhage, and vascular insult to the cardiopulmonary or renal system. The prevalence of preeclampsia in developing countries ranges from 1.8% to 16.7%¹². Diagnosis and acute management of severe hypertension is central to reducing maternal mortality.⁸ Current study was conducted to observe the incidence of hypertension in relation to various parameters in pregnant females of rural population of Haryana region.

MATERIAL & METHODS

Study area and study period

Current study was conducted over a period of two years at Adesh Medical College & Hospital, Shahabad, Haryana. Study population included mainly pregnant females attending the Obstetrics &

Gynaecology outpatient department. The study was conducted by Department of Anatomy and Physiology in collaboration with Department of Obstetrics & Gynaecology at Adesh Medical College & Hospital, Shahabad, Haryana.

Study population

In this hospital based study, pregnant females visiting the Obstetrics & Gynaecology outpatient department were screened over period from 1st Jan 2017 to 1st June 2018 for hypertension and females diagnosed with hypertension were studied. For this a proforma was filled and written consent was taken from all the subjects.

Data collection method

The data regarding demographic details, gestational age, obstetrics history, diagnosis, blood pressure monitoring was gathered from medical record files. The following maternal reproductive risk factors were evaluated - age of pregnant females, period of gestation, number of pregnancies, systolic and diastolic hypertension at different gestational ages. Also, previous history of hypertension or any other chronic disorder was taken. Mode of delivery whether it was normal or caesarian section was also taken into consideration. Neonatal, perinatal and Maternal mortality data was also collected. A total of 4320 pregnant women, who gave birth between January 1st 2017 and June 1st 2018 were investigated. This study was approved by the Ethics Committees of medical institutions involved and conformed to the guidelines of the Helsinki agreement and its amendments.

Diagnostic Criteria –

The diagnosis of hypertension during pregnancy was made based on its occurrence in the period between antepartum and postpartum. According to the latest version of classification system by the National High Blood Pressure Education Program (NHBPEP) Working Group, HDP was categorized into: gestational hypertension (GH), preeclampsia, eclampsia, preeclampsia superimposed on chronic hypertension (PSCH) and chronic hypertension in pregnancy (CHP) [4]. GH is defined as a systolic blood pressure (SBP) of 140 mmHg and/or diastolic blood pressure (DBP) of 90 mmHg without proteinuria, which developed after 20 weeks of gestation and returned to normal within 12 weeks of postpartum. Preeclampsia is defined by the minimum criteria of blood pressure 140/ 90 mmHg after 20 weeks of gestation and proteinuria of 300 mg in a 24-hour urine specimen or 1+ in two random urine samples collected at least 4 hours apart. Preeclampsia superimposed on chronic hypertension is diagnosed if there are more severe elevations of blood pressure or evidence of

other end-organ dysfunction.

RESULTS

A large proportion of the population was found to be hypertensive in our region of study. A total of 4320 pregnant women were investigated over period of 2 year out of which 645 pregnant females were hypertensive, accounting for 14.9% of all pregnancies. Out of various subtypes of hypertensive pregnancies, preeclampsia accounted for 26.2%, gestational hypertension for 53.5%, chronic hypertension in pregnancy for 15.6%, and eclampsia for 3.6%. There was also a linear increase with increasing age among pregnant females. Incidence of hypertension was found more prevalent among females > 30 yrs age. 50.4% of females having age more than 30 years were found to be positive for either gestational or chronic hypertension and some either has preeclampsia superimposed on chronic hypertension. Least incidence of hypertension was found among females less than 23 years of age (Table 1, Fig. 1).

Table 1 – Showing correlation between age of pregnant females and subtypes of Hypertension

Age (in years)	Chronic hypertension	Gestational hypertension	Preeclampsia	Eclampsia
i (18 - 23 yrs)	4	96	37	2
ii (24-29 yrs)	19	116	39	7
iii (>30 yrs)	78	140	93	14

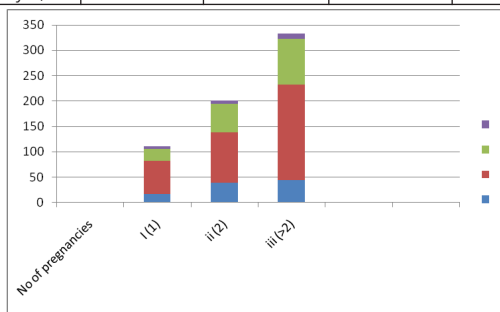


Fig. 1 – Effect of number of pregnancies on hypertension in pregnant females

59.8% of females were observed to have systolic BP ranging from 140 – 190 mmHg. Systolic blood pressure (SBP) of the surveyed population showed a continuous increase with age (Fig. 2).

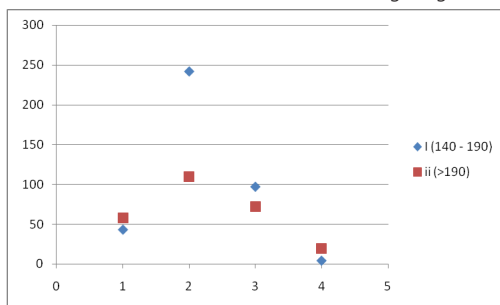


Fig. 2 Relationship between systolic blood pressure and hypertension in pregnant females

We also observed prevalence of hypertension at various gestational ages. Maximum incidence of hypertension was found in advanced gestation age i.e 13 – 28 weeks of gestation (Table 2).

Table 2 – Correlation between gestational age of pregnant females and different types of hypertension

Gestational age (in weeks)	Chronic hypertension	Gestational hypertension	Preeclampsia	Eclampsia
i (< 12)	59	27	12	8

ii (13 – 28)	23	193	97	15
iii (>28)	19	132	60	

At gestational age less than 12 weeks, only 16.4% of pregnant females were found to be hypertensive. Multipara females having more than 2 babies were found to be more prone to hypertension as 51.6% of multipara females were found to be hypertensive. Chances of eclampsia was found to be more in multipara pregnant females more than 30 years of age.

DISCUSSION

Hypertension along with Diabetes is one of the commonest risk factors for Heart disease, stroke, and other chronic non communicable diseases (NCDs) which contribute to 35 of the 58 million deaths (60.3%) in the world annually (13). Further, eighty per cent of these deaths occur in low and middle income countries. India is experiencing a rapid health transition. In India, NCDs are responsible for 53 per cent of deaths and 44 per cent of disability adjusted life years lost. NCDs have common risk factors such as tobacco use, unhealthy diet, physical inactivity and excess adiposity.

Policies and programs focusing on reducing the burden of these common risk factors are likely to make a substantial impact on mitigating the mortality and morbidity due to NCDs(14).

The present study showed that the prevalence of hypertension was significantly higher among pregnant females more than 30 years as compared to those less than 30 years. Hypertension increase with the increase of age is a well-known fact now. Vasan et al. and Rashmi et al in their study conducted among 1298 subjects found significant association of hypertension with age [15, 16].

Integrated disease surveillance project (IDSP) reported that among the rural households, hypertension varied from 16% in Tamil Nadu to 22% in Maharashtra. In the current study, authors observed 14.9% incidence of hypertension in rural area of Haryana state.

It can be concluded that there is significant burden of hypertension in rural areas because of low education level and less availability of healthcare services. Wang et al. also found that incidence of hypertension was inversely associated with the level of school education independent of all other risk factors [17]. This can be attributed to the fact that education makes the people aware of the disease and what precautions can be undertaken by the healthy individual. Education level of people should be raised to reduce the prevalence of hypertension. By reducing the environmental, social and behavioural risk factors that affect lifestyle choices, we can establish a set of indicators to benchmark and monitor progress towards health promotion.

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