



## Demographic and Clinical Profile of Hypertensive Pregnant Women

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### Abstract

**Background:** Preeclampsia, which complicates 2 to 4% of pregnancies globally, is progressive, unpredictable, and serious. It is a relatively common pregnancy disorder that originates in the placenta and causes variable maternal and fetal problems. In the worst cases, it may threaten the survival of both mother and baby. There are several risk factors of preeclampsia and the severity of mortality or morbidity can be minimized by identifying the risk factors. So, this study aimed to assess the risk factors of preeclampsia. **Material & Methods:** It is a cross-sectional study carried out in the Department of Obs & Gynae in DMCH from July 2017 to December 2018. The study included 50 cases. The selection criteria were 28 to 42 weeks of pregnancy with hypertension with proteinuria. Data was collected by history taking, clinical examination, and relevant biochemical tests. A purposive sampling technique was used in this study. Data was collected by a pre-designed questionnaire. Quantitative data were expressed as mean. Data were processed and analyzed by SPSS version 22.0. Informed written consent was taken from all participants. Ethical clearance was obtained by the ethical committee of DMCH. **Results:** In this study, most of the patients (16, 32%) were in the 16-20 years age group, followed by (13, 26%) 21-25 years age group and the mean age was (SD±) 24.5±6.3 years. Most of the patients (35, 70%) were primigravida, and the rest (15, 30%) were multigravida. In the present study, most of the patient's (20, 40%) gestational age at delivery was 33-38 weeks, followed by (18, 36%) 38-40 weeks. 64% of patients did not have a positive family history. Out of 50 patients, only a few (4, 8%) underwent regular antenatal care, and 72% had no antenatal care. Regarding systolic blood pressure, the range was 140.0-200.0 mmHg and mean±SD 159.0-9.08, and diastolic blood pressure was 90.0-120.0 mmHg and mean±SD 103.80-7.39. **Conclusion:** This study concluded that, most of the hypertensive pregnant women belonged to 16-20 years of age and most of them were primigravida. A greater part of the patients presented with hypertension at 33-38 weeks of pregnancy and only a few of them had a positive family history of hypertension. Considering antenatal care, they were unaware of it showing that, the most of the patient did not get proper antenatal care.

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## INTRODUCTION

The hypertensive syndromes that occur during pregnancy, especially preeclampsia (PE), result

in risk and significant impact on indicators related to maternal and child health. These syndromes are causal factors related to

maternal and perinatal death, and they cause definitive limitations to maternal health and serious problems.<sup>[1]</sup> It is associated with approximately 46,000 maternal deaths and approximately 500,000 fetal and newborn deaths annually. The disease burden is borne disproportionately by women in low- and middle-income countries or who are otherwise disadvantaged.<sup>[2]</sup> Preeclampsia is characterized by placental hypoxia and/or ischemia, and excessive oxidative stress, in association with endothelial dysfunction. The release of soluble factors from the ischemic placenta into maternal plasma plays a central role in the ensuing endothelial dysfunction which is the most prominent feature of this disease.<sup>[3]</sup> Risk factors for preeclampsia include nulliparity, multifetal gestations, previous history of preeclampsia, obesity, diabetes mellitus, vascular and connective tissue disorders like systemic lupus erythematosus and antiphospholipid antibodies, age >35 years at first pregnancy, smoking, and African American race.<sup>[4]</sup> Not all women with reduced placental perfusion develop preeclampsia. Pregnancies complicated by intrauterine growth restriction, and the failure of infants to exercise their full growth potential, also have a similar reduction of placental perfusion.<sup>[5]</sup> Preeclampsia complicates 2%–8% of pregnancies and occurs most commonly during the second half of pregnancy.<sup>[6]</sup> High-risk women include those with preexisting hypertension, chronic kidney disease, insulin-dependent diabetics, and women with previous early-onset preeclampsia. Administration of low-dose aspirin to women at moderate-to-high risk is beneficial and reduces the incidence of preeclampsia by approximately 15%.<sup>[7]</sup> There are additional clinical factors that significantly

increase preeclampsia risk, including raised mean arterial blood pressure before 15 weeks gestation,<sup>[8]</sup> and polycystic ovarian syndrome.<sup>[9,10,11]</sup> Considering the time of presentation, preeclampsia may present at any gestation but is more commonly encountered in the third trimester.<sup>[12]</sup> The only definitive treatment for preeclampsia is delivery. Optimal timing of delivery requires a careful balance of maternal and fetal risks, including the gestation of the fetus. Overall, indications for planned early delivery are usually maternal, however fetal complications such as abnormalities in fetal ultrasound or CTG monitoring may also result in the decision for early birth.<sup>[13]</sup> Adverse outcomes in the offspring, including perinatal mortality, are strongly linked to the gestational age at delivery. In general, from a fetal perspective, at early gestations, continuation of the pregnancy is desirable to improve prognosis, unless there is severe placental dysfunction.<sup>[14]</sup> The presence of one high-risk factor, or two or more moderate risk factors, is used to help guide treatment plans (such as aspirin prophylaxis), which is effective in reducing the risk of preeclampsia if administered before 16 weeks of pregnancy.<sup>[15]</sup> So, this study aimed to assess the risk factors of preeclampsia to reduce maternal and fetal morbidity and mortality.

## Objective

### General Objective

- To determine the risk factors of preeclampsia.

### Specific Objectives

- To see the age distribution of the subjects.
- To know the gravidity and gestational age of the respondents.



- To know about the family history of the study subjects.
- To see the blood pressure status of the subjects.

## MATERIAL AND METHODS

It is a cross-sectional study carried out in the Department of Obs & Gynae in DMCH from July 2017 to December 2018. The study included 50 cases. The selection criteria were 28 to 42 weeks of pregnancy with hypertension with proteinuria who were admitted in the hospital. Data was collected by history taking, and clinical examination. A purposive sampling technique was used in this study. Data was collected through a pre-designed questionnaire. Quantitative data were expressed as mean. Data were processed and analyzed by SPSS version 22.0. Informed written consent was taken from all participants. Ethical clearance was obtained from the ethical committee of DMCH.

### Inclusion Criteria

- Patients with 28 to 42 weeks of singleton gestation.

- Patients with hypertension with proteinuria.
- Patients who had given consent to participate in the study.

### Exclusion Criteria

- Patients who have any association with medical disorders like- essential hypertension, chronic renal disease, cardiovascular diseases, hepatic dysfunction, diabetes mellitus, epilepsy, and autoimmune disorders.
- Patients who did not give consent to participate in the study.

## RESULTS

In this study, most of the patients (16, 32%) were in the 16-20 years age group, followed by (13, 26%) 21-25 years age group and the mean age was (SD±) 24.5±6.3 years. [Table 1]

In this current study, most of the patients (35,70%) were primigravida, and the rest (15, 30%) were multigravida. [Table 2]

**Table 1:** Age distribution of the study population (N=50).

Age (years)	N	%	Mean±SD (years)
16-20	16	32	24.5±6.3
21-25	13	26	
26-30	9	18	
31-35	10	20	
>35	2	4	

**Table 2:** Gravidity of the respondents (N=50).

Gravity	N	%
Primigravida	35	70
multigravida	15	30

**Table 3:** Gestational age at delivery of the respondents (N=50).

Gestational age at delivery (weeks)	N	%	Mean±SD (weeks)
28-32	12	24	34.57±3.19
33-38	20	40	
38-40	18	36	

In the present study, most of the patient's (20, 40%) gestational age at delivery was 33-38 weeks, followed by (18, 36%) 38-40 weeks. [Table 3]

**Table 4:** Family history of hypertension (N=50)

Hypertension	N	%
Present	18	36
Absent	32	64

64% of patients did not have a positive family history. [Table 4]

**Table 5:** Status of antenatal care of the study subjects (N=50)

Antenatal care	N	%
Regular	04	8
Irregular	10	20
None	36	72

Out of 50 patients, only a few (4, 8%) underwent regular antenatal care, and 72% had no antenatal care. [Table 5]

**Table 6:** Status of blood pressure among the study subjects (N=50)

Blood pressure (mmHg)	Range	Mean±SD
Systolic	140.0-200.0	159.0-9.08
Diastolic	90.0-120.0	103.80-7.39

Regarding systolic blood pressure, the range was 140.0-200.0 mmHg and mean±SD 159.0-9.08, and diastolic blood pressure was 90.0-120.0 mmHg and mean±SD 103.80-7.39 [Table 6]

## DISCUSSION

In Bangladesh, a large number of obstetric deaths occur every year due to preeclampsia, but the exact risk factors are not well investigated. Several risk factors for preeclampsia may be determined early in a woman's pregnancy. Multiparas and nulliparas

share certain risk factors but not others.<sup>[16]</sup> Here in this study, we discussed some risk factors that we encountered. In this study, most of the patients (16, 32%) were in the 16-20 years age group, followed by (13, 26%) 21-25 years age group and the mean age was (SD±) 24.5±6.3 years. Advanced maternal age was not a risk factor in our study which was consistent with another study done by, Paré E et al,<sup>[17]</sup> However, another study by Hamzah SR et al. showed that the age of primigravida mothers 14-28 years had a risk of 1.581 times more significant for

having preeclampsia than the age group 29–49 years.<sup>[18]</sup> In this current study, most of the patients (35,70%) were primigravida, and the rest (15, 30%) were multigravida. Dutta et al, have found in their study that, the incidence of preeclampsia in primigravida is about 10 percent and in multigravidas' 5 percent.<sup>[19]</sup> In the present study, most of the patient's (20, 40%) gestational age at delivery was 33-38 weeks, followed by (18, 36%) 38-40 weeks. Contrary to our study Das et al showed that most preeclamptic patients presented at above 41 weeks of gestational age.<sup>[20]</sup> Though in another study, the gestational age at delivery was  $36.8 \pm 2.2$  weeks.<sup>[21]</sup> 64% of patients did not have positive family history in the present study, resembling a similar result where they stated that, no differences in the prevalence of familial cardiovascular disease or hypertension and/or hypercholesterolemia were found between women with a history of severe preeclampsia.<sup>[22]</sup> Several epidemiological studies indicate that a parental history of chronic hypertension is an independent risk factor for preeclampsia.<sup>[23,24]</sup> Prenatal care is associated with better pregnancy outcomes and may be a patient safety issue. In this study, out of 50 patients, only a few (4, 8%) underwent regular antenatal care, and 72% had no antenatal care. Much of the evidence indicating an association between insufficient prenatal care and poor pregnancy outcome, such as low birth weight, stems from studies that use indices of prenatal care utilization. As noted by Kogan et al, increased and early utilization of prenatal care is a benchmark of several national programs and health policies.<sup>[25,26]</sup> Regarding systolic blood pressure, the range was 140.0-200.0 mmHg and mean $\pm$ SD 159.0-9.08, and diastolic blood pressure was 90.0-120.0 mmHg

and mean $\pm$ SD 103.80-7.39. In a study by Mou AD et al, the mean of systolic (SBP), and diastolic (DBP), were  $122.2 \pm 19.9$  mmHg,  $79.8 \pm 13.6$  mmHg.<sup>[27]</sup> Moreover, in women with chronic hypertension, the presence of proteinuria early in pregnancy is associated with adverse neonatal outcomes independently of the development of preeclampsia.<sup>[28]</sup>

### Limitations of the Study

The study was conducted in a single hospital with a small sample size. So, the results may not represent the whole community.

### CONCLUSIONS

This study concluded that, most of the hypertensive pregnant women belonged to 16-20 years of age and most of them were primigravida. A greater part of the patients presented with hypertension at 33-38 weeks of pregnancy and only a few of them had a positive family history of hypertension. Considering antenatal care, they were unaware of it showing that, the most of the patient did not get proper antenatal care.

### Recommendation

Preeclampsia is a major cause of maternal morbidity and is associated with adverse fetal outcomes including intra-uterine growth restriction, preterm birth, placental abruption, fetal distress, and fetal death in utero. So, early identification of preeclampsia (and if possible, prevention) is a core tenet of adequate management. For women at high risk, home blood pressure self-monitoring to improve the detection of hypertension in pregnancy may be warranted. Moreover, further studies should be

conducted involving a large sample size and multiple centers in this regard.

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