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Research Article

Magnitude of Pregnancy Induced Hypertension and Birth outcomes among Women Attending Delivery Service in Butajira General Hospital, Ethiopia

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ABSTRACT

Objective

Pregnancy induced Hypertension is one of the common medical complications of pregnancy that occurs after 20 weeks of pregnancy. It contributes significantly to maternal and perinatal morbidity and mortality. This study was aimed to assess the prevalence of pregnancy induced hypertension and birth outcomes among women attending delivery service in Butajira General Hospital, Ethiopia. Descriptive cross-sectional study design was conducted from March 1 to May 30, 2019 among 342 pregnant women. Data were collected by five trained data collectors through face to face interview and reviewing of medical records. Moreover, blood pressure of the women and the weight of new born were measured using appropriate instruments. Descriptive statistics was done and presented by Tables.

Result

The prevalence of pregnancy induced hypertension among pregnant women was 8.8% (30/342). (30/342) with 16.7% (5/30) for gestational hypertension, 40% (12/30) for preeclampsia and 43.3% (13/30) for developing eclampsia. Low birth weight, very low birth weight, preterm birth, asphyxia and perinatal death were the adverse outcomes.

Keywords: Pregnancy induced hypertension, Birth outcomes, Ethiopia

INTRODUCTION

Hypertension in women of reproductive age is a challenging medical problem with increasing burden (1). Pregnancy induced hypertension is one of the common medical complications of pregnancy that occurs after 20 weeks of gestation in previously normotensive mothers and contributes significantly to maternal and perinatal morbidity and mortality. It mainly includes gestational hypertension, preeclampsia, and eclampsia (2-3).

Gestational hypertension is defined as blood pressure (BP) ≥ 140/90 mm Hg for the first time in pregnancy after 20 weeks, without proteinuria. Preeclampsia is the new onset of hypertension and proteinuria after 20 weeks of gestation in a previously normotensive woman. Eclampsia is a serious obstetric emergency with new onset of grand mal seizure during pregnancy or postpartum in a woman having signs or symptoms of preeclampsia (4-7).

Hypertensive disorders of pregnancy constitute one of the leading causes of maternal and perinatal mortality worldwide (8). It has been estimated that preeclampsia complicates 2–8% of pregnancies globally (9). According to the 2011 Survey on Hypertensive Disorders of Pregnancy in China, the overall prevalence was 5.22% (10). In Western Saudi Arabia, the prevalence was 2.4% (11). The prevalence of preeclampsia in developing countries ranges from 1.8% to 16.7% (12). As evidenced by studies conducted in different areas of Ethiopia, the prevalence of pregnancy induced hypertensive disorder was ranged from 2.3% - 16.8% (13-16).

Still birth, preterm birth, low birth weight, Intra Uterine growth retardation, neonatal death, asphyxia, and admission to neonatal intensive care unit were the main adverse birth outcomes pregnancy induced hypertension (17-20).

Overall, hypertensive disorders of pregnancy may induce long term metabolic and endothelial dysfunction/abnormalities that

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could lead to future cardiovascular diseases in women life (1, 21). Thus, early recognition of this problem is important to prevent deleterious outcomes.

Even though there were studies in different areas of Ethiopia, the prevalence of pregnancy induced hypertension and its associated factors; studies on the birth outcomes of mothers with pregnancy induced hypertension are limited. Therefore, the objective of this study was to assess the prevalence of pregnancy induced hypertension, and birth outcomes among mothers attending delivery service in Butajira General Hospital, Ethiopia.

METHOD AND MATERIAL

Hospital based descriptive cross- sectional study was conducted in Butajira General Hospital, Butajira town from March 1 to May 30, 2019.The hospital is found in Butajira town, which is located at about 135km away from Addis Ababa, capital city of Ethiopia and about 164 km away from Hawasa, capital city of southern Ethiopia.

All women admitted for delivery service in Butajira General Hospital during the study period were considered as the source population and the study population included the randomly selected women who met the inclusion criteria. Women with known history of chronic hypertension, difficulty of communicating and those who were seriously sick due to other medical problems were excluded from the current study.

The sample size was calculated using a single population proportion formula by considering the prevalence of pregnancy induced hypertension as 7.9% (14), 3% margin of error with 95% confidence interval and 10% non-response rate. Hence, a total of 342 pregnant women were recruited in the study.

In this study, pregnancy induced hypertension was defined as pregnant women attending delivery service with blood pressure ≥140/90mmHg at least two occasions, four or more hours apart after 20 weeks of gestation and with or without proteinuria (2, 3, 7, 21). Preeclampsia was characterized as a blood pressure ≥140/ 90 mmHg with proteinuria ≥ 300 mg/24hours in at least 2 urine specimens collected 6 hours or more apart. Eclampsia was defined as a blood pressure ≥140/ 90 mmHg, proteinuria and seizures (14, 21, and 22). Based on the newborn birth weight, low birth weight and very low birth weight were defined as birth weight of less than 2.5kg and 1.5kg respectively (21). Preterm delivery is any birth before 37 completed weeks of gestation (16).

Data were collected by using pre-tested checklist adopted from different literatures (10, 13, and 14). The checklist was containing socio-demographic characteristics, Obstetrics history, and medical history. The data were collected through face to face interview for some socio demographic variables and review of maternal medical records. Then, blood pressure readings were taken while the woman was seated in the upright position using a mercury sphygmomanometer apparatus. Two acceptable BP measurements were done with six hours apart by trained midwives. The diagnosis of PIH was confirmed by physicians working in the delivery ward. Moreover, the weight of new born was measured soon after birth using a standard beam balance by trained personnel.

To ensure the quality of data, two days training was given for five data collectors and one supervisor. The collected data were checked daily for completeness by principal investigator and supervisors. Pre-test was done on 5% of the sample that were not included in the main study.

Data were checked for completeness, coded and entered into EPI info version3.5.1and exported to Statistical Package for Social Sciences (SPSS) software version 25.0 for analysis. Descriptive analysis was carried out and presented by Tables.

RESULTS

Socio-demographic characteristics of the study participants

A total of 342 women were participated in this study with a response rate of 100%. Among the total participants, 235 (68.7%) were in the age range of 18-35years, 205(59.9%) were Gurage by ethnicity and 317(92.7%) were married (Table1).

Table 1: Socio-demographic characteristics of mothers attending delivery service in Butajira General Hospital from March 1 to May 30, 2019 (n = 342).

Variables	Frequency	Percentage (%)
Age (years)		
<18	14	4.1
18-35	235	68.7
> 35	93	27.2
Residence		
Urban	174	50.9
Rural	168	49.1
Ethnicity		
Gurage	205	59.9
Oromo	82	24.0
Amhara	27	7.9
Silte	28	8.2
Religion		
Orthodox	98	28.7
Muslim	148	43.3
Catholic	18	5.2
Protestant	75	21.9
Others	3	0.9
Marital status		
Married	317	92.7
Single	11	3.2
Divorced	14	4.1

Educational status		
Illiterate	100	29.3
Primary	74	21.6
Secondary school	132	38.6
Certificate and above	36	10.5
Occupational status		
Housewife	159	46.5
Employed	33	9.6
Self-employee	150	43.9
Monthly income (ETB/month)		
< 1000	135	39.5
≥1000	207	60.5

Note: ETB; Ethiopian Birr

Regarding to obstetrics history; majority (62%) of the mothers were multipara, 309(90.3%) were term pregnancy and 287(83.9%) had antenatal care (ANC) follow up (Table 2).

Table 2: Obstetrics history of mothers admitted in Butajira General Hospital for delivery services from March 1 to May 30, 2019 (n = 342).

Variables	Frequency	Percentage
Gravidity		
Primiparous	130	38
Multiparous	212	62
Parity		
0	130	38
1- 4	178	52
≥ 5	34	10
Antenatal care (ANC)		
No visit	63	18.4
< 4 visit	159	46.5
≥ 4 visit	120	35.1
Number of fetus		
Single	303	88.6
Multiple	39	11.4
Gestational age		
Preterm (< 37weeks)	27	7.9
Term (37- 42weeks)	309	90.3
Post term (> 42weeks)	6	1.8
Sex of fetus		
Male	177	51.8
Female	165	48.2

Regarding to medical history; About 43(12.6%) respondents had history of pregnancy induced hypertension, 38(11.1%) respondents had family history of hypertension and 30(8.8%) respondents had history of kidney diseases (Table 3).

Table 3: Medical history of mothers admitted in Butajira General Hospital for delivery services from March 1 to May 30, 2019.

Variables	Frequency	Percentage
Family history of hypertension		
Yes	38	11.1
No	304	88.9
Self-history of pregnancy induced hypertension		
Yes	43	12.6
No	299	87.4
Family history of diabetes mellitus		
Yes	15	5.0
No	325	95.0
Participants history of diabetes mellitus		
Yes	11	3.2
No	331	96.8
History of kidney diseases		
Yes	30	8.8
No	312	91.2

From a total of 342 mothers attending delivery service in Butajira General Hospital, 30(8.8%) mothers were developed pregnancy induced hypertension. Of those with pregnancy induced hypertension, 5(16.7%), 12(40%) and 13(43.3%) mothers were developed gestational hypertension, preeclampsia and eclampsia, respectively. Majority [60% (18/30)] of the mothers with pregnancy induced hypertension had a blood pressure of 140/90 − 159/109mmHg and the remaining [40% (12/30] had a blood pressure of ≥ 160/110mmHg. The mean systolic blood pressure of the mothers with PIH was 126.64 ± 13.54 mmHg with the range of 120 mm Hg to 210 mm Hg and the mean diastolic blood pressure was 75.78 ± 17.3mmHg with the range of 85 mm Hg to160 mm Hg. Majority [70% (21/30] of the mothers had ≥ +2 proteinuria and the remaining [30% (9/30)] had less than +2 proteinuria.

Birth outcomes of mothers with pregnancy induced hypertension

From a total of 30 hypertensive mothers, 35 babies were delivered. Of the delivered babies, 7(20%) and 3(8.57%) of them were belonged to low birth weight and very low birth weight, respectively. Moreover, preterm birth was seen in 14.29% (5/35) of births and perinatal death occurred in 5.71% of deliveries (Table 4).

Table 4: Outcomes of new borns delivered from mothers with pregnancy induced hypertension (n = 35).

Birth outcomes	Frequency	Percent
Low birth weight		
Yes	7	20
No	28	80
Very low birth weight		
Yes	3	8.57
No	32	91.43
Preterm birth		
Yes	5	14.29
No	30	85.71
Moderate asphyxia		
Yes	6	17.1
No	29	82.9
Sever asphyxia		
Yes	2	5.71
No	33	94.29
Admission to NICU		
Yes	4	11.43
No	31	88.57
Perinatal death		
Yes	2	5.71
No	33	94.29

Note: NICU = Neonatal Intensive Care Unit

DISCUSSION

In the present study, the prevalence of pregnancy induced hypertension was 8.8%.This finding was comparable with a study conducted in Jimma University specialized hospital, which was 8.5% (15). However, the result of this study is higher than the 2.3% and 7.9% prevalence reported in other study conducted in Wolaita Sodo Referral Hospital (16) and south west Ethiopia (14) respectively and lower than the study conducted in Gondar town health institutions, which was 16.8% (13),Pakistan (9.3%), India (10.3%), Mozambique (10.9%), and Nigeria (10.2%) (24).These discrepancy from our findings could be due to differences in study populations, sample size and methodology.

In our study, 7(20%) of babies from hypertensive mothers were low birth weight, and 3(8.57%) were very low birth weight. This result is lower than other studies conducted in south west Ethiopia (24.2%), Ghana (24.7%) and India (53%) (17-19). this may be due to the differences in quality of antenatal care and sample size. Prevention of anemia and malnutrition also play significant role in reducing low birth weight.

In this study, the percentage of preterm birth among women with PIH was 14.29%, which was lower than studies conducted in south west Ethiopia (51.7%) and Ghana (21.7%) (18 - 19). This might be due to differences in severity of PIH. We also found that 17.1% and 5.71% of newborns were developed moderate asphyxia and sever asphyxia, respectively. These findings are higher than studies in south west Ethiopia (1.4%), Ghana (3.8%), and India (8.7%) (17-19). These variations may be due to differences in duration of labor and mode of delivery. Furthermore, perinatal death was recorded in 5.71% of the newborns in our study. A higher percentage of perinatal death was reported in other studies conducted in south west Ethiopia (9.1%), Ghana (10.6%), and India (15.2%) (17-19). this may be due to differences on the qualities of intra-natal and immediate new born care.

CONCLUSION

The prevalence of pregnancy induced hypertension was 8.8%. Low birth weight, very low birth weight, preterm birth, asphyxia and perinatal death were the adverse outcomes. Hence, health professionals should give due emphasis for early recognition and management of women with pregnancy induced hypertension.

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