ADDIS ABABA UNIVERSITY SCHOOL OF GRADUATE STUDIES

FACULTY OF MEDICINE

DEPARTEMENT OF EMERGENCY MEDICINE

RESEARCH PROJECT REPORT ON:

MATERNAL AND PERINATAL OUTCOMES OF PREGENANCIES COMPLECATED BY PREECLAMPSIA/ECLAMPSIA AT ZEWDITU MEMORIAL HOSPITAL

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Maternal and Perinatal outcomes of Pregnancies complicated by preeclampsia and eclampsia at Zewditu Memorial Hospital

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ABSTRACT

Background: Preeclampsia refers to a syndrome characterized by the new onset of hypertension and proteinuria after 20 weeks of gestation in previously normotensive women. Eclampsia refers to the development of grandmal seizures orcoma in a woman with gestational hypertension or preeclampsia.

OBJECTIVE: The objective of this study wasto determine maternal and perinatal out comes of pregnancies complicated by preeclampsia and eclampsia in women delivering in Zewditu memorial hospital

METHODS: A one years retrospective hospital based patient chart review study was conducted from January 2013 to December 2014 at Zewditu Memorial Hospital

RESULTS: During the study period January 2013 to December 2014 where a total of 3,488 deliveries attended at Zewuditu Memorial Hospital among the total deliveries 250 had their pregnancy complicated by PIH. Two hundred fifty women among the total deliveries (7.2%) had their pregnancy of gestational HPT 41(16.4%) mild pre eclampsia 80(32%) sever preeclampsia 17 (6.8%) eclampsia of all deliveries.

Prenatal outcome for the various type of PIH were 29 prenatal deaths among all deliveries of hypertensive patient 19 (24.1%) was IUFD and 10 (12.7%) still birth which yielded prenatal mortality rate of 207/1000 births

CONCLUSIONS: In low and middle-income settings, pre-eclampsia/eclampsia issignificantly associated with maternal death, prenatal death, preterm birth and low birth weight, so early recognition and management of mothers with PIHis an important instrument to reduce the case.

KEYWARDS: Complication, Eclampsia, maternal, outcome, preeclampsia, prenatal, pregnant mother

TABLE OF CONTENTS

Contents Page

List of Tables

ABBREVIATIONS

ANC: Antenatal Care

EOC: Emergency Obstetric Care

HDP: Hypertensive Disorders of Pregnancy

MOH&P: Ministry of Health and Population

MMR: MaternalMortality Ratio

PHC: Primary Health Care

PIH: Pregnancy Induced Hypertension

WHO: World Health Organization

LBW: Low Birth Weight

IUGR: Intrauterine growth retardation

IUFD: Intrauterine fetal death

DIC: Disseminated Intravascular Coagulation

ISSHP: International Society for the Study of Hypertension in Pregnancy

1. INTRODUCTION

1.1 Background

Maternal mortality is unacceptably high. About 800 women die from pregnancy- or childbirth-related complications around the world every day. In 2013, 289 000 women died during and following pregnancy and childbirth. Almost all of these deaths occurred in low-resource settings, and most could have been prevented.(1)and also maternal mortality ratio in developing countries in 2013 is 230 per 100 000 live births versus 16 per 100 000 live births in developed countries. There are large disparities between countries, with few countries having extremely high maternal mortality ratios around 1000 per 100 000 live births. There are also large disparities within countries, between women with high and low income and between women living in rural and urban areas (2)

Pre-eclampsia/eclampsia is one of the most common causes of maternal and perinatal morbidity andMortality in low and middle income countries. Magnesium sulfate is the drug of choice for prevention of seizuresas part of comprehensive management of the disease.(3)

Preeclampsia refers to a syndromecharacterized by the new onset of hypertension and proteinuria after 20 weeks of gestation in previously normotensive women. Eclampsia refers to the name development of grandma seizuresin a woman with gestational hypertension or preeclampsia(4)
Improving maternal health is 1 of the 8 Millennium Development Goals (MDGs) adopted by the international community in 2000. Under MDG5, countries committed to reducing maternal mortality by three quarters between 1990 and 2015. Since 1990, maternal deaths worldwide have dropped by 45%.

In sub-Saharan Africa, a number of countries have halved their levels of maternal mortality since 1990. In other regions, including Asia and North Africa, even greater headway has been made. However, between 1990 and 2013, the global maternal mortality ratio (i.e. the number

of maternal deaths per 100 000 live births) declined by only 2.6% per year. This is far from the annual decline of 5.5% required to achieve MDGs (3)

The high number of maternal deaths in some areas of the world reflects inequities in access to health services, and highlights the gap between rich and poor. Almost all maternal deaths (99%) occur in developing countries. More than half of these deaths occur in sub-Saharan Africa and almost one third occur in South Asia.

The risk of maternal mortality is highest for adolescent girls under 15 years old and complications in pregnancy and childbirth are the leading cause of death among adolescent girls in developing countries.(5)

Women in developing countries have on average many more pregnancies than women in developed countries, and their lifetime risk of death due to pregnancy is higher. A woman's lifetime risk of maternal death – the probability that a 15 year old woman will eventually die from a maternal cause – is 1 in 3700 in developed countries, versus 1 in 160 in developing countries.

Women die as a result of complications during and following pregnancy and childbirth. Most of these complications develop during pregnancy. Other complications may exist before pregnancy but are worsened during pregnancy. The major complications that account for nearly 75% of all maternal deaths are severe bleeding (mostly bleeding after childbirth) infections (usually after childbirth) high blood pressure during pregnancy (pre-eclampsia and eclampsia) complications from delivery unsafe abortion.(6)the main cause of maternal death in Ethiopia is not different from most of others developing countries the majority of maternal death61% occurs in the post-partum period and more than half of this takes place within a day of delivery and preeclampsia eclampsia is one of the cause for maternal mortality in Ethiopia The clinical course of severe preeclampsia results in progressive deterioration of both maternal and fetal conditions. Traditional management of severe preeclampsia has focused on maternal safety, with expedited delivery. Because these pregnancies are associated with high rates of maternal mortality (10)

1.2 STATEMENT OF THE PROBLEM

Hypertensive disorders during pregnancy represent a significant public health problem throughout the world, and preeclampsia is the most common of these disorders (7). Villar et al. reviewed available information on the incidence and prevalence of preeclampsia/eclampsia utilizing large epidemiological studies (8). They estimated that hypertension complicates approximately 10% of all pregnancies. Of these, approximately half are due to or associated with preeclampsia. Based on these estimates and case-fatality rates, they calculated that up to 40,000 women, mostly in developing countries, may die due to preeclampsia or eclampsia each year(9).

Ethiopia's rates of maternal and newborn morbidity and mortality are among the highest in the world. Current estimates of maternal mortality stand at 590 deaths per 100,000 live births, or around 25,000 maternal deaths per year. Direct obstetric complications account for 85 percent of these deaths as well as countless chronic conditions. As mentioned above the magnitude of maternal and prenatal mortality and morbidity due to complication of hypertension disorder preeclampsia and eclampsia the major cause of maternal and perinatal death in Ethiopia. The aim of this study were to improve the awareness of quality care for mothers during ANC visit and during admition to labor wardto know about danger signs and improving the knowledge of nurses and other health professional working in the hospital and this is also one of 8 millennium goals so the result of this study was helped to the ministry of health.

1.3 SIGNIFICANCE OF THE STUDY

This study has great significance concerning the way and role to improve maternal and prenatal mortality by increasing knowledge of health professionalsand also the result may have great significance for policy makers to solve the problem. Finally the data was used for other studies who want to assess other working area and regions as well.

2. LITERATURE REVIEW

2.1 BURDEN OF PREECLAMPSIA

Hypertensive disorders are the most common medical complication occurring in 12-22% of all pregnancies Preeclampsia remains a leading cause of hypertension, complicating up to 10% of the pregnancies. It refers to the new onset of hypertension (systolic blood pressure > 140 mm Hg or diastolic blood pressure > 90 mm Hg) and proteinuria (> 0.3gm protein in 24 hours urine specimen) after 20 weeks of gestation in a previously normotensive woman. (10)

Pre-eclampsia is considered severe if the blood pressure is> 160 mm Hg systolic or> 110 mm Hg diastolic or proteinuria of 5 gm. or higher in a 24 hours urine specimen or oliguria, cerebralOr visual disturbances, pulmonary edema, impaired liver function or thrombocytopenia is present. Eclampsia is defined as the presence of new onset grandmal seizure in a woman withPre-eclampsia. In 44% the seizures occur postnatally, in 38% occur antepartum and 18% in the intrapartum period. (11)

Preeclampsia has an immense adverse impact on maternal andperinatal health, especially in the developing world. It is a major cause of almost a third of a million maternal deaths in low- and middle-income settings and also accounts for substantial proportions of the more than six million perinatal deaths approximately eight million preterm births and almost 20million low birth weight infants in developing nations. Furthermore, preeclampsia and its adverse outcomes have been linked to higher risks of chronic non-communicable diseases(NCDs) in later life, thereby posing a daunting challenge within the context of double burden and limited resources in the developing world [12]

AndtheprevalenceintheUnitedStateshasincreasedfrom2.5%in1987to3.2%in 2004 is13% thisincreasemaybeinfluencedbyavarietyoffactors.Forexample,increasesmaybeacross agegroups,indicativeofaperiodeffect, duetofactorssuchaschangesinthediagnosticcriteriaorearlieridentificationofsymptomsduringpregnancy (13)

In Europe and other developed countries pre eclampsiaand eclampsiacomplicatesapproximately 1 in 2000 deliveries, while in developing countries estimates vary between 1 in 100 to 1 in 1700.Over half a million women die each year of pregnancy-related causes, and 99%of these deaths occur in the developing world. Although rare, eclampsia probably accounts for 50 000 maternal deaths a year world-wide. In the UK,eclampsia is a factor in 10% of direct maternal deaths.Successful preventionof all cases of eclampsia is likely to be difficult; therefore it is important to assessthe relative merits of alternative treatments for eclampsia (14)

Similarly the incidence of the diseaseremained very high. In Gwagwalada, northernNigeria the incidence is 1.3 %(15)of all deliveries andsimilar rates are reported across other parts of thecountry(16).There is evidence that the incidence andrelated mortality to this disease are similar in Africa,Asia and the Caribbean. In the USA, the incidenceand mortality from eclampsia is two times higher inAfrican Americans than in whites. This is attributedto inadequate access to antenatal care and geneticfactors associated with increased circulatingantiphospholipids among the black population. Indeveloped countries, much lower incidences havebeen achieved through aggressive screening andmanagement of preeclampsia. In the Netherlands,the incidence of eclampsia is 6.2 per 10 000 births (17)

The clinical course of severe preeclampsia results in progressive deterioration of both maternal and fetal conditions. Traditional management of severe preeclampsia has focused on maternal safety, with expedited delivery. Because these pregnancies are associated with high rates of maternal morbidity and mortality and with potential risks for the fetus, it is generally agreed that such patients should be delivered if the disease develops at >34 weeks of gestation (18). In patients with severe preeclampsia at <34 weeks of gestation, several authors have suggested some form of expectant management in an attempt to prolong gestation and improve perinatal out-come (18,20). For patients with severe fetal growth restriction (FGR) with or without oligohydramios or evidence of maternal organ dysfunction (eclampsia, HELLP syndrome), some authors have recommended steroids to enhance lung maturation, with delivery 48 hours after initiating steroid administration (18)

The main objective when managing severe preeclampsia, eclampsia, and HELLP syndrome is to reduce maternal mortality and morbidity rates. Current literature emphasizes an increased risk of adverse outcomes for patients with severe preeclampsia, eclampsia, and HELLP syndrome. (21)

The study done in turkey estimated that hypertension complicates approximately 5% of all pregnancies. Of these, approximately half are due to or associated with preeclampsia. Based on these estimates and case-fatality rates, they calculated that up to 40,000 women, mostly in developing countries, may die due to preeclampsia or eclampsia each year. (22)

At Muhimbili National Hospital (MNH) in Dare salaam, Tanzania, up to 30% of maternal deaths areattributed to pre eclampsia, and eclampsia is associated witha fivefold increase in perinatal mortality (23)

According to Ethiopian national Emergency Maternal Obstetric and New borne care (EmONC) Assessment 174,561 deliveries were reported at the 797 facilities Based on surveyed assessment, preeclampsia/eclampsia contributed to a significant maternal Disease Burden among pregnant and recently delivered women seeking care at the facilities. Approximately 1% of all deliveries and 5% of all women with complications where documented as having sever preeclampsia/eclampsia. However, nearly 16% of direct maternal deaths occurred among Women Whose Pregnancies Were Complicated by preeclampsia/eclampsia. A relatively high case fatality rate of 3.6 was noted among all preeclamtic/eclamptic who received care at the facilities. The survey Found that only 1%-3.8% (n=2095) of the total number of the potential preeclamtic women received care at health facilities during the year for which the EMONC survey collected data. Even if the number reported were doubled, a large proportion of preeclamtic/eclamptic still did not access the formal health system. The survey found that only 2% of the hospitals had facilities for intensive care for women with sever preeclampsia/eclampsia. (19)

2.2 MATERNAL AND PRENATAL OUTCOME

Preeclampsia is a major obstetric problem leading to substantial maternal and prenatal morbidity and mortality worldwide, especially in developing countries. Maternal and prenatal outcomes in pre eclampsia depend on one or more of the following, gestational age at time of disease onset, severity of disease, quality of management, and presence or absence of preexisting medical disorders. In general maternal and prenatal outcome are usually favorable in women with mild preeclampsia developing beyond 36 weeks gestation (24,25) in the developing countries over 50% pregnant women in high risk pregnancies lived in rural area(26)Pre eclampsia is associated with substantial both acute and long term maternal complication (27)

Hemolysis, elevated liver enyayimes, and low platlets (HELLP) syndrome is associated with an increased risk of maternal death and increase rates of maternal morbidities, such as pulmonary edema, acute renal failure, disseminatedintravascular coagulopathy, abraptio placentae, liver failure, adult respiratory distress syndrome, sepsis, and stroke (28)

The provision of parenteral anticonvulsant to preeclampsia|eclampsia women is one of the nine emergency obstetric care (EMOC) Signal functions vital to the reduction of maternalmortality (29)

Study done by Sisay T in Ethiopia Tikur Anbessa Hospital on pregnancy induced hypertension (PIH) 5.3% had pregnancy complicated by one or another form of hypertensive disorder, 85.2%were cases of PIH while the rest 14.8% cases of chronic hypertension or pregnancy aggravated hypertension of case of PIH 78.2% were cases of sever preeclampsia, eclampsia accounts for 23.7% of PIH and 1% of all deliveries (30)

Five classes of hypertensive disorders were identified according to the latest classification System described by the National High Blood Pressure Education Working Group (2000) Including Preeclampsia, Eclampsia, Transient Hypertension of pregnancy, Chronic Hypertensionand Preeclampsia superimposed on Chronic Hypertension (31).

In a multicenter study, approximately 30% of hypertensive disorders of pregnancy were due to chronic hypertension while 70% of the cases were diagnosed as gestational hypertension/preeclampsia (32).

Preeclampsia can present as HELLP syndrome (hemolysis, elevated liver enzymes and low Platelet count) or eclampsia that is occurrence of convulsions that cannot be attributed to other etiologic factors. Eclampsia is reported to be associated with a maternal mortality rate of 0.5% –10% usually requiring high quality intensive care (33). Additionally, preeclampsia predisposes toward potentially lethal complications involving placental abruption, disseminated intravascular coagulation, intracranial hemorrhage, hepatic failure, acute renal failure and cardiovascular collapse. Intrauterine fetal growth restriction (IUGR), intrauterine fetal demise and prematurity appear to be the other related obstetric problems (34).

According to the report of the National Center for Health Statistics Hypertension complicates around 3.7% of pregnancies in the USA and 16% of pregnancy related deaths from 1991-1997 were from complications of pregnancy related hypertension.

Black women were 3 times at increased risk to die from preeclampsia as white women (35).Hypertensive disorder of pregnancy is the commonest medical complication of pregnancy. The incidence varies in different populations and is also affected by the definition used. Generally the problem is more common in the developing countries than it is in the developed countries. Several studies have shown that nulliparity, Extreme ages, race (being black) and others as risk factors for this problem. There is a significant risk of both maternal and perinatal morbidity and mortality in pregnancies affected by the disorder. The complications are more common and worse in the underdeveloped countries; poor pregnancy outcomes are also associated with lack of ANC follow up which is associated with delayed recognition and intervention in the affected mothers (36, 37).

The reported incidence of hypertensive disorders of pregnancy in India was 5.38% while Preeclampsia, eclampsia and HEELP syndrome accounted for 44%, 40% and 7%, respectively.

The rate of maternal mortality was 5.55% and perinatal deaths occurred in 37.5% of the deliveries (36). According to a population based study in South Africa the incidence of hypertensive disorders of pregnancy (HDP) was 12%. Other hospital based studies showed the HDP was the commonest cause of maternal death which contributed for 20.7% of maternal deaths in the country (38). Studies in Ethiopia show that the incidence of HDP is around 5% of which majority were due to severe preeclampsia; according to one study eclampsia complicates 0.7% of the pregnancies. These disorders are major causes of maternal and perinatal morbidities and mortalities (30-36). Even though there are few studies exploring HDP in Ethiopia, there has not been a single study in the study area. Based on the limited data available, HDP has been found to be common and has been associated with poor maternal and Perinatal outcomes. Therefore, this study will be conducted to explore the pattern and outcomes of pregnancies complicated by hypertensive disorders and factors associated with the disorder and pregnancy outcomes.

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3. OBJECTIVE

3.1 GENERAL OBJECTIVES

The main objective of this study is to determine maternal and perinatal outcomes of pregnancies complicated by preeclampsia and eclampsia in women delivering in Zewditu memorial hospital during the period from January 2013 to December 2014

3.2 SPECIFIC OBJECTIVES

- To describe socio-demography of affected mothers
- To assess certain clinical risk factors
- To describe the complication among preeclampsia/eclampsiawomen
- To describe the outcome and early neonatal complication amongbabies born from preeclampsia/eclampsia women
- To describe the GA at onset and delivery
- To assess the rate of adverse maternal fetal and neonatal outcomes

4. METHDOLOGY

4.1 STUDY DESIGN: A one year retrospective hospital based patient chart review study design from January 2013 to December 2014wasconducted at Zewditu memorial hospital

4.2 DESCRIPTION OF STUDY AREA

Zewditu Memorial Hospital is a hospital in central Addis Ababa, Ethiopia. Located in kirkose sub city woreda 08. This hospital was built, owned and operated by the Seventh-day Adventist Church, but was nationalized during the Derg regime in about 1976. The hospital is named after Empress Zewditu, the cousin and predecessor on the throne of Emperor Haile Selassie. Today the Zewditu Hospital is operated by the Ministry of Health it has totally 128 beds, 277 nursing staffs and 62 staff physician

4.3STUDY AREA AND PERIOD

The study was conducted at Zewditu Memorial Hospital Addis Ababa,Ethiopia during the period from January 2013 to December 2014.

4.4 SOURCE POPULATION

All pregnant women who delivered (gave birth) and mothers referred from other hospitals and health centers for labor during the study period at Zewditu Memorial Hospital

4.5STUDY POPULATION

The study population was all women who gave birth at Zewditu Memorial Hospital during the study period and diagnosed to have preeclampsia and eclampsia.

4.6 INCLUSION AND EXCLUSION CRATERIA

4.6.1INCLUSION CRATERIA

Mothers how gave birth and have complete records was included in the study

4.6.2 EXCLUSION CRITERIA

Mothers who diagnosed as chronic hypertension before pregnancy and also incomplete charts were excluded

4.7 STUDY VARIABLES

4.7.1 INDEPENDENT VARIABLES

Maternal data gathered include maternal age, parity, gestational age, admission blood pressure (BP), presence or absence of proteinuria on urine dipstick, the number and timing of seizure activity, and the mode of delivery. Lab values of interest included the complete blood count (CBC), creatinine; Data from antenatal clinic include number of visits and any documented proteinuria and BP readings during those antenatal visits.

4.7.2 DEPENDENT VARIABLES

The dependent variable to be studied is the outcome of maternal and prenatal mortality

4.8 SAMPLING METHOD

Used a non-probability sampling method and quantitative data

4.9 SAMPLE SIZE DETERMINATION

Zewditu Memorial hospital that offer maternal and delivery service was selected purposively based on the case loud (case of preeclampsia and Eclampsia) and the presence of fully registered data.

4.10 DATA COLLECTION TECHNIQUE

Data were collected using structured checklist for recorded review developed for this study

Since the registration prepared by English language, the checklist also prepared by English. So data were collected by BSC Nurses and data collection was done in the hospital.

The data collectors were given one day training on the checklist for record review and on the register. The data collector was continuously supervised by the primary investigator during data collection process.Questioner was pretested and necessary modification was made. Data collector or the group members were agree on how to collect data and discussed the tool in detail before actual data collection.

All relevant information regarding demographic data, clinical findings, laboratory results and eachpatient's outcome wascollected. Data about antenatal care was extractedfrom the patient's history file and antenatal card.

4.11 DATA ANALYSIS AND INTERPRETATION

After the data have been collected data were first checked for completeness,edited and coded daily. The extracted data werecleaned;check for accuracy, consistency, entered using SPSS version 20 was used.Descriptive and analytic statistical procedures wereemployed.

4.12ETHICAL CONSIDERATION

Ethical clearance was obtained from the school of graduate studies faculty of medicine, Addis Abeba university. An official letter of cooperation was taken from school of emergency medicine to the respective departments and medical director of the hospital where the study was under taken.

4.13PLANS FOR UTILIZATION AND DISSEMINATION OF RESULTS

This study was expected to be use ful for all concerned bodies. It was disseminated through hospital administrator and AddisAbabauniversity stake holders.

4.14OPERATIONAL DEFINITIONS

1.**Hypertensive Disorders of Pregnancy**:Includes chronic hypertension and pregnancy induced hypertension.

- **Chronic hypertension**: A Diastolic Blood pressure of 90mmHg or more that eitherpredates pregnancy or develops before 20 weeks gestation.

Asuperimposedpregnancy induced hypertension may develop on those with Chronic hypertension.

- **Pregnancy induced hypertension (PIH)**:Which develops after 20 weeks ofgestation. P.I.H is classified:Hypertension without proteinuria or oedema: two readings of diastolic bloodpressure 90-110 mmHg, 4-6 hours apart.

2. Mild Pre-eclampsia:Two readings of diastolic blood pressure 90-110mmHg, 4-6 hours apart, after 20 weeks of gestation and with proteinuria of >300mg/l in 24 hours or up to 2+and with/without oedema.

3. Severe Pre-eclampsia:Diastolic blood pressure is equal or greater than 110mmHg after 20weeks of gestation. There may be severe headache, blurred vision, Epigastric pain, hyperreflexia, oliguria (urinary output equal orless than 400mls/24hours),proteinuria (proteinequal or greater than 5g/24 hours; dipstick +++), increasedweight (equal or more than1000g/week, and the patient isconscious.

4. Eclampsia:Mother with signs and symptoms ofsevere preeclampsia and convulsionsorcoma Oligohydrouria or Anuriais present.

5. HELLP Syndrome:A syndrome of haemolysis (H) elevatedliver enzymes (EL) and lowplateletcount (LP).

6. Gestational age:The duration of gestationIt is measuredfromthe first day of the last menstrualperiod and is expressed in completed weeks.

7. Term period:The period from37 completed weeks up to the end of 42ndweek.

8. Preterm period:refers to less than 37 completed weeks of gestation.

9. Preterm Delivery: Birth of baby before 37 complete weeks of gestation.

10. Post term period:This period refers to the pregnancy length of more than 42 completedweeksof gestation.

11. Birth Weight:The weight of a new born infant obtained preferably with in one hour of birth.

12. Low birth weight:birth weight of less than 2500 grams.

13. Live birth:Live birth has occurred when the new born infant breathes or shows any sign of lifesuch as, heartbeat, pulsation in the umbilicalcord or movements ofvoluntary muscles.

14. Still birth: The birth of a dead fetus at 22 weeks ormore and birth weight equal or morethan500gms.

15. Still birth rate:The number of still born infants per 1000 total births[live born+ still borninfants].

16. Neonatal Death: The death of a baby that occur at less than 28 days of age with birth weight of500gmsand more.

17. Early neonatal death:The death of a live born duringthe first 7 days of life.

18. Late neonatal death:The death of a live born infant after 7 completed days, but before 28completed days after birth.

19. Perinatal death:Perinatal deathscomprises the sumof all still births andearly neonatal death.

20. Perinatal mortality rate:The sumofall perinatal deathsinrelationto the sumofall still born and live born infant.

21.Maternal death:The death of a woman while pregnantor within 42 completed days oftermination of pregnancy irrespective of duration and site of pregnancy, fromany cause related toor aggravated by the pregnancy or by its management but not due to accidental or incidental causes.

22. Maternal mortality ratio:The number of maternal deathsper 1000 total births.

23. Prevalence:quantifies the proportion of individuals ina population who have a disease at aspecific time and provides an estimate of the probability (risk).

5. RESULTS

During the study period, January 2013 to December 2014,there were a total of 3,488 deliveries attended at Zewditu Memorial Hospital. Among the total deliveries 250(7.2%) had there pregnancy complicated by PIH and their classification is depicted in table 1. Of the two hundred fifty women who had PIH 112(44.8%) had their pregnancy complicated by gestational HPT, 41(16.4%) mild pre eclampsia, 80(32%)sever preeclampsia and 17 (6.8%) eclampsia .

Table 1: Type of pregnancy induced hypertension mothers at Zewditu Memorial Hospital, Addis Abeba, Ethiopia, From January 2013- December 2014.

Characters	Frequency	Percentage
gestational hypertension	112	44.8
mild preeclampsia	41	16.4
sever preeclampsia	80	32
Eclampsia	17	6.8
Total	250	100.0
Total PIH	250	7.2 % Of all deliveries
Total Deliveries	3,488	

Table 2: Socio-demographic parameters of mothers with PIH at Zewditu memorial hospital, Addis Abeba, Ethiopia, January 2013_December 2014.

Characters	Frequency	Percent
Age 17-21	26	10.4
22-26	76	30.4
27-31	96	38.4
32-37	48	19.2
38-42	4	1.6
Total	250	100.0
Address		
AA	181	72.4
out of AA	69	27.6
Total	250	100.0
Education level		
Illiterate	33	13.2
Elementary	97	38.8
Secondary	70	28.0
College	50	20.0
Total	250	100.0
Marital status		
Married	227	90.8
Unmarried	17	6.8
Divorced	6	2.4
Total	250	100.0
Occupation		
Employed	109	43.6
Unemployed	141	56.4
Total	250	100.0

Socio-demographic profiles of mothers with pregnancy Induced Hypertension (PIH) has been outlined under table 2. Most of the PIH mothers were married and from Addis Ababa which were 90.8% and 72.4% respectively. 38.4% of PIH mothers were from 27 to 31 years age group, 10.4 % were youngsters, from age group 17 to 21 years, only 1.6% of them were from age group 38 to 42 years. 38.8% and 28.0% were elementary and secondary school level

respectively. 20% college level and 13.2 % were illiterate. Only 43.6% were employed the rest were unemployed mothers.

Table 3 Obstetric parameters and clinical risk factors of PIH among pregnant women with pregnancy induced hypertension at Zewditu memorial hospital, Addis Abeba, Ethiopia January 2013_December 2014

characters	Frequency	Percentage
Gravidity		
1	93	37.2
2	80	32.0
3	50	20.0
4	26	10.4
5	1	0.4
Total	250	100
Parity		
0	96	38.4
1	86	34.4
2	42	16.8
3	26	10.4
Total	250	100
Family history of HTN		
YES	97	39.4
NO	149	60.6
TOTAL	246	100
Family history of PRECLASIA		
YES	51	21.8
NO	183	78.2
TOTAL	234	100
PRIOR HISTORY OF PIH		
YES	72	28.8
NO	178	71.2
TOTAL	250	100

As shown on table 3, 96(38.4%) were nulliparous were her current pregnancy was complicated by PIH 86(34.4%), and 42(16.8%) multi parous were current pregnancy was complicated by PIH. Prior history of PIH was reported in72 (28.8%) of all case of PIH. Family history of hypertension and history of preeclampsia were reported in 97(39.4%) and 51(21.8%) of cases of mothers with PIH respectively.

Table 4 some obstetric history, intrapartum events and fetal outcome in mothers with hypertensive disorders of pregnancyat Zewditu memorial hospital, Addis Abeba, Ethiopia January 2013_December 2014.

Characteristic	Frequency	Percentage
Antenatal follow up		
Yes	236	94.4
No	14	5.6
Total	250	100.0
Number of fetus		
Single	231	93.5
Twin(multiple)	19	6.5
Total	250	100.0
Onset of labour		
Spontaneous	71	28.4
Induction	81	32.4
Caesarean	98	39.2
Total	250	100.0
Mode of delivery		
SVD	118	47.2
Instrumental	25	10
Cesarean section	107	42.8
Total	250	100.0
Gestational age		
Preterm	91	36.4
Term	141	56.4
Post term	18	7.2
Total	250	100.0
Birth weight		
<1000	18	7.2
1000-1500	44	17.6
1500-2500	64	25.6
2500-4000	124	49.6
Total	250	100.0

Table 4 shows that 236(94.4%) were visit ANC 231 (93.5%) single and 19(6.5%) twin pregnancy from all cases of PIH.preterm delivery rate of 91(36.4%) 179(71.6%) pregnancy was terminated before the onset of spontaneous labour by induction and caesarean section. The overall caesarean section and instrumental delivery rate for all PIH mothers was 107(42.8%) and 25 (10%) respectively. 18 (7.2%) had birth weight less than 1000 and 44(17.6%), 64 (25.6%) between 1100_2500 respectively.

Table 5: Maternal and Prenatal complication among mothers with pregnancy induced hypertension atZewditu memorial hospital, Addis Abeba, Ethiopia January 2013_December 2014

Characteristic	Frequency	Percent
Maternal complication		
Yes	131	52.4
No	119	47.6
Total	250	100
Abruptio placenta		
Yes	15	12.3
No	107	87.7
Total	122	100
HELLP syndrome		
Yes	38	31.1
No	84	68.9
Total	122	100
DIC		
Yes	2	1.6
No	120	98.4
Total	122	100
Acute renal failure		
Yes	20	16.4
No	102	83.6
Total	122	100
Post-partum hemorrhage		
Yes	56	45.9
No	66	54.1
Total	122	100
Perinatal out come		
Low birth weight		
<1000	18	7.2
1000-1500	44	17.6
1500-2500	64	25.6

Table 5 shows that 131 (52.4%) of hypertensive mother develop complication. Out of 250 pregnant mother with PIH During the study period 56 (45.9%) develop post-partum hemorrhage,38 (18.5%)HELLP syndrome 20 (16.4%)Acute renal failure ,15 (12.3%) placenta Abruptio and DIC 2 (1.6%) had their pregnancy complicated by one or another form at the same time . The proportion of low birth weight also describe in this table 44(19.5%) had birth weight<1500 and 18 (7.9%) birth weight < 1000 for babies born to mother with PIH.

Table 6 Prenatal mortality, NICU admition among babies born to mothers with pregnancy induced hypertension atZewditu memorial hospital, Addis Abeba, Ethiopia January 2013_December 2014

Characteristics	Frequency	Percentage
APGAR score (single)		
1st minute		
< 5	123	49.2
>5	127	50.8
5th minute		
<7	132	52.8
>7	118	47.2
Neonatal death		
ENND in the ZMH	10	12.7
Still birth (IUFD)	19	24.1
Nicu admition	50	63.3
Total	79	100

Table 6 shows that prenatal outcome for the various type of PIH were 29 prenatal deaths among all deliveries of hypertensive patient 19 (24.1%) was still birthand 10 (12.7%)early neonatal death in hospital which yielded prenatal mortality rate of 207|1000 births. The rate for neonatal intensive care unit (NICU) admition for babies born to mothers with PIH was 50 (63.3%) which sent to TAH. The majority of these neonates were preterm, Birth asphyxia (defined as an Apgar score < 7 at 5 minutes) occurred in 132 (52.8%) of live births.

6. DISCUSSION

Worldwide the prevalence of PIH is more similar in the range of 5-10 % of pregnancies. This is also shown in our study. The study done in India showed that 5.3% of pregnancies were complicated by PIH (30)when Compared to our study done in Zewditu memorial hospital that shows 7.2% of all deliveries was lower when compared to studies done in Northern Nigeria 9.4% of all deliveries (15) and higher compare to study done in Turkey reported approximately 5% of all deliveries were complicated by PIH (22). The socio-demographic profiles of mothers with PIH as indicated in this study, 90.8% were married, and most of them were from Addis Ababa, which is similar with study done at TAH by Sisay Teklu.The majorities were age group 22-31(68.8%) while 10.4% wereteenagers which are higher when compared tostudy done at TAH by Sisay Teklu which were 6.6%.Younger age and nulliparous are risk factor for the development of PIH. In this study 38.4% nulliparous develop PIH when compare to study done by Sisay Teklu in TAHreport 32% of mothers complicated by PIH. In the same prospective study 14% of mothers with prior history of PIH while our study finding shows similar history in28.8% and 39.4% with family history of PIH.The perinatal mortality rate in this study was 36.8%, which is higher to the study reported in Benin 21.4% (19). The largest share of PIH has been taken by severe preeclampsia (51.9%) which was also the case in many other studies. A study done in Tikur Anbesa Hospital of Addis Ababa showed that more than 78% were due to severe preeclampsia lower when compared to our study done in ZMH that was32%. Eclampsia in our study shows 6.8% of all deliveries which is higher were compare to study done by A.Getachew at St.Pauls and Tikur Anbesa Hospital found Eclampsia in 3.6% of cases and study done in Netherland the incidence of Eclampsia were 6.2% per 10,000 births (30).

Termination of pregnancy before the onset of labour for maternal or fetal indication were 32.4% of deliveries in this study lower than 58.5% Reported by Sisay Teklu in TAH, and caesarian delivery rate of 42.8% in this studyis higher than study reported by A. Getachew which is 25% (13).Instrumental delivery rate of this study was 10% which is almost similar with study done by T.Mekbib8.9% and 44.8% reported by A. Getachew which is much greater than study done in Jimma university were 1.9%(36). The small sample size and the fact that the study was undertaken in referral hospital may have contributed for increased cases of eclampsia in

this study (14-19). Based on the results of this study the prevalence of PIH is within the global range and majority of the pregnancies affected with the disease are due to the more severe forms of the disorder. The presence of PIH has been linked with poor maternal and perinatal outcomes (36) which were manifested by increased Prenatal ICU admission of 63.% in our study preterm delivery rate 36.4% and 50.4% of low birth weight.

7. CONCLUSION

In low and middle-income settings, pre-eclampsia/eclampsia issignificantly associated with maternal death, perinatal death, preterm birth and low birth weight,so early recognition and management of mothers with PIH is an important instrument to reduce the case. Moreover improving the obstetric and neonatal care at delivery is essential to improve the maternal and perinatal outcomes of pregnancies complicated by the disorder, although there is need for optimal antepartum, intrapartum, and post-partum care including safe and effective anticonvulsants like magnesiumsulphate.

8.RECOMMENDATION

Overall, the findings of this study have important policy implications for health on problems of problems have an important public health significance regarding maternal and neonatal health, special attention should be given to mothers and neonates in order to halt the progress of illness and its consequences. In the long run, these problems may be alleviated by integrating efforts from different sectors. However, short term efforts can be performed before long term solutions are obtained. Taking this in to consideration, the following recommendations are brought forward.

- **At community level**: Raise awareness among mothers in the community regarding early sign and symptoms of preeclampsia/ eclampsia and inform them of the referral system by health extension workers (HEW) to help tackle the “Three delays” issues. This would also help identify mothers during their ANC and give them the appropriate care.
- **At Health Facility Level**: in this study ANC coverage is encouraging, but still special focus should be given since ANC is a useful setting to diagnose and manage preeclampsia/

eclampsia, it is essential to design a better tracking system for ANC. Similarly, providing health facilities with $MgSo_4$ drug could reduce and prevent convulsions and sever outcomes in mothers and neonates. In addition, strengthening and establishing neonatal intensive care units (NICU) in health facilities could be an important input in reducing maternal complications. In addition to this, the health facility has to be strength the data keeping system.

- Finally, the conduct of further study is widely encouraged, in order to identify the causes behind the increase in preeclampsia/ eclampsia cases and maternal complications.

9. LIMITATION OF THE STUDY

The fact that there was no possibility to enquire more about individual cases from the patients or relatives was a great limitation of the study. This was because the data collected depended on the standard of documentation, record keeping efficiency and the purpose for information documentation.

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APPENDIX 1.

COMPILATION SHEET:

IDENTIFICATION NUMBER AND INITIALS:

REFERRAL: 1. Yes, 2. No, If Yes, from? .....

Questionaries'

A. SOCIO DEMOGRAPHIC DATA

1) Age
2) Address: Addis Ababa,Out of Addis Ababa
3) Education level: Illiterate,Elementary,Secondary, College
4) Marital status: Married, unmarried,Divorced/ widowed
5) Occupation: Employed, Unemployed

B. OBSTETRIC HISTORY

6) Current pregnancy history

   Gravidity

   Parity

   Abortion

7) Gestational age

   Pre term

   Term

   Post term

8) Attended antenatal follow up Yes No
9) Number of fetus Single Twin (multiple)
10) Prior history of PIH Yes No
11) Type of PIH Gestationalhypertension

    Mild preeclampsia

    Sever preeclampsia

    Eclampsia

12) Drugs given during current pregnancy

    Methyldopa Yes No

Nifedipine Yes No
Hydrallazine Yes No
Magnesium sulphate Yes No
Diazepam Yes No
Other (Specify)

C. PAST MEDICAL HISTORY

13) Past medical history of pregnant mother

Chronic hypertension Yes No
Pregnancy induced hypertension Yes No
Diabetes mellitus YesNo
Chronic renal diseaseYes No
Heart disease class 1 (No limitation of activity) Yes No
Heart disease, Class 2-4(any limitation in activity)YesNo
Hematological disorder (Chronic anemia)
Hepatitis Yes No
Seizure disorder Yes No
HIV/AIDS positive Yes No
Others, specify

14) Family history of hypertension Yes No

15) Family history of preeclampsia Yes No

D. CLINICAL FEATURES ON ADMISSION

16)Chief complain (other than pregnancy/labour)

Headache Yes No
Dizziness Yes No
Epigastric pain Yes No
Visual disturbance Yes No
Nausea and or Vomiting Yes No
Convulsions Yes No

17)Maximum Blood pressure

18) Oedema Yes No

19) Weight (Kilogram)

E. INVESTIGATIONS

20) Investigation done

Blood group and Rh Yes No

Hematocrit Highest level lowest level

Liver function Normal Deranged

Renal function Urea Creatinine

Dipstick urine protein = 1+, 2+, 3+

G. DELIVERY

21) Onset of labour

Spontaneous

Induction

Elective C/S

22) If not spontaneous, Indications

Severe preeclampsia

Intrauterine fetal death

Abruptio placenta

HELLP Syndrome

Fetal distress

Eclampsia

Others, specify

23) Mode of delivery

SpontaneousVaginal delivery

Instrumental

Caesarean section

24) If caesarean section what was the indication

Fetal distress

Abruptio placenta

Severe preeclampsia

Eclampsia

Previous C/S scar

Others, Specify

25) Number of days of hospitalization

H. MATERNAL COMPLICATIONS

26)Is there any maternal complication?Yes No

27) If yes what?

Eclampsia

Abruptio placenta

HELLP syndrome:

DIC (Disseminated intravascular coagulation)

Acute renal failure

Cardiac failure

Post-partum hemorrhage

Stroke

Pulmonary Edema

Maternal death

Others, Specify

I. PERINATAL OUTCOME: Boy/ Girl

28) Outcome of delivery;

Still birth Live birth

29) If live births Apgar score: At 1 minute At 5 minutes

30) Birth weight <1000 1000-1500 1500-2500 2500-4000 >4000

31) Neonatal death Yes No If Yes, How old?