

**Management Outcome of Preeclampsia/Eclampsia in Saint
Luke Catholic Hospital, Woliso, South west Ethiopia: A
Retrospective study**

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**A Thesis Result to be Submitted to Jimma University, Collage
of Public Health & Medical Sciences, School of Graduate
Study, Coordinator of Integrated Emergency Surgery for the
Partial Fulfillment of the Requirements for MSc in Integrated
Emergency Surgery.**

May, 2013

Jimma, Ethiopia

**Management Outcomes of Preeclampsia/Eclampsia in Saint
Luke Catholic Hospital, Woliso, South west Ethiopia:
Retrospective study**

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Abstract

Background: Pre-eclampsia is a major cause of morbidity and mortality for the woman and her child. Based on surveillance data, pre-eclampsia is one of the leading causes of maternal mortality in Ethiopia.

Objective: The aim of the study is to determine the prevalence and management outcomes of preeclampsia among patients who had been treated in St Luke Catholic Hospital, South West Ethiopia.

Methods: - Hospital based retrospective cross-sectional study was conducted on patients managed from January 1/2008 to December 30/2012 in St Luke Catholic Hospital. The data was collected using structured checklist and entered into SPSS version 16 for analysis. Frequencies and cross tabulation were computed.

Result: Out of 118 patients included in the study, 68 were primigravida and 50 multigravida. The age of the patients was between 18 – 45 years. Majority (45.8%) of the mothers were below the age of 25 years. The incidence of preeclampsia/ eclampsia was 9.5/1000 deliveries. Severe preeclampsia accounted for 56.8% of the cases followed by eclampsia (27.1%). Out of 118 patients 7 patients developed convulsion, 5 acute renal failure, 8 patients had HELLP syndrome, 8 had abruptio placentae and 5 developed PPH. Out of 118 patients 108 patients were discharged, 7 patients died and 3 referred. With 21 still births and 13 ENND preeclampsia/eclampsia yields the perinatal mortality of 288/1000 births.

Conclusion: Pre-eclampsia and eclampsia are one of the five direct causes of maternal death. According to this study, most of the severe preclamptic and eclamptic women were from rural area. Majority (73.8%) of the cases occur before 37 completed weeks of GA that leads to preterm birth and its complication. Almost all perinatal deaths were the result of prematurity that require neonatal ICU admission with specialized care.

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First of all, I would like to thank God, who is Alpha and Omega, for giving me insight in my life. All I am and all I have is because of him.

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Field Code Changed

Acronyms

ANC	Antenatal Care
BP	Blood Pressure
ELBW	Extremely Low Birth Weight
gm	Gram
HELLP	Hemolysis Elevated Liver Enzyme and Low Platelet count
HDP	Hypertensive disorders of pregnancy
JUSH	Jimma University Specialized Hospital
mmHg	Millimeter of mercury
PNMR	Perinatal mortality rate
SGA	Small for Gestational Age
SPSS	Statically Package for Social Sciences
VLBW	Very Low Birth Weight

Chapter 1. Introduction

1.1. Background

Pre-eclampsia is a multi organ system disorder that occurs after the 20th week of gestation and is characterized by: Hypertension i.e. Blood pressure (BP) \geq 140/90 millimeter of mercury (mmHg), Proteinuria (urine protein $>$ 0.3 gm/24 hours) with or without abnormal edema (1). When the diastolic BP becomes above 110 mmHg and protein above 3 gm per day the condition is called severe pre-eclampsia (2) and if occurrences of seizures are superimposed on pre-eclampsia the condition is referred to as eclampsia (3).

Pre-eclampsia is a major cause of morbidity and mortality for the woman and her child (4). Globally, each year more than four million women develop pre-eclampsia and approximately 100,000 women will have eclamptic convulsion with over 90% occurring in developing countries (5). It results in 12% of maternal deaths globally, up to 40% of maternal death in some countries and is responsible for occurrence of up to 13% of still births and 20% of early neonatal deaths (6).

The incidence of pre-eclampsia and eclampsia was higher in developing countries with the highest rate reported for pre-eclampsia as 7.1% (deliveries) in Zimbabwe and for eclampsia as 0.81% (deliveries) in Colombia. The pattern of complications was similar in all countries. The maternal and fetal mortality rates were higher in developing countries. The highest maternal mortality rate was 0.4% for pre-eclampsia reported in the Magpie trial and as 6.1% for eclampsia reported from Colombia(7).

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 (8).

Even though there are few studies exploring preeclampsia 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 prevalence and management outcomes of pregnancies complicated by preeclampsia.

1.2. Statement of the Problem

Thousands of women and babies die or get very sick each year from a dangerous condition called preeclampsia, a life-threatening disorder that occurs only during pregnancy and the postpartum period (9).

Worldwide, the incidence of preeclampsia ranges between 2% and 10% of pregnancies. The incidence of preeclampsia varies greatly worldwide. World Health Organization estimates the incidence of preeclampsia to be seven times higher in developing countries (2.8% of live births) than in developed countries (0.4%). The incidence of eclampsia in the developed countries of North America and Europe is similar and estimated to be about 5–7 cases per 10,000 deliveries (9). On the other hand, incidence of eclampsia in developing nations varies widely, ranging from 1 case per 100 pregnancies to 1 case per 1700 pregnancies. Rates from African countries such as South Africa, Egypt, Tanzania, and Ethiopia vary from 1.8% to 7.1%. In Nigeria, prevalence ranges between 2% to 16.7% (10).

In the developed world, the syndrome of pre-eclampsia and eclampsia is one of the two most common causes of maternal mortality. However, it is the developing world, where pre-eclampsia is the third commonest cause of maternal death behind hemorrhage and infection, that accounts for the overwhelming majority of the estimated 50 000 annual maternal deaths from hypertensive disorders of pregnancy. In Africa pre-eclampsia and eclampsia are estimated to account for 20-25% of maternal deaths (11).

The Saving Mothers Report on Confidential enquiries in Maternal Deaths in South Africa (1999-2001) noted poor quality of care to be a major contributor to maternal death from

pre-eclampsia in South Africa. The deaths were attributed to lack of transport (11-20%), lack of appropriately trained medical staff (up to 55%), and failure to recognize patients' problems (12%). In addition to this, 64% of the pre-eclamptic women who died in 1998 and 55.5% of those who died in 2001 had received sub-standard management (12).

Chapter 2. Literature Review

2.1. The Magnitude of Preeclampsia/Eclampsia

The global incidence of preeclampsia has been estimated at 5-14% of all pregnancies. In developing nations, the incidence of the disease is reported to be 4-18%, with hypertensive disorders being the second most common obstetric cause of stillbirths and early neonatal deaths (13).

Severe pre-eclampsia and eclampsia are relatively rare but serious complications of pregnancy. The incidence of severe pre-eclampsia is about 5/1,000 maternities. The incidence of eclampsia in the UK is 4.9/10,000 maternities. 44% of seizures occur postnatally, the remainder 38% being antepartum and 18% intrapartum (14).

The epidemiological characteristics of 1107 cases of preeclampsia and eclampsia admitted to the Nehru Hospital, Chandigarh, India, have been analyzed. The incidence of preeclampsia and eclampsia was found to be 10.2 and 0.6%, respectively, of all hospital deliveries (15). The reported incidence of hypertensive disorders of pregnancy in India was 5.38% while preeclampsia and eclampsia accounted for 44% and 40% respectively. The rate of maternal mortality was 5.55% and perinatal deaths occurred in 37.5% of the deliveries (16).

According to a population based study in South Africa the incidence of Preeclampsia was 12%. Other hospital based studies showed that HDP was the commonest cause of maternal death which contributed for 20.7% of maternal deaths in the country (17).

Studies in Ethiopia show that the incidence of Preeclampsia is around 5% of which majority were due to severe preeclampsia; eclampsia complicates 0.7% of the

pregnancies. These disorders are major causes of maternal and perinatal morbidities and mortalities (8). Even though there are few studies exploring HDP in Ethiopia, there has not been a single study in the study area. Therefore, this study will explore the pattern and the management outcomes of pregnancies complicated by Preeclampsia (18).

2.2. Maternal Outcome of Pre-eclampsia/Eclampsia

Although maternal hypertension is diagnosed in approximately only 7% of all deliveries, it is associated with as much as 30% of all maternal deaths and 22% of all perinatal deaths in the United States (15).

In a retrospective cohort study of Murphy and Stirrat on 71 preeclamptic women with gestational age less than 30 weeks, 21% had developed HELLP syndrome, 15% had abruptio placenta, 13% had renal failure and 1.4% eclampsia but maternal mortality was not observed (19). In another study the commonest complication seen was abruptio placenta (12.6%) followed by oliguria (7.9%), coagulopathy (6%) and renal failure (4.1%) (16).

Maternal mortality increases with age of the mother as shown by Shamshad Begum and Aziz-un-Nisa. Women aged 40 years and above are more than five times likely to die of pre-eclampsia than those between 20 and 24 years older (20). According to the study done in Mayo hospital, the mean age was 28 years. Out of 100 patients 60 were primigravida and 40 multigravida. In this study the maternal mortality due to eclampsia was around 24% and 3 out of 47 (6.4%) of patients expired were suffering from acute renal failure while morbidity due to it came out to be 30% (21).

Most (69%) Sinhalese women were diagnosed and 66% delivered before 37 weeks of gestation. 58.9% delivered within 48 hours of the diagnosis being made. Overall 77.8% women needed a Caesarean section for delivery. Three women were managed expectantly for more than four weeks before delivery. Four women were in hospital for more than four weeks postpartum to accompany their babies who required prolonged neonatal care. A relatively high proportion (8.9%) of the Sinhalese women with

preeclampsia also developed eclampsia. Eclampsia occurred before delivery in 14 women and postpartum in two women. Six delivered before 34 weeks, six between 34 and 36 weeks, and four at term. Only one baby was born alive and six (33%) of the babies were SGA. One of these women died. The number of in patient days in hospital from diagnosis to discharge ranged from 2-57 days (Median=9). Only 7.2% stayed in hospital for less than three days. They were women who had mild disease who left the hospital early against medical advice. 76.8% spent more than five days. The repeated occurrence of pre-eclampsia in several pregnancies of the same woman had been as high as 50% (7).

According to the study done at Jimma University Specialized Hospital 66.7% of the mothers who were admitted with HDP during the study period were nulliparous. Severe preeclampsia was the most common hypertensive disorder of pregnancy accounting for 51.9% of the cases followed by eclampsia which contributed for 23.4% of the cases. Moreover, 7.6% of cases were mild preeclampsia (18).

2.3. Neonatal Outcome of Pre eclampsia/Eclampsia

Perinatal mortality rates in pregnancies complicated by pre-eclampsia are low in the West where it is reported to be less than 5%. In comparison, perinatal mortality rates of 17% have been reported in Sri Lanka (7).

Pre-eclampsia accounts for more than 40% of premature deliveries and substantially increases the risk of low birth weight (15, 17). Eclampsia have substantially greater risk of delivery of very low birth weight infants and very preterm (Gestational age < 33 weeks) birth compared with women without hypertension. Gestation was 0.6 weeks shorter in women with severe pre-eclampsia than in normotensive women (22). Pre-eclampsia and severe pre-eclampsia were associated with a 5% and 12% reduction in birth weight respectively. About 16.4% of preeclamptic pregnancies being complicated by one or more serious perinatal complications and 34.3% by pre-term birth (23).

The neonatal morbidity and mortality among the babies was much more severe. From 114 Sinhalese neonate delivered alive, 30 were died during the immediate postpartum

period, before the mother was discharged. 7% of pregnancies resulted in stillbirths. Overall 25% babies died during the perinatal period. The smallest surviving baby at six weeks postpartum weighed 750g at birth at 28 weeks of gestation. Of the 77 babies born to mothers developing pre-eclampsia before 34 weeks of gestation, 15.6% were stillbirths and only 46.7% survived to go home with the mother. There were only 2.9% confirmed perinatal deaths among babies of women who developed late onset pre-eclampsia (7).

In Nottingham UK, babies of women with pre-eclampsia, the overall perinatal mortality rate (PNMR) in one of the recruiting hospitals, Castle Street Hospital for Women, 2003, was 1.79% and 1.76% in 2001 and 2002 respectively (7).

The rates of low and very low birth weight infants among 146 deliveries in JUSH from April 2009 to March 2010 were 35.6% and 12.3%, respectively. Severe preeclampsia, eclampsia and HELLP syndrome took the lion share (92.9%) of these infants. There were 42 stillbirths yielding stillbirth rate of 27.5%. Of these stillbirths, 38.1% and 35.7% were among mothers who had severe preeclampsia and eclampsia, respectively. There were 10 Early Neonatal Deaths (ENND) of which majority were for the mothers with severe preeclampsia and eclampsia. The perinatal mortality rate in the study was 317.1 / 1000 births. The rate of preterm delivery was 31.6% for all forms of HDP during the study period and 50% of the mothers who were diagnosed to have HELLP syndrome had preterm deliveries (18).

2.4. Management of Preeclampsia/Eclampsia

The primary objective of treatment in women with pre-eclampsia is to prevent eclampsia by keeping the diastolic blood pressure between 100 mmHg and 90 mmHg. Based on the severity of the disease process, the status of mother and fetus, and the length of gestation a decision is made regarding hospitalization, expectant management, or delivery(24). The predominant mode for treating pre-eclampsia includes anti-hypertensive, anticonvulsant and interruption of pregnancy (25).

Anticonvulsants including magnesium sulphate have been used to prevent eclampsia. A large multi-centred double blinded randomised trial carried out in 33 countries and involving nearly 10,000 pregnant women with pre-eclampsia settled the issue for magnesium sulphate (26).

In 14 trials (2777 women) magnesium sulphate was associated with a reduction in maternal death and the risk of recurrence of further fits when compared to diazepam (27). In one trial of 518 babies magnesium sulphate was associated with fewer admissions of babies to a neonatal intensive care unit (28).

2.4.1. Mode of delivery of Preclamptic/Eclamptic Women

Delivery is the ultimate cure of pre-eclampsia and is always appropriate for the mother but may be responsible for neonatal adverse outcome particularly if it occurs before 34 weeks of gestation (23). In a study done by Alexander and his colleagues, 145 (52%) of the 278 women with severe preeclampsia who delivered infants weighing between 750 and 1500 gm had labor induced and 133 (48%) delivered by caesarean without labor. Vaginal delivery was accomplished by 50 (34%) women in the induced group neonatal outcomes including neonatal death were similar in the two groups. Immediate caesarean delivery compared to vaginal delivery confers no benefit to patients with severe pre-eclampsia (29).

In another study done by Coppage KH and Polzin WJ, 37 of 59 women with severe pre-eclampsia who had been induced delivered vaginally and 22 of the 59 underwent caesarean delivery (29).

In woman with severe pre-eclampsia at less than 34 weeks expectant management to improve neonatal morbidity and mortality may be performed under close monitoring of both mother and the fetus (30).

Visser and Wallenburg in their study of 254 women with severe pre-eclampsia between 20 and 32 weeks gestation reported that the perinatal mortality was only 20%

(31). Hall et al. in a prospective study of 340 women presenting with early onset severe pre-eclampsia the perinatal mortality was only 24% (32).

In a retrospective study of Alexander et al., of 278 singletons, who weighed 750-1500gm or who were delivered because of severe pre-eclampsia vaginal delivery was accomplished in 34% of the induced groups (29).

There is evidence from several randomised studies that an expectant management will result in a better perinatal outcome without an increase in maternal risks but there are not sufficient data for any reliable recommendation for which policy of care to follow (35).

1.3. Significant of the Study

This study will help to answer how confirmed pre-eclampsia is epidemiologically common in the study area. It also looks at the maternal and fetal outcomes at discharge. This will further have great significance in preventing maternal and perinatal morbidity and mortality due to preeclampsia, thereby to achieve MDGs, by improving access to appropriate obstetric care, particularly during labor and delivery and better screening and treatment of preeclampsia in the study area.

It will also have significant advantage for health professionals in that it will add useful information regarding the scope of preeclampsia and its management outcome such that the importance of early predict and detection of the disease and initiation of on time management during practice.

The outcome of this study will also add essential input for policy makers to design proper strategies and serve as baseline information for other studies.

Chapter 3. Objectives of the Study

3.1. General Objective

- To assess the magnitude and management outcomes of pre-eclamptic/eclamptic patients treated in St Luke Catholic Hospital between January 1/2008 to December 30/2012 Woliso South West Ethiopia.

3.2. Specific Objectives

- To identify the magnitude of preeclampsia/eclampsia in St Luke Catholic Hospital
- To examine the maternal outcomes of preeclampsia/eclampsia in St Luke Catholic Hospital.
- To assess the fetal outcomes of preeclampsia/eclampsia in St Luke Catholic Hospital

Comment [u1]:

Chapter 4. Methods and Materials

4.1. Study Area and Period

This hospital based retrospective study was conducted from Oct 1/2012 to April 30/2013 in St Luke Catholic Hospital, which is found in Woliso town 114km Southwest from Addis. Its catchment population is about 1.073 million. The hospital has a total of 169 beds of which 37 beds are found in the maternity ward. The first and second stage rooms of the labor ward have six and three beds, respectively.

The labor and maternity wards are run by midwives, health officers, 2nd and 3rd year Integrated Emergency Surgery students and obstetrics and gynecology consultants. The hospital serves as a referral hospital for the southwestern part of the country and most of the laboring mothers come from rural areas where almost all deliveries are attended at home. This study was cover a five years review of client cards from January 1/2008 to December 30/2012.

4.2. Study Design:- Hospital based retrospective study design was conducted.

4.3. Source population:- all pregnant mothers' who were admitted to the labor and maternity wards of St Luke Catholic Hospital from January 1/2008 to December 30/2012.

4.4 Study population:- those mothers who were admitted to the labor and maternity wards of St Luke Catholic Hospital with the diagnosis of preeclampsia/ eclampsia during the study period.

4.5 Inclusion and exclusion criteria

4.5.1. Inclusion Criteria

All women who developed preeclampsia/eclampsia at or after 20 weeks of gestation and/or within 6 weeks of delivery admitted to the labor and maternity wards of St Luke Catholic Hospital was included in the study.

4.5.2. Exclusion Criteria

The client cards with incomplete data was excluded from the study.

4.6 Sample Size determination: - Since the study was a retrospective review, all clients who were admitted and managed as preeclampsia/eclampsia in St Luke Catholic Hospital in the study period were included in the study.

4.7. Study variables:- sex, age, address, parity, GA, maternal and fetal outcomes

4.8. Data Collection Process

4.8.1. Data Collectors and Data Collection Methods:

Structured format was prepared and the data was collected by three 2nd year Integrated Emergency Surgical Officer Students using registration books & Client cards and retrieved patients' records. The data collectors was given a one day training on how review and abstract the required and pertinent information from the main document.

4.8.2. Data Collection

Data for this study was obtained from patient cards using structured questionnaires which contained socio-demographic characteristics of mothers, obstetric history, signs and symptoms at presentation, laboratory data and maternal and perinatal outcomes and filled by three trained data collectors reviewing records of the pregnant ladies. Analysis was done using SPSS for windows version 16.0 to describe variables.

4.9. Data processing and analysis

Collected data was manually checked for completeness. The data was coded, entered and processed using SPSS windows 16.0. Frequencies and cross-tabulations was computed. And finally the results was presented using the findings, frequency tables and figures.

4.10. Ethical Consideration

Ethical approval was obtained from Ethical review board of Jimma University, Collage of Public Health & Medical Science. St Luke Catholic Hospital was gave permission to conduct the study. Then, study permit was granted from Hospital in accordance with the letter from the University. The data was collected using pre tested checklist. Results will be communicated to the relevant bodies after the completion of the paper.

4.11 Data quality assurance

Data collection tools (the checklists) to collect the data from the registration books and client cards was prepared and pretested with similar group as the target group and excluded from the sample. Necessary changes in the tools was made accordingly. To assure the quality of the data, data collectors were trained by principal investigator. Every day; all the collected data was reviewed and checked for completeness and relevance. Data cleaning was done by running frequency of variables using SPSS windows 16.0.

4.12. Operational Definition

Management the care given for the preeclamptic mother and / or her baby

Outcome is the condition of the preeclamptic mother and/ or her baby at discharge

Prevalence is the amount of disease (preeclampsia) present in a study population. That is, it estimates the burden of the disease (preeclampsia).

Termination of pregnancy is delivering of the fetus through the natural rout or abdominally.

4.13. Plan for dissemination of Findings

Findings was presented to master's thesis defense of Jimma University, Faculty of Public Health & Medical Science, school of Graduate Study. The results will be submitted to the department of IEOS, St Luke Catholic Hospital to use as input to improve some areas of the service in the future. There will be an attempt to publish the result.

4.14. Limitation of the study

It is also necessary to note that there were methodological limitations in this study. The study was hospital based retrospective study with a relatively small sample size; as a result sampling and information bias may have occurred and we had limited power to study the more rare outcomes [and to apply statistical testes and models.](#) There were many preeclamptic/ eclamptic mothers cards with incomplete data excluded from the study. Even though majority of women in Ethiopia prefer to give birth in home there could probably be pre-eclamptic/eclamptic women who had given birth at home during the study period, thus not included in the study.

Chapter 5. Result

5.1. Socio- Demographic ~~characteristics data~~ & the Magnitude of Pre-eclampsia/ Eclampsia

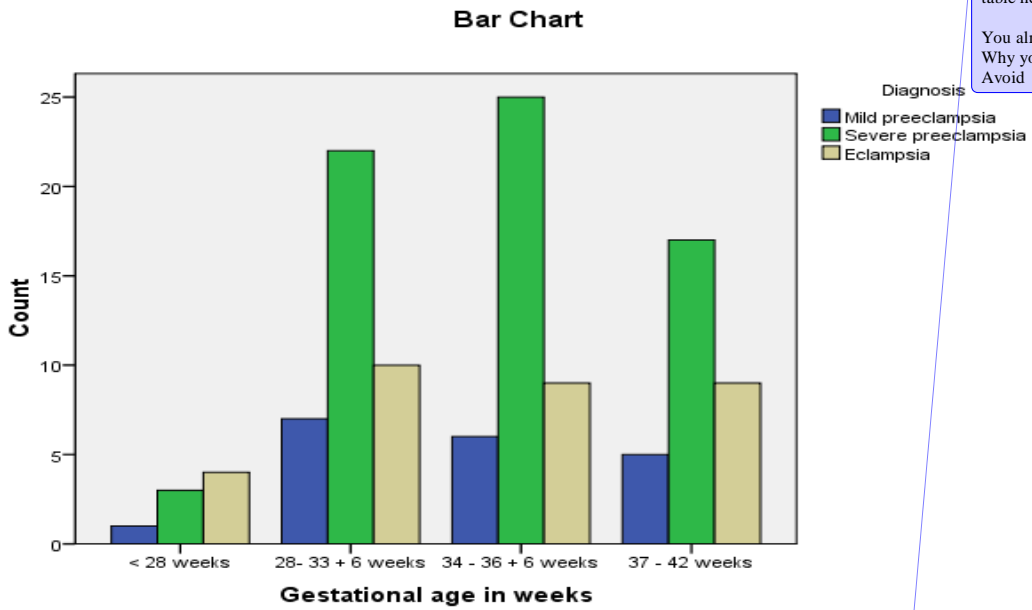
Out of the total 118 preclamptic/ eclamptic women, 54 (45.8%) were aged below 25, 45 (38.1%) were between 25 & 35years and 19 (16.1%) were older than 35 years. The mean ages were 27.7, 25.9 and 23.8 years for the mild pre-eclamptic, severe preeclamptic and eclamptic women respectively. Seventy four (63%) of all pre-eclamptic/eclamptic and 75% of eclamptic women were from rural area. Sixty eight (57.7%) were primipara and 50 (42.4%) were multiparous (Table 1). There were 122 mothers with preeclampsia/ eclampsia treated in the given period and 12815 deliveries making the incidence of preeclampsia/ eclampsia 9.5/1000 deliveries. Of- the 118 women with the diagnosis of pre-eclampsia, 19 (16%) had mild pre-eclampsia, 67 (59%) severe pre-eclampsia and 32 (27%) eclampsia (Table 1).

Comment [u2]: ???

Comment [u3]: You can simply put the mean and the SD

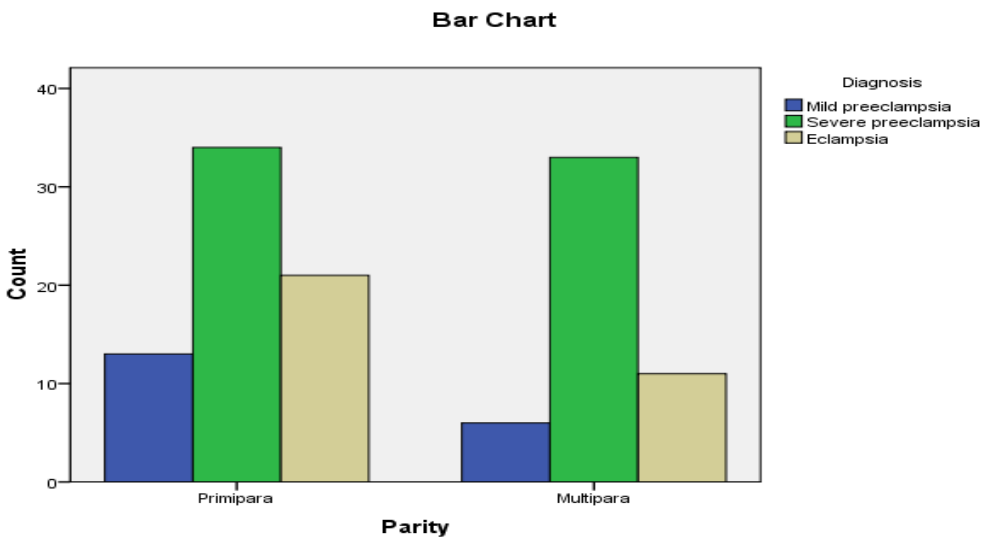
Table 1: Socio- Demographic Characteristics of the study participants in St Luke Catholic Hospital, Woliso. January 1/2008 to December 30/2012

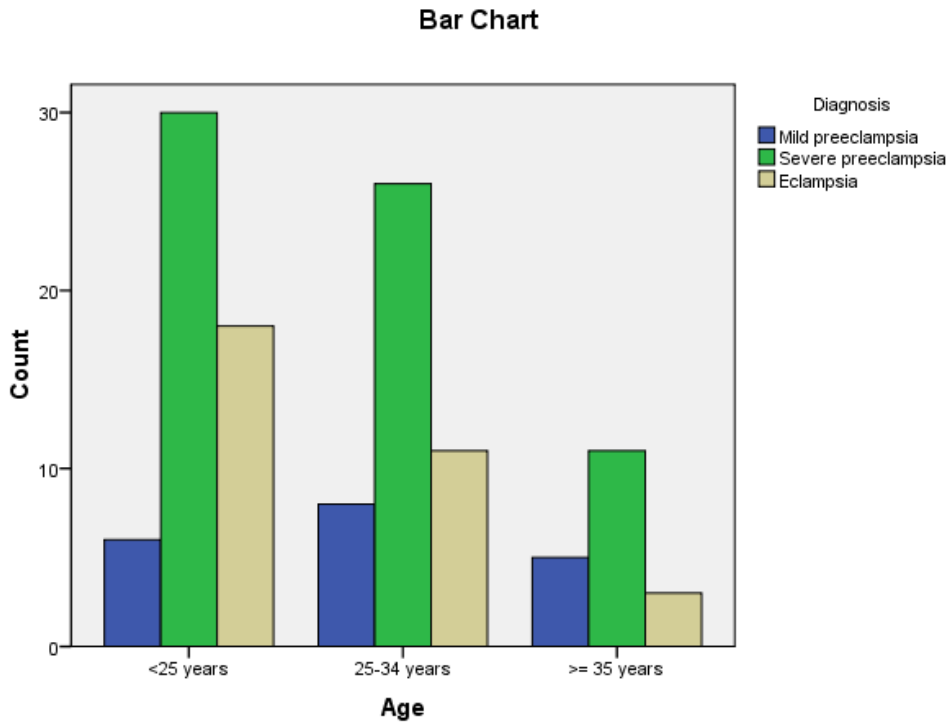
Age (Years)	Diagnosis			Total
	Mild Preclampsia	Severe Preclampsia	Eclampsia	
	No (%)	No (%)	No (%)	No (%)
<25	6 (5.1)	30 (25.4)	18 (15.3)	54 (45.8)
25-34	8 (6.8)	26 (22)	11(9.3)	45 (38.1)
>35	5 (4.2)	11(9.3)	3 (2.5)	19 (16)
Total	19 (16.1)	67 (56.8)	32 (27.1)	118 (100)
Address				
Urban	8 (6.8)	28 (23.7)	8 (6.8)	44 (37.3)
Rural	11 (9.3)	39 (3.1)	24 (20.3)	74 (62.7)
Total	19 (16.1)	67 (56.8)	32 (27.1)	118 (100)
Parity				
Primi	13 (11)	34 (28.8)	21 (17.8)	68 (57.6)
Multi	6 (5.1)	33 (28)	11 (9.3)	50 (42.4)
Total	19 (16.1)	67 (56.8)	32 (27.1)	118 (100)



Comment [u4]: Bar chart avoid the word "bar chart" put the label below the par as you did for the table headings

You already described these information in table 1. Why you put it in the bar graph? Avoid redundancy!





5.2. Medical and Pregnancy History of the study participants

At admission, out of 118 Preclamptic/eclamptic women 31 (26.3%) have no physical complaint, 42 (35.6%) have one or more symptoms of hypertension 25 (21.2%) complain convulsion and 23 (19.5%) were in labour pain. In addition, from all observed preclamptic /eclamptic cases, 8 (6.8%) were below 28weeks, 79 (67%) were between 28 & 36+6 weeks and 31 (26.3%) were 37 weeks and above. Four (3.4%) of the total cases were normotensive at admission, 38(32.2%) have a BP of 140/90-159/109mmhg while the remaining 76 (64.4%) a BP of greater than or equal to 160/110. Urine Albumen was negative for 7 (5.9%), it was positive and was +3 or above for 60 (51%) of cases.

Table2. Medical and Pregnancy History of the study participants January 1/2008 to December 30/2012 in St Luke Catholic Hospital, Woliso

Chief Complaint	Diagnosis			Total No. (%)
	Mild Preclampsia No. (%)	Severe Preclampsia No. (%)	Eclampsia No. (%)	
No complaint	13 (11)	18 (15.3)	0	31 (26.3)
Symptoms of HTN	0	33 (28)	9 (7.6)	42 (35.6)
Convulsion	0	0	25 (21.2)	25 (21.2)
Labour pain	6 (5.1)	16 (13.6)	1 (0.8)	23 (19.5)
GA (In weeks)				
<28	1 (0.8)	3 (2.5)	4 (3.4)	8 (6.8)
28-33+6	7 (5.9)	22 (18.6)	10 (8.5)	39 (33.1)
34-36+6	6 (5.1)	25 (21.2)	9 (7.6)	40 (33.9)
37-42	5 (4.2)	17 (14.4)	9 (7.6)	31 (26.3)
BP at admission				
Normal range	2 (1.7)	1 (0.8)	1 (0.8)	4 (3.4)
140/90-159/109	15 (12.7)	13 (11)	10 (8.5)	38 (32.2)
>=160/110	2 (1.7)	53 (44.9)	21 (17.8)	76 (64.4)
Proteinuria				
Negative	1 (0.8)	4 (3.4)	2 (1.7)	7 (5.9)
Positive <+3	16 (13.6)	26 (22)	9 (7.6)	51 (43)
Positive >= +3	2 (1.7)	37 (31.4)	21 (17.8)	60 (51)

5.3. Management of Preclampsia/eclampsia

In this study, 10 cases were not given any antihypertensive drugs, 18 given only Methyl dopa, 8 only Nifedipine, 43 took two antihypertensive drugs and 39 cases given three antihypertensive drugs. It was also observed from this study 78.8% of preclamptic patients have got magnesium sulphate. labor was induced in 64 (54.2% of cases, 27 (22.9%) were in labor at admission and in another 27 (22.9%) labor started spontaneously while they were managed conservatively in the hospital. The length of stay in the hospital was 1-5

days for 33 (28%), 6-10 days for 40 (34%), 11-15 days for 30 (25.4%), 16-20 days for 11 (9.3%), 21-25 days for 1 (0.8%) and 3 (2.4%) of all the pre-eclamptic women. The mean hospital stay was 7 days for the mild pre-clamptic, 9.6 days for the severe pre-eclamptic and 11.7 days for the eclamptics (Table 3).

Table 3. Management of preeclamptic/eclamptic mothers in St Luke Catholic Hospital from January 1/2008 to December 30/2012

	Diagnosis			
	Mild Preclampsia	Severe Preclampsia	Eclampsia	Total
Drugs given	No (%)	No (%)	No (%)	No (%)
No drugs given	9 (7.6)	1(0.8)	0	10 (8.5)
Methyidopa	9 (7.6)	6 (5.1)	3 (2.5)	18 (15.3)
Nifidipine	0	6 (5.1)	2 (1.7)	8 (6.8)
Two of the drugs	1 (0.8)	27 (22.9)	15 (12.7)	43 (36.4)
Three of the drugs	0	27 (22.9)	12 (10.2)	39 (33.1)
Total	19 (16.1)	67 (56.8)	32 (27.1)	118 (100)
Anticonvulsant given				
Yes	5 (4.2)	59 (50)	29 (24.6)	93 (78.8)
No	14 (11.9)	8 (6.8)	3 (2.5)	25 (21.2)
Total	19 (16.1)	67 (56.8)	32 (27.1)	118 (100)
Labor induced				
Yes	4 (3.4)	42 (35.6)	18 (15.3)	64 (54.2)
No	8 (6.8)	13 (11)	6 (5.1)	27 (22.9)
In labour	7 (5.9)	12 (10.2)	8 (6.8)	27 (22.9)
Total	19 (16.1)	67 (56.8)	32 (27.1)	118 (100)
Hospital stay (In days)				
1-5	11 (9.3)	20 (16.9)	2 (1.7)	33 (28)
6-10	4 (3.4)	22 (18.6)	14 (11.9)	40 (33.9)
11-15	2 (1.7)	18 (15.3)	10 (8.5)	30 (25.4)
16-20	2 (1.7)	5 (4.2)	4 (3.4)	11 (9.3)
21-25	0	0	1 (0.8)	1 (0.8)
>25	0	2 (1.7)	1 (0.8)	3 (2.5)
Total	19 (16.1)	67 (56.8)	32 (27.1)	118 (100)

5.4. Mode of delivery and maternal complication

In the current study, overall 82 (69.5%) gave birth vaginally (65 (55.1%) SVD, 7 (5.9%) breech delivery & 10 (8.5%) instrumental delivery) and 36 (30.5%) by C-section. Maternal complications were observed in 45 (38.2%) of the pre-eclamptic/eclamptic women. There was convulsion (progression to eclampsia after admission) in 7 (5.9%), HELLP syndrome in 8 (6.8%), abruptio placenta in 8 (6.8%), progression to severe preclampsia in 6 (5.1) cases, Oliguria in 5 (4.2%), pulmonary oedema in 3 (2.5%), post partum haemorrhage (PPH) in 5 (4.2%) and thrombocytopenia in 3 (2.5%). The remaining 55.9% have no maternal complication and the other 5.9% of them died (Table 4). Overall out of 118 preclamptic/eclamptic women 108 discharged alive, 3 referred to Addis and 7 mothers with preclampsia/eclampsia died making the case fatality rate 5.9% (Table 4).

As shown in table 5 below, most of maternal complications were occur in late onset (before 34 weeks) preclampsia but the majority of neonatal complication occur in early onset preclampsia.

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Table 4. Mode of delivery, Maternal Complications & outcome of preeclampsia/eclampsia in St Luke Catholic Hospital from January 1/2008 to December 30/2012

Mode of delivery	Diagnosis			Total No. (%)
	Mild Preclampsia No. (%)	Severe Preclampsia No. (%)	Eclampsia No. (%)	
SVD	13 (11)	36 (30.5)	16 (13.6)	65 (55.1)
Breech delivery	2 (1.7)	4 (3.4)	1 (0.8)	7 (5.9)
Instrumental delivery	1 (0.8)	5 (4.2)	4 (3.4)	10 (8.5)
C-section	3 (2.5)	22 (18.6)	11 (9.3)	36 (30.5)
Total	19 (16.1)	67 (56.8)	32 (27.1)	118 (100)
Maternal Complication				
No complication	10 (8.5)	47 (39.8)	9 (7.6)	66 (55.9)
Severe Preclampsia	6 (5.1)	0	0	6 (5.1)
Placenta Abruption	1 (0.8)	4 (3.4)	3 (2.5)	8 (6.8)
Eclampsia	1 (0.8)	6 (5.1)	0	7 (5.9)
Pulmonary edema	0	0	3 (2.5)	3 (2.5)
PPH	1 (0.8)	2 (1.7)	2 (1.7)	5 (4.2)
Thrombocytopenia	0	1 (0.8)	2 (1.7)	3 (2.5)
Oliguria	0	2 (1.7)	3 (2.5)	5 (4.2)
DIC/ HEELP syndrome	0	2 (1.7)	6 (5.1)	8 (6.8)
Maternal death	0	3 (2.5)	4 (3.4)	7 (5.9)
Total	19 (16.1)	67 (56.8)	32 (27.1)	118 (100)
Maternal outcome				
Discharged alive	19 (16.1)	63 (53.4)	26 (22)	108 (91.5)
Referred	0	1 (0.8)	2 (1.7)	3 (2.5)
Died	0	3 (2.5)	4 (3.4)	7 (5.9)
Total	19 (16.1)	67 (56.8)	32 (27.1)	118 (100)

Table 5. Maternal complications in women with pre-eclampsia by gestational age in St Luke Catholic Hospital from January 1/2008 to December 30/2012

Maternal Complication	Early Onset < 34 weeks	Late Onset ≥ 34 weeks	Total
No complication	25 (21.2)	41 (34.8)	66 (55.9)
Severe Preclampsia	2 (1.7)	4 (3.4)	6 (5.1)
Placental abruption	3 (2.5)	5 (4.2)	8 (6.8)
Eclampsia/convulsion	2 (1.7)	5 (4.2)	7 (5.9)
Pulmonary edema	1 (0.8)	2 (1.7)	3 (2.5)
PPH	2 (1.7)	3 (2.5)	5 (4.2)
Thrombocytopaenia (<100 000/μl)	2 (1.7)	1 (0.8)	3 (2.5)
Renal Failure/Oliguria	3 (2.5)	2 (1.7)	5 (4.2)
DIC/HELLP syndrome	3 (2.5)	5 (4.2)	8 (6.8)
Maternal death	4 (3.4)	3 (2.5)	7 (5.9)
Maternal Outcome			
Discharged	41 (34.7)	67 (56.8)	108 (100)
Referred	2 (1.7)	1 (0.8)	3 (2.5)
Died	4 (3.4)	3 (2.5)	7 (5.9)
Neonatal Outcome			
Alive	19 (16.1)	65 (55.1)	84 (71.2)
Stillbirths	18 (15.3)	3 (2.5)	21 (17.8)
Early Neonatal Death	10 (8.5)	3 (2.5)	13 (11)
Total	47 (39.8)	71 (60.2)	118 (100)

5.5. Birth Weight and Neonatal Outcomes

All 118 (100%) of the birth weights were recorded, ~~of which with~~ 27 (22.9%) weighing less than 1500 gm, 45(38.1%) between 1500-2499 gm and the ~~remaining rest~~ 46(39%) more than 2500 gm. The mean weights were 2.58 Kg, 2.00 Kg and 2.25 Kg for mild pre-eclamptic, severe preeclamptic and eclamptic women, respectively.

Including 30 (26.3%) premature deliveries, out of 97 neonates delivered alive 13 (13.4%) were died before discharged. Twenty one stillbirths and 13 early neonatal deaths occurred making the perinatal mortality rate 288/1000 deliveries. Eclampsia is a common complication still associated with high level of maternal and perinatal mortality as well as morbidity. (Table 6).

Table 6. Neonatal weight and perinatal outcomes of preeclampsia/eclampsia in St Luke Catholic Hospital from January 1/2008 to December 30/2012

Neonatal Weight (in grams)	Diagnosis			Total
	Mild Preclampsia No (%)	Severe Preclampsia No (%)	Eclampsia No (%)	No (%)
<1500	2 (1.7)	20 (16.9)	5 (4.2)	27 (22.9)
1500-2499	4 (3.4)	28 (23.7)	13 (11)	45 (38.1)
≥ 2500	13 (11)	19 (16.1)	14 (11.9)	46 (39)
Total	19 (16.1)	67 (56.8)	32 (27.1)	118 (100)
Neonatal Outcome				
Alive	15 (8.5)	50 (27.1)	19 (9.3)	84 (44.9)
Still birth	2 (1.7)	11 (9.3)	8 (6.8)	21 (1)
ENND	2 (1.7)	6 (5.1)	5 (4.2)	13 (11)
Tota	19 (16.1)	67 (56.8)	32 (28)	118 (100)

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Chapter 6. Discussion

6.1. Socio demography & the Magnitude of the Disease

Sixty eight (57.6%) were primipara and 99 (83.9%) were aged below 35. The mean ages were 27.7, 25.9 and 23.8 years for the mild pre-eclamptic, severe preeclamptic and eclamptic women respectively. In this study a significant difference in the mean ages of the different categories of preeclampsia was observed, which suggests a trend towards increasing severity with younger age (the mean age for the eclamptic was 23.8 years). This is near to the studies of Moodley and Mashioane where the mean age was 28 years (12). This also corresponds to the findings of Hall et al where younger women are at higher risk for developing eclampsia (33). Seventy four (63%) of all pre-eclamptic/eclamptic women and 75% of eclamptic women were from rural area. These is in line with the study done in JUSH, which show 66.7% of the mothers who were admitted with HDP during the study period were nulliparous and majority of the mothers who were affected by HDP (56.9%) were from rural area (18). According to the study done in Mayo hospital, the mean age was 28 years. Out of 100 patients 60 were primigravida.

There were 122 mothers with preeclampsia/ eclampsia treated in the given period and 12815 deliveries making the incidence of preeclampsia/ eclampsia 9.5/1000 deliveries. Of the 118 women with the diagnosis of pre-eclampsia, 19 (16%) had mild pre-eclampsia, 67 (59%) severe pre-eclampsia and 32 (27%) eclampsia. These corresponds to the study at JUSH, 12 (7.6%) cases of mild preeclampsia, 51.9% severe preeclampsia and 23.4% eclampsia (18). About 58% of the pre-eclamptic women in this study were primiparous. It was lower than the global incidence of preeclampsia which was estimated at 5-14% of all pregnancies. and that of the developing nations, with the reported incidence of to be 4-18% (13). It was also lower than the Indian which was 5.38% while preeclampsia and eclampsia accounted for 44% and 40% respectively (16). According to a population based study in South Africa the incidence of Preeclampsia was 12% (17). Studies in Ethiopia show that the incidence of Preeclampsia is around 5% of which

Comment [u5]: Discussion is not repeating the results as it was in the result section rather it is:

1. all about the meaning of the results when we compare with the other evidences or studies
2. it is the opportunity and means for showing the implication of the findings for intervention or programs
3. it is also a place where the researcher have the right to reflect his/her own say, you have the right to say what you feel about the fining and the implication in a logical and reasonable way. So better if you revise this section again. Avoid bars from this section.

majority were due to severe preeclampsia; eclampsia complicates 0.7% of the pregnancies (8).

6.2. Management of Preclampsia/ Eclampsia

In this study, 69.5% of cases were treated with two or three antihypertensive drugs, 22% with a single drug and 10% never took antihypertensive drugs. The treatment of mild preclampsia (less than 160/110 mmHg) does not improve outcome. However 10 (8.5%) of mild pre-eclamptic women received anti hypertensive drug in this study. Based on the results of 10 randomised trials evaluating drug treatment in women with mild preeclampsia, Sibia BM also commented that there was no clear benefit to drug treatment in women with mild pre-eclampsia (23). However, an inference could not be made on the effect of antihypertensive drugs on the outcome of pre-eclampsia in this study as most of the women were delivered immediately.

Magnesium sulphate reduces the risk of eclampsia and it is likely it reduces the risk of maternal death (4). Anticonvulsants was given for 88% of severe preeclamptic women and for 79% of all cases in this study. In their study on maternal and perinatal outcomes of eclampsia in Nova Scotia, Lee W, O'Connell CM and Baskett TF reported that 97% of pre-eclamptics had received magnesium sulphate (23).

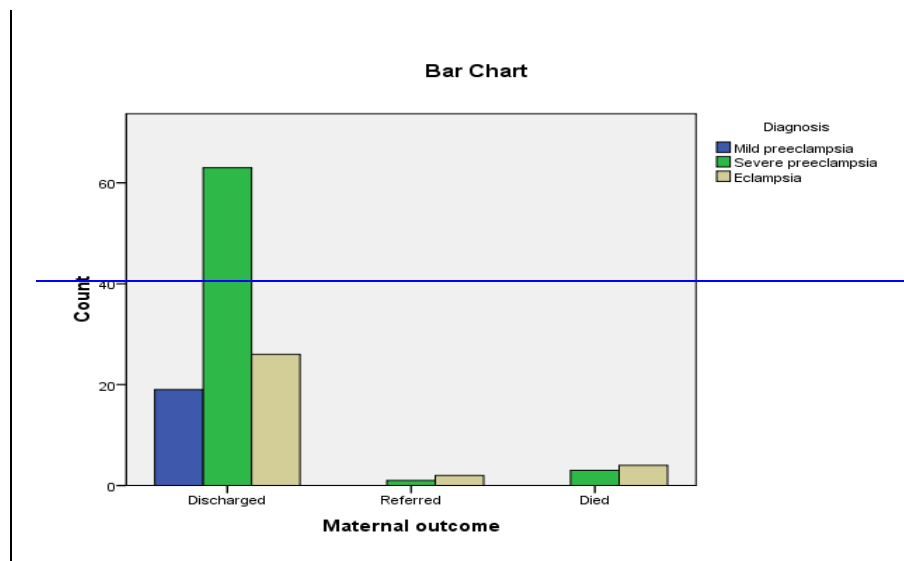
6.3. Mode of Delivery in Preclampsia/Eclampsia

Overall 30.5% of the women in this study were delivered by means of Caesarean section. This rate of caesarean delivery is lower than that reported by Hall et al where 81.5% of pre-eclamptic gave birth by means of caesarean section (33) and that of the epidemiological studies in a Srilankan population, where 77.8% women needed a Caesarean section for delivery (7). In our study, 69.5% of preclamptic/eclamptic women delivered vaginally. This was similar with Al-Mulhim et al's study that reported the spontaneous vaginal delivery to be less frequent (69%) among pre-eclamptic women compared to normotensive women (86.2%) implying that being pre-eclamptic predisposes to caesarean delivery (16).

6.4. Maternal outcome of Preclampsia/Eclampsia

The maternal complication rate that was observed in 52 (44%) of this study was higher than that of Lee and his colleagues' report where 32% of the pre-eclamptic women in their study had major maternal complications. The observed complications in this study were abruptio placenta in 8 (6.8%), HELLP syndrome in 8 (6.8%), convulsion (progression to eclampsia after admission) in 7(5.9%), progression to severe pre-eclampsia in 6 (5.1%), PPH in 5 (4.2%), oliguria 5 (4.2%), pulmonary oedema in 3 (2.5%) and thrombocytopenia in 3 (2.5%).

These complications were similar but less than that of the findings of Murphy and Stirrat which shows from 71 preeclamptic women with gestational age less than 30 weeks, 21% had developed HELLP syndrome, 15% had abruptio placenta, 13% had renal failure and 1.4% eclampsia but maternal mortality was not observed (19). Abruptio placenta was the commonest maternal complication observed in the study of Al-Mulhim and his colleagues (12).

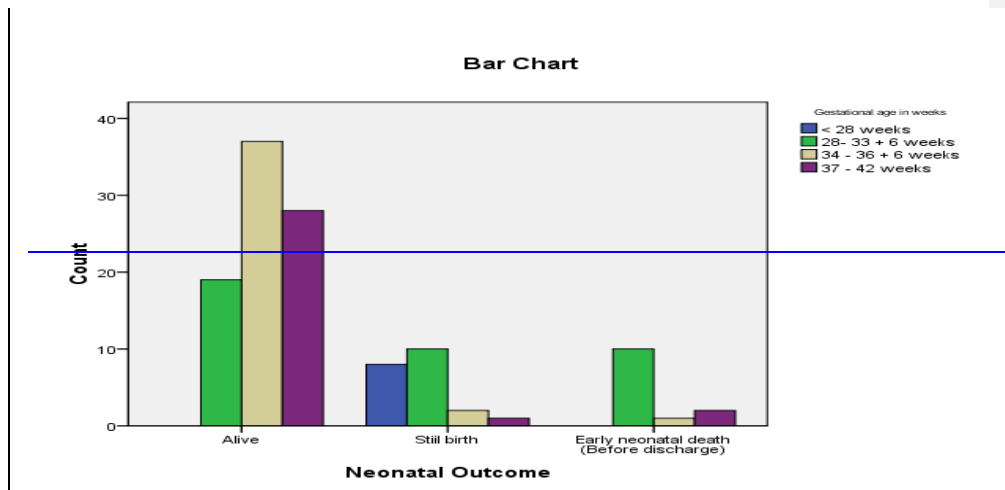


Maternal death occur in 7 (6%) of preclamptic women during the study period. In comparison, only two eclamptic women were died in the study of JUSH. This finding was less than 33 to 37% of maternal deaths observed between 1998 and 2000 in South

Africa (12). According to the study done in Mayo hospital, the maternal mortality due to eclampsia was around 24% (21). In India, the rate of maternal mortality was 5.55% of the deliveries (16). Hospital based studies in south Africa showed that HDP contributed for 20.7% of maternal deaths in the country (17).

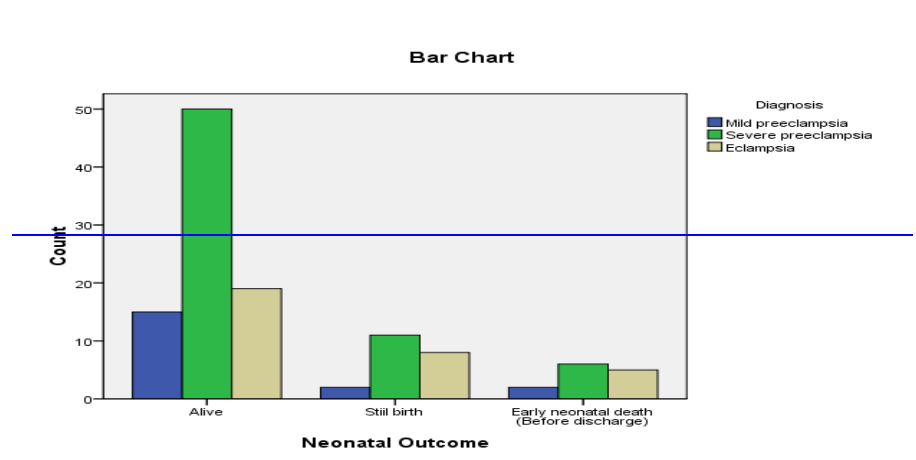
6.5. Neonatal Outcome of Preclampsia/Eclampsia

Seventy two (61%) neonates had a birth weight of less than 2500gm with mild pre-eclampsia having higher mean birth weight than the more severe categories. These mean birth weights correspond to the mean gestational age of the different categories of pre-eclampsia. The observed trend of birth weight was also similar to those of other studies. The lower birth weight among the severe pre-eclampsia cases which was observed in this study corresponds to that of JUSH's study where the birth weights were significantly lower in women with severe preeclampsia (18). The mean weights were 2.58 Kg, 2.00 Kg and 2.25 Kg for mild pre-eclamptic, severe preeclamptic and eclamptic women, respectively.



Pre-eclampsia is responsible for the occurrence of more than 40% of premature deliveries around the globe (2). This was also observed in this study where 30 (26.3%) of the neonates were delivered prematurely. Out of 118 deliveries in the study, including

30 (26.3%) premature deliveries, out of 97 neonates delivered alive 13 (13.4%) were died before discharged. Twenty one stillbirths and 13 early neonatal deaths occurred making the perinatal mortality rate 288/1000 deliveries. These is higher than other studies in Ethiopia and that of the study done in JUSH which was 138.9/1000 deliveries (18). In India, perinatal deaths occurred in 37.5% of the deliveries (16).



In comparison, from 114 Sinhalese neonate delivered alive, 30 were died during the immediate postpartum period, before the mother was discharged. 7% of pregnancies resulted in stillbirths. Overall 25% babies died during the perinatal period. Of the 77 babies born to mothers developing pre-eclampsia before 34 weeks of gestation, 15.6% were stillbirths and only 46.7% survived to go home with the mother. There were only 2.9% confirmed perinatal deaths among babies of women who developed late onset pre-eclampsia. In Nottingham UK, babies of women with pre-eclampsia, the overall PNMR in one of the recruiting hospitals, Castle Street Hospital for Women, 2003, was 1.79% and 1.76% in 2001 and 2002 respectively. In comparison, perinatal mortality rates of 17% have been reported in Sri Lanka (7).

The rates of low and very low birth weight infants among 146 deliveries in JUSH from April 2009 to march 2010 were 35.6% and 12.3%, respectively. There were 42 stillbirths yielding stillbirth rate of 27.5%. Of these still births, 38.1% and 35.7% were among mothers who had severe pre-eclampsia and eclampsia, respectively. There were 10 ENND of which majority were for the mothers with severe pre-eclampsia and eclampsia. The

perinatal mortality rate in the study was 317.1 / 1000 births. The rate of preterm delivery was 31.6% for all forms of HDP during the study period and 50% of the mothers who were diagnosed to have HELLP syndrome had preterm deliveries (18).

Chapter 7. Conclusion and Recommendation

7.1. Conclusion

According to this study, most of the severe preclamptic and eclamptic women were from rural area. Majority (73.8%) of the cases occur before 37 completed weeks of GA that leads to preterm birth and its complication. The rate of ~~prematurity was~~ prematurity was very high, about..... Almost all perinatal deaths were the result of prematurity that require neonatal ICU admission with specialized care.

The maternal mortality during -the study period were average compared to other studies. It also shows that the care given to the pre-eclamptic women was in line with national guidelines of management of pre-eclampsia/eclampsia.

The caesarean section rate was lower than other studies but higher than normotensive women. Anticonvulsant usage as a prophylaxis during or before delivery for severe pre-eclampsia & eclampsia was practiced well.

Most of maternal complications were occur in late onset (before 34 weeks) preclampsia but the majority of neonatal complication occur in early onset preclampsia.

what is you conclusion about the management?

7.2. Recommendations

Pre-eclampsia and eclampsia are one of the five direct causes of maternal death. Early detection and timely management of preclampsia have good maternal and perinatal outcome. Therefore to revert back the situation the following need to be considered:

Comment [u6]: See it again

Comment [u7]:

Comment [u8]: Was the institution had no ICU?

Comment [u9]: What about with the current HSDP IV plan?

Comment [u10]: Better not to compare with other studies, you have to finished this in the previous section.

Comment [u11]: What makes well? what was the effect?

Comment [u12]: See it again

• Strengthening the primary health care units near to the rural community helps to detect preclampsia/eclampsia early.

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• In it also mandatory to strengthening neonatal corners in the health centers and neonatal ICU in the hospitals to manage & save lives the primature neonates of preclamptic mothers.

• In the study hospital even though the documentation of the findings was satisfactory, management of cards in the store was poor and it must be improved.

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Field Code Changed

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Annex I.

Data collection tools for Management Out Comes of Preeclampsia/ eclampsia in St Luke Catholic Hospital, Woliso, South west Ethiopia: A retrospective study

1. Age.....Years
2. Adress
 - a. Urban b. rural
3. **Parity**.....
4. **Chief complaints**
 - a. Pushing down pain
 - b. Head ache and/or Blurring of vision and/ or Epigastric pain
 - c. Convulsion
 - d. Other, Specify _____
5. Hospital stay: days
6. **Blood pressure at admission:..... mmHg**
7. **Has Proteinuria?**
 - a. Yes
 - b. No

8. **Gestational age at admission (in weeks)**_____

9. **What was the Diagnosis?**

- a. Mild Pre-eclampsia
- b. Severe pre-eclampsia
- c. Eclampsia

10. **What drugs were given for control of hypertension?**

- a. Methyl dopa
- b. Nifedipine
- c. Hydralazin
- d. Two of the above drugs
- e. Three of the above drugs

11. Was anticonvulsant (Magnesium Sulphate or Diazepam) given?

- a. Yes
- b. No

12. Was labour induced/pregnancy terminated?

- a. Yes
- b. No

13. **What was the mode of delivery?**

- a. Spontaneous vaginal delivery (SVD)
- b. Breech delivery
- c. Instrumental Delivery (Vacuum extraction or Forceps delivery)
- d. Caesarean section

14. Was there any maternal complication?

- a. No complication
- b. Placental abruption
- c. Thrombocytopaenia (<100 000/ μ l)
- d. Eclampsia/convulsion
- e. Pulmonary edema
- f. DIC/HELLP syndrome
- g. Post partum haemorrhage
- h. Renal failure/Oliguria
- i. Maternal Death

j. Other (Specify).....

15. What was the outcome of the mother?

- a. Improved & discharged
- b. Referred
- c. Died
- d. Left against medical advice

16. What was the Weight(s) of the neonate in grams?

17. What was the neonatal outcome?

- a. Normal Apgar score(>5)
- b. Low Apgar score (≤ 5)
- c. Preterm/ Prematurity
- d. Stillbirth (IUFD)
- e. Early Neonatal Death
- f. Other (Mention)

ASSURANCE OF PRINCIPAL INVESTIGATOR

The undersigned agrees to accept responsibility for the scientific ethical and technical conduct of the research project and provision of required progress reports as per terms and conditions of the college of Public Health & Medical Sciences in effect at the time of grant is forwarded as the result of this application.

Name of the student: Almaz Biadgo

Date: 08 /09/05 Signature: _____

APPROVAL OF THE ADVISORS

Name of the first advisor: Mss Tsion Assefa

Date: _____ Signature: _____

Name of the second advisor: Dr Hailemariam Segni

Date: _____ Signature: _____