

Pre-Eclampsia: Evaluation Of Patient's Care In A In South African Hospital

Modiba Lebitsi Maud

Department of Health Studies, University of South Africa, 0003, South Africa
modiblm@unisa.ac.za

Abstract: The purpose of the study was to evaluate the care and outcomes given to pre-eclamptic patients treated in a public hospital in South Africa. **Findings:** The age distribution of patients in this study is similar to other reports and suggests that pre-eclampsia is probably a disease of young women. Most of pre-eclamptic is probably a disease of young women. Most of the women in the study were less than 21 years old (51.4%). Also, the primigravida were more likely to develop eclampsia compared to the multigravida (p value < 0.05; RR = 1.45). **Discussions:** Although pre-eclampsia is not preventable, deaths and morbidity from this disease can be prevented thorough early detection, careful monitoring and treatment of the disorder. Therefore, in order to decrease pre-eclampsia related mortality and morbidity appropriate prenatal care must be available to all women irrespective of their social and financial background. Pre-eclampsia is also a unique syndrome of pregnancy that is potentially dangerous for both mother and fetus; close supervision and timely delivery should be provided to all pre-eclamptic women. **Conclusion:** Pre-eclampsia remains a continuing problem in developing countries. The incidence of pre-eclampsia at this institution is one of the highest in the world. The major avoidable contributing is lack of or absence of antenatal care. In South Africa like other countries there is shortage of staff due to brain drain, leading to long waiting of patients before being seen by doctors or midwives.

[Modiba LM. **Pre-Eclampsia: Evaluation Of Patient's Care In A In South African Hospital.** *Life Sci J* 2013;10(1):2642-2646] (ISSN:1097-8135). <http://www.lifesciencesite.com>. 309

Key words: Pre-eclampsia, pregnancy, South Africa, mortality, morbidity, Caesarean section.

1. Introduction

Pre-eclampsia is a multi-organ system disorder that occurs after the 20th week of gestation in pregnancy and is characterized by hypertension and proteinuria with or without edema (Anthony, Johanson, and Dommissie 1994). It 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 South Africa. Despite advances in prenatal care, frequency of preeclampsia has not changed. Research addressing this disorder has been extensive during the past decade, but has not resulted in substantial improvement in methods of prediction or prevention of the disorder.

A major impediment in the development of such methods is our poor understanding of the various pathological mechanisms that lead to pre-eclampsia as well as the inconsistent criteria used to define it. Indeed, diagnostic criteria for the disorder and its subtypes have not been standardized or well defined and have varied between countries and over time during the past 20 years. Pre-eclampsia is a major obstetric problem leading to substantial maternal and peri-natal morbidity and mortality worldwide, especially in developing countries.

Hypertensive disease in pregnancy is one of the five major causes of maternal mortality in South Africa. This important fact should always be remembered

when pregnant mothers are provided with information and education during visits for antenatal care, during labor or in the puerperium. This important information should also be given to communities and relatives of pregnant mothers (Saving Mothers 1998-2000).

According to Cheyne & McQueen (1999), care of these women requires considerable management, it is often the midwife who is central in detecting the first signs of the disease and then collaborating with the medical team and providing an essential link between the women, her family and the professionals involved.

Problem statement

South Africa is one of the few developing countries with a national confidential inquiry into maternal deaths; which started from 1998 and compiled every three years, it showed that pre-eclampsia and eclampsia are still the commonest direct cause of maternal death in South Africa, however; no in depth study had been conducted so far in Gauteng Province. Hence, understanding the incidence and risk factors of pre-eclampsia in South Africa is necessary, as this would prevent the adverse effects of the disease to both the mother and the neonate, thus quality of care improves (Saving Mothers 2005-2007).

Purpose of the study

The purpose of the study was to evaluate the care and outcomes given to pre-eclamptic patients treated in a public hospital in South Africa.

Objective

To assess and evaluate the care of women admitted with pre-eclampsia in one public hospital in Gauteng Province; South Africa.

2. Research design and methods

The study was retrospective, descriptive, analytical, and quantitative. The data were collected in six months between March 2006 to July 2008 i.e. January; March and December. The study was conducted at one academic hospital in South Africa, situated in the large urban area. This is a level three hospital according to the South African levels of maternity care i.e. it is a referral hospital. The maternity outpatient ward admits about \pm 3000 women a month and the majority of these women attending this hospital have high-risk pregnancies and are referred from local clinics and private doctors due to complications of pregnancy e.g. pre-eclampsia. The antenatal ward admits \pm 1500 and it has 31 bed occupancy.

In the maternity outpatient clinic, eight midwives; two medical doctors and six student midwives daily, where as in the antenatal ward, there are six midwives and four doctors. The study attempted to answer whether pre-eclamptic women in one referral hospital had received care which adherent to a standard protocol for management of pre-eclampsia is according to the South African policy guidelines (2001): treat convulsions immediately, control blood pressure, stabilize the mother and deliver the baby as soon as possible. It also looked at whether termination of pregnancy or delivery was employed at an appropriate time or whether proper mode of delivery was employed for the pre-eclamptic women. The sample size of 136 records were reviewed using from different sources (patient's notes, record books, nurse's reports and others), hence this was a retrospective study, e.g. biography; history; observations; objective; subjective data, and all the care and treatment given to the woman on the antenatal ward and admission ward. Due to potential loss or unavailability of older records, cases were selected in backward fashion from two years of hospital maternity and theatre registers and records during those months until the desired sample size was obtained. Those with symptoms but not confirmed diagnosis according to criteria were excluded. All records selected and retrieved by this method were reviewed to determine whether they met the criteria for inclusion in the diagnostic category. These records were reviewed for the following inclusion criteria

(standard definition for diagnosis of pre-eclampsia): blood pressure $>140/90$, proteinuria $>+1$, with or without edema.

All patients of pre-eclampsia including mild preeclampsia were regarded as possible of developing any complication of preeclampsia and risk of progression of disease. Detailed history taken and examination performed on admission to labor ward to assess severity of preeclampsia and risk of eclampsia. A detailed history included information regarding the obstetric history, presenting complaints, history of symptoms and signs of preeclampsia,

A special designed proforma (record abstraction tool) was used to record data. The proforma took into account the demographic variables such as age, socioeconomic and literacy status as well as the parity, gestational age at presentation, time of onset of pre-eclampsia, mode of delivery and maternal and prenatal outcome. The tool was pre-tested on ten files of cases of pre-eclampsia and it was revised. The ten files were excluded from the main study.

Data were analyzed using SPSS version 11.0 software. Continuous variables were the student's t-test while categorical variables were analyzed using the chi-square test. The level of significance was taken as p value < 0.05 (Burns & Grove: 2003).

RESULTS

Most of the patients who presented at this hospital with pre-eclampsia were unbooked (54.1%); and had received inadequate or no antenatal care. Only 45.9% were booked. Out of 136 pre-eclamptic patients, 51.4% were less than 21 years old, 36 (26.4%) were 21 years to old and 30 (22%) were 31-42 years old. 90% of the patients belonged to the lower socio-economic class and 10% belonged to the middle class. Most women (85%) were uneducated, while 10% had received primary education.

Most of the pre-eclamptic patients were primigravida 81 patients (59.6%), 31 patients (22.8%) were at least gravid 2 to 5 and 24 patients (17.6%) were gravid 6 or more. (Table 1) This supported by the Saving Mothers Report on Confidential enquiries in Maternal Deaths in South Africa (2005-2007) who 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%) (Tsigas, 2006)). 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.

Table 1 Parity of the patients (N=136)

Parity	No. of patients	Percentage/%
Primigravida	81	59.6%
Gravid 2-5	31	22.8%
Gravid 6 and more	24	17.6%

Management at Antenatal ward

Liver function tests, uric acid or urea and (U&E) or count was checked in 85 (62.5%) but not checked in 51(37.5%) the 136 pre-eclamptic women. One hundred and thirty (95.5%) of the pre-eclamptic women had been given antihypertensive drugs and six (4%) where cases of mild not on treatment. Cardio-tocography reading was reactive in 115 (84.6%), deceleration was observed in 31(22.7%) and was not done in 21(16.4%) of the study groups. Out of 136 patients, 18 (15%) were at least than 28 weeks of gestation at presentation, 58 (50%) presented at 28 to weeks of 42 (35%) presented after 36 weeks of gestation. Hence, most pre-eclampsia patients were between 28 and 36 weeks of gestation at presentation. 86 patients (63.2%) presented with presented with ante-partum pre-eclampsia. 33 patients (24.25%) presented with intra-partum and 17 (12.6%) with postpartum pre-eclampsia.

Spontaneous vaginal delivery was the commonest mode of (71.6%). Forceps delivery was performed in 13 patients (9.7%) and Caesarean section was performed in 25 (18.7%) patients. One patient died after Caesarean section delivery due to complications e.g. eclampsia.

Table 2- Causes of Prenatal deaths

Cause of death	No. of patients	%age
Birth Asphyxia	22	34.38%
Prematurity	20	31.25%
Meconium Aspiration Syndrome	12	18.75%
Intrauterine Growth retardation	10	15.62%

Prematurity contributed to 20% out of 65 prenatal deaths (30.77%). Birth asphyxia was the cause 22 (33.85%) prenatal deaths. Meconium aspiration syndrome led to 12 prenatal fatalities (18.46%). Intrauterine growth retardation was the cause of death in 10 cases (15.38%).

Table 3 Frequencies of Delays by Type

Delays In	No. of patients	%age
Evaluation	84	61.8
Diagnosis	31	22.8
Definitive treatment	21	15.4

Prematurity contributed to 20% out of 65 prenatal deaths (30.77%). Birth asphyxia was the cause 22 (33.85%) prenatal deaths. Meconium aspiration syndrome led to 12 prenatal fatalities (18.46%). Intrauterine growth retardation was the cause of death in 10 cases (15.38%).

Delay in professional evaluation, was found with initial examinations by a professional were often delayed because personnel were unavailable for various reasons. In this study there was 61.8% of delay due to staff shortage. Delay in diagnosis or missed diagnoses occurred because of long intervals (e.g., eight hours) when patients were not monitored at all, by which time signs of fetal distress had been

missed and fetal heart tones had disappeared. Incorrect diagnoses also occurred because symptoms were missed. In another case, an incorrect diagnosis was made because the Obstetrician specialist was unavailable. Restricted availability of basic equipment (e.g., blood pressure cuff). For one patient, laboratory results were not available during the night to diagnose haemolysis, elevated liver enzymes, and low platelet count (HELLP) syndrome. Delay in definitive treatment as most of delays were caused by staff shortage were initial assessment of, as this delayed the diagnosis therefore; this delayed the definitive treatment. Lack of skilled health practitioners e.g. a doctor who does not have enough experience and delays when the operating theatre was occupied or personnel was busy.

Ethical considerations

Permission was also asked from the superintendent of the hospital and the matron in charge of maternity wards of the hospital where the study was conducted in writing to use the patient's records. The purpose of the study and the procedure of data collection were explained to hospital managers. The cases' names were replaced with pseudonyms to ensure confidentiality and anonymity.

VALIDITY AND RELIABILITY

In order to strengthen its validity and reliability the data abstraction tool was reviewed by an obstetric specialist for content validity. Data was pre-coded to reduce coding error. The tool was pre-tested on ten files of cases of pre-eclampsia in another district hospital and was revised.

DISCUSSION

Although pre-eclampsia is not preventable, deaths and morbidity from this disease can be prevented thorough early detection, careful monitoring and treatment of the disorder. Therefore, in order to decrease pre-eclampsia related mortality and morbidity appropriate prenatal care must be available to all women irrespective of their social and financial background. Pre-eclampsia is also a unique syndrome of pregnancy that is potentially dangerous for both mother and fetus; close supervision and timely delivery should be provided to all pre-eclamptic women.

In this study obstetrician's errors contributed to the failure to prevent eclampsia, probably because patients who were seen were not assessed properly and women were send to the ante-natal instead of being handled like emergencies. This is confirmed by Anthony, Johanson and Dommissie (1994), that the management of these patients is compromised because obstetricians generally lack necessary knowledge and

skills in critical care and conversely critical care specialists may lack appreciation and knowledge of pregnancy physiology and patho-physiology.

The age distribution of patients in this study is similar to other reports and suggests that pre-eclampsia is probably a disease of young women. Most of pre-eclamptic is probably a disease of young women. Most of the women in the study were less than 21 years old (51.4%). Also, the primigravida were more likely to develop eclampsia compared to the multigravida (p value < 0.05; RR = 1.45). The available literature does not provide an obvious cause of this observation. However, one possible explanation for this association may be that a large number of these young patients report a lack of or absence of antenatal care.

The intrauterine growth restriction (IUGR) which was observed in 11 (15.2%) of the study group was similar to the findings of Odegard et al (2000), were severe and early onset preeclampsia were associated with significant fetal growth restriction.

Recommendations to practice

Where the woman has established pre-eclampsia, a collaborative care approach should be employed ideally in a consultant unit with neonatal care facilities. All those who are involved in care of the woman with pre-eclampsia should have an appropriate level of training and up to date knowledge of the disease process and current management. It is essential that communication channels among staff both oral and written are effective and that they involve the woman and her family. Advocacy should be employed by the midwife as a link between the woman, her family and the obstetric team. Re-evaluating guidelines and to understand why, in spite of relatively good access to emergency obstetric care, maternal mortality is high in South Africa.

LIMITATIONS OF THE STUDY

The study was a retrospective hospital based study an information bias could be inevitable. The study had a small sample size, which may have limited ability to examine rare events.

CONCLUSIONS

Pre-eclampsia remains a continuing problem in developing countries. The incidence of pre-eclampsia at this institution is one of the highest in the world. The major avoidable contributing is lack of or absence of antenatal care. In South Africa like other countries there is shortage of staff due to brain drain, leading to long waiting of patients before being seen by doctors or midwives. This is asserted by Berhe (2005), that early diagnosis, close medical supervision and timely delivery are the cardinal requirements of

the management of pre-eclampsia. Once the diagnosis is established, subsequent management should be based on the initial evaluation of maternal and fetal well-being. Delayed responses at the household level to obstetric emergencies often arise as a result of inadequate information on when to seek help and sometimes on where to seek help Alexander et.al (1999); Coppage et.al ((2002) & Cheyne et.al. (1999). This is worsened by lack of decision-making power, poverty. Some socio-demographic (e.g., level of education and marital status) and cultural.

According to Tsigas, 2006; to stop preventable mortality and morbidity by eliminating delays in diagnosis and medical errors, ensuring better and more consistent management practices, educating both patient and care givers of the potential long term health issues, and helping women and their families through the impact of pre-eclampsia. The health care providers practiced that which is already known consistently and effectively. This is mentioned in the 1998-2000, saving mother's report of South Africa that 33 to 37% of maternal deaths were due to pre-eclampsia alone and the major cause of mortality in 55% of the preeclampsia women was substandard management, so proper management of preeclampsia should remain a priority in obstetrics.

Corresponding Author:

Dr Lebitsi Maud Modiba
Department of Health Studies
University of South Africa
E-mail: modiblm@unisa.ac.za

References

1. Alexander, J.M, Bloom, S.L, McIntire, D.D, Leveno, K.J. (1999) Severe pre-eclampsia and the very low Birth weight infant: Is induction of labor harmful? *Obstetrics and Gynecol.* 93: 485-488.
2. Anthony, J Johanson, R and Dommissie (1994) Critical care management of severe pre-eclampsia. Department of Obstetrics and Gynecology, University of Cape Town. *Fetal and maternal Medicine Review*, (6), 119-129.
3. Berhe, H.W. (2005) Pre-eclampsia and its outcome (Maternal and Neonatal Morbidity and Mortality) in the two Referral Hospitals (Windhoek Central and Katutura), Namibia. Unpublished.
4. Burns, N, Grove S.K.(2003) *The practice of nursing research: conduct, critique and utilization.* Canada: WB Saunders.
5. Cheyne, H & McQueen, J. (1999) Care of the woman with hypertension in pregnancy: the viewpoint of the midwife. *Ballière's Clinical Obstetrics and Gynecology.* (13)107-113.

6. Coppage, K.H, Polzin, W.J. (2002) Severe pre-eclampsia and delivery outcomes: is immediate caesarean delivery beneficial? *American Journal of Obstetrics & Gynecology*. 186(5): 921-3.
7. Duley, L, Henderson-Smart D. (2004) Magnesium sulphate versus phenytoin for eclampsia (Cochrane Review). In: John Wiley & Sons, Ltd. The Cochrane Library. Issue Chichester, UK.
8. Fraser, M.D, Cooper, A.M, Nolte A.G.W. Myles (2006) Textbook for midwives. African ed. Elsevier, Churchill Livingstone..
9. Odegard, R.A, Vatten L.T, Nilsen ST, Selvessen K.A, Austguten R. Pre-eclampsia and fetal growth. *Obstetric Gynecol*. 2000; 96(6): 950-5.
10. Saving Mothers (1998-2000) First Report on Confidential Enquiries into Maternal Deaths in South Africa.
11. Saving Mothers (2005-2007) Fourth Report on Confidential Enquiries into Maternal Deaths in South Africa.
12. Saving mothers policy and management guidelines for common: Causes of maternal deaths (2001). Department of Health, South Africa.
13. Tsigas,E.Z.(2006) Pre-eclampsia: The patient perspective: National Institute of Child Health and Human Development (NICHD) workshop.
14. Villa, T, Gülmezoglu, M; Merialdi, M; Lissner, C. Generating New evidence for maternal and prenatal health: Biennial report 2000; 1:2 Available from: [www.who.int/reproductive health/publication](http://www.who.int/reproductivehealth/publication).

2/15/2013