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Postpartum Eclampsia Management with Lytic Cocktail Solutions in Rural and Semirural Health Care (with Limited Resources) Services in Eritrea

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Abstract: This is a case report of 28-year-old primigravida woman with complaints of mild headache, edema of both legs and history of amenorrhea of eight + months who presented to the maternity hospital. After assessment she was admitted for mild pre-eclampsia management. Two days after admission, her membranes ruptured spontaneously, clear liquor drained and had no signs of true labor on assessment. Four hours later strong uterine contractions started with increased frequency and labor progressed well giving birth spontaneously. Third stage of labor completed with minimum bleeding. Her blood pressure was monitored every 6 hours and in the first 3 days of postpartum period B/P measurement showed slight improvement (160/90, 150/85 and 140/90). She was on Valium 20 mg twice per day. Edema of the extermities and facial puffiness decreased. Uterine involution was within normal limits. Her breasts were full and normal. Eighty hours after delivery while being assessed for postpartum follow up client developed seizures suddenly which lasted for 25 seconds. *Management & Treatment*: Supportive care, Valium 20 mg IV and Pethedine 100 mg IM were given stat and then an in-dwelling catheter was inserted. Lytic cocktail *Solution I* (Pethedine 50 mg, promethazine (Phenergan) 50 mg and chlorpromazine (largactile 50 mg) in 250 ml of 10% Dextrose was administered intravenously over 30 minutes. Since convulsions was not controlled, Solution II Lytic cocktail (chlorpromazine 100 mg and Pethedine 50 mg) in 250 ml of 10% Dextrose in water was prepared and given intravenously at 40 drops/min. While taking the Solution II Lytic cocktail she had one convulsion that lasted for 7 seconds. The same Solution II was prepared and continued intravenously at a slower rate. Convulsion was controlled. Later, she developed fever, tachycardia, crepitation of the lungs and urine output decreased. She was treated with anti-biotics, diuretics and digoxin with good outcome. The patient was followed as an outpatient weekly, biweekly and monthly after discharge. *Conclusion:* A pregnant or postpartum mother with blood pressure of 170/100 and history of convulsion require continued follow up by a skilled attendant in a health facility. Early hospital discharge for such cases should not be practiced under any circumstances. The need for trained, committed maternal health care providers, equipped health facility including availability of medication like magnesium sulfate to control convulsion. Up dated eclampsia management procedures (guidelines/ protocols) must be available and health care providers should be well oriented on how and when to use them properly.

Keywords: Late Eclampsia, Lytic Cocktail Solution, Magnesium Sulfate, Supportive Care

1. Introduction

Eclampsia is the onset of convulsions in a woman with pre-eclampsia during her pregnancy, intra-labor and/or postpartum periods not related to other causes. It is the third leading cause of maternal and perinatal morbidity and mortality worldwide according to World Health Organization [1-3]. Even though high blood pressure in postpartum period is common in women with antenatal hypertensive disorders it has evidence of beginning in the postpartum period, it can happen in women without any history of preeclampsia during pregnancy. [4] Postpartum preeclampsia is typically diagnosed within 48 hours after delivery but can happen up to 6 weeks later. [5] Postpartum Eclampsia has no existing definition within the current guidelines, but a mother diagnosed with the onset of hypertension in the postpartum period ought to be considered as having postpartum eclampsia. [6] Several Colleges and institutions such as the American College of Obstetricians and Gynecologists (ACOG), the Royal College of Obstetrics and Gynecology (RCOG)/National Institute of Health and Care Excellence (NICE) and the Society of Obstetricians and Gynecologists of Canada (SOGC) demonstrated that they have not differentiate between new-onset postpartum eclampsia and new onset postpartum hypertension. [7-9].

High blood pressure occurs in 1 in every 12 to 17 pregnancies among women of age 20 to 44 years as reported by the United States. [10] Preeclampsia happens in about 1 in 25 pregnancies in the United States [11, 12] 10-20% of complicated pregnancies in the United Nations is reported due to hypertension and accounts for the number one hospital admission. [13-15] In the United Nations, prevalence of postpartum eclampsia is 0.3% to 27.5% as the reason for this big gap might be due to mothers with mild symptoms of the diseases unaware of their disease conditions and might go unnoticed to their postpartum period and also mothers who visit to the healthcare workers working under primary care services who are less familiar to this disease. [16]

This case report draws attention to maternal health care providers and the challenges related to the management of eclampsia with limited available drugs, provision of supportive care and follow up of the victims in health facilities and later as an outpatients in the rural areas.

2. Case Report

A 28-year-old primigravida mother, with history of eight months plus amenorrhea, bronchial asthma, osteoarthritis and migraine presented to the maternity hospital. Her chief complaints were mild head ache and edema of both legs. She visited the antenatal clinic once.

On examination: pregnant mother with puffiness of the face. Medical history: known case of bronchial asthma, osteoarthritis and migraine. Penicillin Sensitive. She was on phenobarbital tablets for her migraine. No surgical nor gynecological history. Her weight was 60.9 kg. Her vital signs: B/P 140/90, pulse 72/min, Temp. 36. Degrees. Chest (heart and lungs) normal findings. Abdomen: Height of fundus 32/52, cephalic presentation, and fetal heart beat 134/min. Extremities: pitting edema of both legs.

2.1. Laboratory Investigations

Blood: Hgb 12gm/%, Blood Group and Rh factor O positive. *Urine*: albumin +2, sugar negative, microscopic: pus cells 2-3 and epithelial cells 5-10/HPF.

The patient was admitted for follow up and management of mild pre-eclampsia. Her B /P measurement was between 150/80 and 160/90. Two days after admission, membranes ruptured spontaneously, clear liquor drained. On examination: no uterine contractions felt on palpation. Fetal heart beat 124-130/minute. On pelvic examination: external genitalia normal, wet vaginal canal, cervical effacement 75%, cervical os admits tip of finger, fetal head at station 0.

Four hours later strong uterine contractions started coming every 3-4 minutes for 45-50 seconds and became stronger with increased frequency. Labor progressed well and gave birth to a living female infant with Apgar score of 7 >10. Third stage of labor completed with minimum bleeding.

After completion of third stage of labor her B/P was 170/100 and pulse 78/minute. On further postpartum follow ups: her B/P measurement showed slight improvement (160/90, 150/85, 140/90). Her breasts full with flowing milk. Uterine involution within normal ranges. Puffiness of the face and edema of the lower extermities decreased.

Eighty (80) hours after delivery client complained of severe head ache, chest pain, vomiting and generalized body weakness. On assessment: afebrile, no sign of anemia. B/P was 160/90 and later became 190/100, pulse 90/min regular. While being assessed suddenly she developed convulsion which lasted for 25 seconds.

2.2. Management

Supportive care*, oxygen started*. Valium 20 mg IV and Pethedine 100 mg IM were given stat, dwelling catheter was inserted. One hour later she convulsed (second one) for 15 seconds. B/P 190/90, pulse regular 100/min. Lytic cocktail Solution I (Pethedine 50 mg, promethazine (Phenergan) 50 mg and chlorpromazine (largactile) 50 mg in 250 ml of 10% Dextrose in water) was prepared and given intravenously over 30 minutes. Despite of, she had two convulsions lasting 10 seconds each. Thus, Lytic cocktail Solution II (chlorpromazine 100 mg and Pethedine 50 mg in 250 ml of 10% Dextrose in water), was prepared and given intravenously at 40 drops/min. While taking lytic cocktail Solution II, she had one convulsion for 7 seconds and a second (Lytic cocktail Solution II) dose was prepared and administered intravenously at a slower rate.

2.2.1. On Reassessment

Patient was unconscious/sedated, pulse 100/minute regular. Temperature was 39 degrees. On chest auscultation: crepitation of lungs was heard bilaterally with good air entry. Breasts: full milk flowing. Abdomen soft, extremities edema 2+. Urine output scanty.

2.2.2. Lab. Investigation

Blood: Wbc 9,750, hemoparasite (malaria) negative, Differential count: Neutrophil segment 80%, Eosinophil 1%. Urine: Albumin 2+, microscopic: pus cell 3-6, epithelial cells 5-10/HPF.

2.2.3. Treatment

Lasix 40 mg was given stat, the same dose was repeated four hours later.

Digoxin 0.5 mg I V every 12 hours for three doses**.** Chloramphenicol (CAF) 500 mg I V 6 hourly, Anti malaria treatment started despite the negative result for hemoparasite because the area was malaria endemic. Oxygen was running. The patient was on Valium 10mg and Pethedine 50 mg alternately every 8 hours. The patient became semiconscious the next day, no fits observed for 20 hours. B/P 160/70, pulse 74/min, temp 36.8 degrees, Lungs: clear. Her urine output became normal. CAF continued. Gradually client started to sit up and took some oral fluids. I. V line still was open for the antibiotic. Dwelling catheter removed and started voiding (good output) by herself. She was on Valium 10 mg twice per day. Her B/P was 130/80. Pulse 76, afebrile.

Nursed her newborn on request. After discharge the patient was followed as an outpatient on weekly, every two weeks and on monthly bases.

3. Discussion

Pre-eclampsia and eclampsia (PE/E), pregnancy-related hypertensive disorders, are consistently cited as a leading cause of maternal morbidity and mortality and increase preterm or stillbirth deliveries. The syndrome of preeclampsia-eclampsia is unique to pregnant and puerperal women. Several studies and research works written since the 1970 were reviewed regarding the definition, management and prevention of the problem pre-eclampsia/eclampsia to save maternal and fetal lives.

Indeed, the result of immense scientific researches and/or studies, introduction of effective medications to control convulsions, technologies to detect early problems during ANC and training of medical personnel navigated to further changes in reproductive health care.

Preeclampsia or eclampsia rarely develops before 24 weeks of gestation unless there is either a hydatidiform mole or, at least, extensive molar change in the placenta. Diabetes, multiple fetuses, fetal hydrops are other predisposing factors.

Eclampsia is the onset of convulsions in a woman with pre-eclampsia during pregnancy, labor and/or postpartum periods which cannot be related to other causes. Pre-eclampsia and eclampsia develop most often in the first pregnancy though such conditions may also occur among multiparas. Predisposing factors such as history of epilepsy, cerebral malaria, pneumococcal infections, severe anemia, and severe infections like typhoid disease may present in the same way (coma and occasionally convulsions) and must be ruled out. [17-19]

Eclampsia is the third leading cause of maternal and perinatal morbidity and mortality worldwide (WHO). Delayed postpartum eclampsia continued to occur in less than 10 percent of cases at Parkland Hospital (USA) and in the Netherlands. Late or delayed postpartum eclampsia is defined by Sibai, as occurring more than 48 hours after delivery which is seen in 56% of postpartum eclampsia. Cairns AE and et al also reported that approximately one-third of eclampsia occurs during postpartum, nearly half beyond 48 hours after childbirth.

In the developing nations as, large-scale surveys are not available the incidences of postpartum eclampsia varies widely and hospital-based reports may be misleading, because some patients come to the hospitals after the occurrence of convulsions at home. The differences in the incidence and complication rates between developed and developing nations result from gaps in access to care, early prenatal care and follow up, management protocols for timely hospitalization and delivery, and lack of prophylaxis in women with severe preeclampsia during pregnancy. When a pregnant mother (during her pregnancy and labor) develops seizures, she may have hypoxia or acidosis which also endangers her fetus's life and measures must be taken accordingly. Obviously, maternal health care practitioners are always responsible for two or more lives during pregnancy and intra labor at least until the baby (babies) is born. In this care history, however, since the baby was born the responsibility was just to restore the mother's health.

The precedence management of eclampsia is to prevent injuries (fall, aspiration, tongue bite etc.) and to control convulsions, to lower the blood pressure, provision of diuretic in cases with pulmonary edema and limitation of intravenous fluid unless there is fluid loss.

In the developed nations Magnesium sulfate was in use since early 1900s as the drug of choice for the prevention of eclamptic seizures and recurrent ones [20-23]. Due to different reasons the maternity hospital did not have any access to Magnesium sulfate as a drug of choice. Therefore, this client's (with late/postpartum eclampsia) management included supportive care and vali*um and/ Pethedine followed by the cocktail solution (I and II) to* control of *convulsions.* Other available drug to control convulsion/seizures (sedation) at hand was thiopental 250 mg solution which is given intravenously very slowly. However, Thiopental was not used as convulsions were controlled with the second dose of Solution II.

The postpartum patient described (in this case history) developed convulsion 80 hours post-delivery while she was on strict follow up and management of her pre-eclampsia.

The policy on postpartum mother's care and follow up which was 10-12 days or more in the maternity hospitals, health centers and maternity units and its implementation played a big role.

In this case history, delayed postpartum eclampsia was the only one case to the author's knowledge in this maternity hospital which resulted in successful restoration of the mother's health with available and affordable medications and intensive supportive care to prevent trauma and other complications.

4. Conclusions

Though there are several ways and means to prevent pre-eclampsia the need for close follow up of women with high blood pressure is very essential. A pregnant or postpartum mother with blood pressure of 170/100 and above requires immediate intervention/close follow up.

Should convulsion reoccur the proper prevention of injury (supportive care) should be initiated. To prevent reoccurrences of convulsions, provision of effective and available drugs would be mandatory to save the life of the victim. Reassessment as well as continued follow up should be maintained. Early hospital discharge for postpartum mother should not be encouraged unless they have access to quick transport service for emergency use.

It is understood that the need for trained and committed maternal health care providers, equipped health facility including availability of medication to control convulsion (if possible, magnesium sulfate) are very essential to manage the clients and obtain successful outcomes.

Up dated management procedures (guidelines/ protocols) must be available and health care providers are oriented on how to use them.

5. Declarations

5.1. Funding Source

This research had not any agreement with any institution and organization and we confirm that there was no funding in execution of the work.

5.2. Ethical Approval

Ethical approval for this study was granted by the Health research proposal review and Ethical committee, Ministry of Health, Asmara, Eritrea.

5.3. Informed Consent

After a detailed explanation of the purpose of the study, a written consent was obtained from the participant of the research.

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