

Case Report on Pre-Eclampsia with Severe Features, Peri Partum Cardiomyopathy

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Abstract: ***Introduction:** Pre-eclampsia with severe features is a life-threatening multi systemic disease with reported worldwide incidence of 5-14% with the incidence being 8-10% in India. **CASE REPORT:** Mrs. XX, 21 years old primigravida presented as an emergency case in labor room at 40 weeks and 2 days gestation with severe pre eclamptic symptoms. On examination GCS- E2V2M4, Pulse- 140/min, BP- 200/120mmHg, RR- 40/min, grade 3 edema with SpO2 60% in room air. Systemic examination of chest revealed bilateral lung crepitations with fetal tachycardia. Laboratory findings were suggestive of incomplete HELLP syndrome and arterial blood gas analysis revealed respiratory acidosis. Patient was immediately intubated and shifted to Intensive Care Unit. After stabilization with diuretics patient was posted for emergency LSCS in view of fetal distress and pulmonary edema. On postoperative day 1 patient continued to be symptomatic and an echocardiography revealed cardiomyopathy with ejection fraction of 39%. Patient was managed by a multi-disciplinary team approach. Subsequently patient improved and was discharged on post-operative day 11 with good maternal and fetal outcome. **DISCUSSION:** Pre-eclampsia is multisystemic major complication of Hypertensive disease of pregnancy. Acute pulmonary edema signifies severe disease and is one of the frequent causes of intensive care unit admission, maternal morbidity and mortality. **Conclusion:** Appropriate antenatal management, early detection of pre monitory symptoms, timely intervention and awareness in peripheral health workers for early referral are the key factors to prevent acute and subsequent long-term complications related to pre eclamptic toxemia.*

Keywords: peri partum cardiomyopathy, pre eclampsia, mortality, pulmonary edema

1. Introduction

Pre-eclampsia is a disorder of pregnancy associated with new onset hypertension (systolic BP \geq 140mmHg or diastolic BP \geq 90mmHg) which occur most often after 20 weeks associated with proteinuria 0.3gm/L in a 24 hours urine collection or dip stick reading 2+ or protein creatinine ratio of 0.3mg/dl or more after 20 weeks of gestation. Any one of the following severe features i.e. platelets $<$ 1 lakh/mm³ or impaired liver function or severe persistent right upper quadrant pain and not accounted for by alternative diagnosis or pulmonary edema or new onset headache unresponsive to acetaminophen and no other alternative diagnosis in women with gestational hypertension and with or without proteinuria in addition if systolic BP \geq 160mmHg or diastolic BP \geq 110mmHg should also be diagnosed as pre-eclampsia with severe features.[1]

Worldwide, incidence of pre-eclampsia is 5% to14% of all pregnancies. In developing nations, incidence of pre-eclampsia varies from 4% to18% [2, 3]. Severe pre-eclampsia can develop to approximately 25% of all cases of pre-eclampsia, [4]. Morbidity and mortality in pre-eclampsia and eclampsia are frequent. Severe pre-eclampsia may lead to liver and renal failure, disseminated intravascular coagulopathy (DIC), and central nervous system (CNS) abnormalities. Globally, pre-eclampsia and eclampsia is responsible for approximately 14% maternal deaths per year i.e., 50,000 to 75,000 [5]. A woman with severe pre-eclampsia, and complicated with eclampsia or HELLP syndrome has a 20% risk of developing pre- eclampsia in her subsequent pregnancies. [6, 7, 8, 9, 10, 11].

Peri-partum cardiomyopathy is a rare form of congestive heart failure of unknown aetiology. The current diagnostic criteria for peripartum cardiomyopathy include

- 1) Cardiac failure in a previously healthy woman in the last month of pregnancy or within 5 months of delivery.
- 2) Absence of a determinable aetiology for the cardiac failure
- 3) Absence of demonstrable cardiac disease prior to last month of pregnancy
- 4) Echocardiography evidence of diminished left ventricular systolic function.

Echocardiography suffices to diagnose peri partum cardio myopathy and usually shows the following features namely left ventricle dilatation of variable degrees, left ventricle systolic dysfunction, right ventricular and bi-atrial enlargement, mitral and tricuspid regurgitation, pulmonary hypertension, and intracardiac thrombus, Echocardiography criteria to diagnose PPCM includes ejection fraction less than 45%, end-diastolic diameter greater than 2.7 cm/m² and/or M-mode fractional shortening less than 30%. **ECG** may show non-specific changes like sinus tachycardia, inter ventricular delay and sometimes, LBBB pattern, **Chest radiography** typically shows pulmonary oedema and may show enlarged cardiac silhouette or pleural effusions (or both).[12]

In the United States, incidence varies from 1 in 1,000 to 1 in 4,000 [13] and the documented incidence in India is approx 1 in 1340 live births. Here we wish to present a case of.....

2. Case Report

Mrs. XX, 21 years old primigravida presented in our emergency as a case of cough for 1 week, breathing difficulty

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for 4 days with altered sensorium for 1 day along with 40+2 weeks gestation. She was semiconscious and disoriented to time place and person at the time of admission. Patient was admitted in a local PHC 2 days back and conservative management started with anti-hypertensive medication and referred to us in view of further deterioration of her general condition.

Menstrual history:

LMP - 01.07.2020; EDD -08.04.2021

Regular cycle, flow and duration of bleeding average

Past/personal/family history:

There is no significant history of past medical or surgical illness.

Personal and family history nothing significant.

Present obstetric history:

Patient was a follow up case in the local PHC, all BP readings during her ANC were normal and all routine blood investigations were normal and no ultrasound was done. She took her routine iron/calcium supplements.

- **General examinations-** on admission
- GCS E2V2M4
- Temp-97.7°F
- PULSE- 140/min.
- Blood pressure- 200/120mmhg
- RR-40/min
- B/L grade 3 oedema present
- Spo2 60% on room air
- **Systemic examination-** Bilateral lung crepitations and diminished airflow noted in respiratory system.
- **P/A** – Uterus 36week size, irritable, FHR-170/min, cephalic presentation (5/5)
- **P/V** - Os 2 cm dilated, cervix 40%effaced, membrane +, station high up, no show/leak

Investigations: ABG- Respiratory acidosis, LFT-SGPT= 35 /SGOT= 85, Urine Albumin- 1+, Chest X- ray- Bilateral pulmonary oedema, Hb/ RFT/ RBS/ Coagulation profile/ Serum electrolytes – Normal

Management

On arrival patient kept in propped up position, immediately IV-line access was established, Patient was immediately intubated and shifted to Intensive Care Unit. Upon stabilization, patient was posted for emergency LSCS in view of fetal distress and severe preeclampsia with poor BISHOP score. A Pfannenstiel incision was made and a female foetus was delivered weighing 2600 grams with APGAR score of 2 in the first minute and 4 in the fifth minute. Post-operatively, patient was shifted to intensive care unit for close monitoring and was on ventilatory support. The patient was treated with supplementary oxygen, crystalloid, antibiotics, H2- blockers; LMWH, B-blockers, diuretic, analgesic, vitamin preparations, corticosteroids, anti-hypertensive and antiemetic. On postoperative day 1 patient continued to be symptomatic, cardiology opinion was taken. Echocardiography was advised which revealed cardiomyopathy with ejection fraction of 39%, Global dyskinesia, LA and LV dilated and mild MR and under Cardiology opinion received inotropes. Patient was extubated

on post-operative day 4. Patient was managed by a multi-disciplinary team (cardiologist, anesthesiologist, physiotherapist) approach. Subsequently patient improved and post-operative day 7 patient was shifted out of intensive care unit. Patient was discharged with baby on 11th day with improved maternal clinical condition and satisfactory LV function revealed in repeat echocardiography. Patient was followed routinely in OPD basis.

3. Discussion

In our case early detection of premonitory symptoms and timely referral by peripheral health workers one of the important key factor in management of high risk pregnancy. Primary goals are to stabilize the patient, reduce morbidity, prevent acute and long-term complications.

Detailed assessment along with thorough history taking and physical examination, laboratory tests such as a complete blood count, platelet count, serum creatinine, liver enzymes levels, evaluation for urine protein helped to establish the diagnosis.

The group at highest risk are extremes of age, obesity, smoking, multifetal gestation, pre-eclampsia in previous pregnancy, maternal low birth weight, family history of pre-eclampsia, preexisting medical disease: (Diabetes / chronic hypertensive or renal disease/ maternal immunological disease / preexisting thrombophilia, antiphospholipid antibody syndrome). In our case no such significant high risk factors were observed.

Maternal complications of pre-eclampsia with severe features include HELLP syndrome, eclampsia, pulmonary oedema, myocardial infarction, stroke, acute respiratory distress syndrome, coagulopathy, severe renal failure and retinal injury etc. Fetal and newborn complications of severe pre-eclampsia result from exposure to uteroplacental insufficiency or from preterm birth or both.

Women with gestational hypertension/pre-eclampsia should be counselled about importance of regular antenatal checkup and identification of premonitory symptoms and to attend hospital immediately if these symptoms developed.

Diagnosis is often delayed, as symptoms overlap those of normal pregnancy. Echocardiography is needed for diagnosis, and intracardiac thrombi should be ruled out when EF is severely reduced due to high risk for thromboembolism.

Contraception should be discussed as soon as feasible. Progesterone-releasing subcutaneous implants or Mirena intrauterine devices are first-line choices and estrogen should be avoided.

Appropriate counselling should be provided for patients considering additional pregnancies. During subsequent pregnancies, women with PPCM should be closely followed with serial clinical assessments, echocardiography, and B-type natriuretic peptide levels from prior to contraception until after delivery. Angiotensin-converting enzyme inhibitors/angiotensin receptor blockers and aldosterone

antagonists should be discontinued prior to conception and restarted after delivery.

4. Conclusion

Pre-eclampsia still remains major cause of maternal morbidity and mortality in developing countries. Information about danger signs of pre-eclampsia should be available to all antenatal patients.

Pre-eclampsia and co-existing hypertension appear to be in strong associations. ECHO parameters were sensitive predictors of recovery. Aggressive medical and obstetric management is crucial for a good outcome.

Timely intervention and awareness in peripheral health workers for early referral are the key factors to prevent acute and subsequent long-term complications related to pre-eclamptic toxemia.

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