

## NEONATAL OUTCOME IN PATIENTS WITH SEVERE PRE-ECLAMPSIA DURING 28-34 WEEKS OF GESTATION

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### ABSTRACT:

Pre-eclampsia is an unpredictable multi-organ syndrome that pregnant women develops. It is associated with significant maternal and fetal morbidity and death worldwide. Treatment of this syndrome remains a difficult task to even the most experienced obstetricians, mainly because the exact etiology is unknown.

**OBJECTIVE:** To determine neonatal outcome in patients with severe preeclampsia between 28-34 weeks of gestation with conservative treatment.

**MATERIAL & METHODS:** It was descriptive case study. Duration of study was 6 months from October 2010 to March 2011. The study was conducted in gynae unit D.H.Q Hospital Faisalabad. Total admitted 109 pregnant women with severe preeclampsia (P.E) were included in study after fulfilling inclusion criteria. Fetal & maternal surveillance was carried out as per set protocol. Steroids were given for fetal lung maturity. Uncontrolled hypertension despite of maximum doses of two antihypertensives, imminent eclampsia, placental abruption and fetal compromise were considered as indication of urgent delivery.

**RESULTS:** According to this study, mean age of the patients was 23 years and mean gestational age was 32 weeks. Average birth weight was 1613 grams, APGAR score at 1 minute was 5.33 and neonatal mortality was 11.9%.

**CONCLUSION:** The expectant management in women with severe pre-eclampsia between 28 and 34 weeks gestation is associated with better Neonatal out come.

**KEY WORDS:** Severe preeclampsia, Expectant management, Neonatal outcome.

### INTRODUCTION:

Hypertension with proteinuria affects 5 % to 8% of pregnancies<sup>[1]</sup>. It is a complex medical disorder.<sup>[2]</sup> It is one of the leading cause of maternal and fetal death, especially in developing countries<sup>[3]</sup>.The International Society for the Study of hypertension in pregnancy (ISSHP) currently defines pre-eclampsia as raised blood pressure > 140/90 mmHg on two consecutive occasions at least 4 hours apart in combination with proteinuria developing after 20 weeks of gestation in a previously normotensive non-proteinuric woman. It is a syndrome which can be recognized but not diagnosed because there is no specific diagnostic test yet available. It can

deteriorate rapidly without warning signs<sup>[2]</sup>.

National Institute of Clinical Excellence (NICE) defines severe pre-eclampsia as severe hypertension and proteinuria with symptoms and/ or biochemical and/or hematological impairment<sup>[4]</sup>.

The hypertension of pre-eclampsia is characterized by peripheral vasoconstriction and decreased arterial compliance<sup>[5]</sup>.The proteinuria is associated with specific renal

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lesion called glomerular endotheliosis. It is a systemic vascular disorder that affects liver, kidney and brain. HELLP syndrome (hemolysis, elevated liver enzymes, and low platelets) occurs in 20% cases. About 20% of patients with HELLP syndrome develop disseminated intravascular coagulation, which has poor prognosis for mother and fetus<sup>[6]</sup>. Eclampsia, cerebrovascular accidents, pulmonary edema, acute renal failure, placental abruption, hepatic infarction and rupture are serious complications of pre-eclampsia and can end in maternal mortality<sup>[7]</sup>. Complications affecting the developing fetus are iatrogenic prematurity, intrauterine growth restriction, oligohydramnios, and perinatal mortality<sup>[6]</sup>. The principal aim of management is early recognition of pre-eclampsia with the expectation that increased laboratory and ultrasound surveillance and timely intervention can reduce the risk of maternal and fetal complications<sup>[8]</sup>.

Once diagnosis of severe pre-eclampsia is established, the only cure is termination of pregnancy. It is very important to evaluate each patient individually and weigh the benefits of delivery against the potential risk of continuing the pregnancy. Although Hypertension in preeclampsia is a secondary feature, it is associated with morbidity and death from cerebrovascular accidents. Therefore, better control of high blood pressure is mandatory. Blood pressure control involves short term control and maintenance of this control until after delivery, when the risk of complications is high<sup>[9,10]</sup>.

Expectant management of selected patients with this disease occurring before 34 weeks of gestation can have better neonatal outcome, but it requires careful maternal and fetal monitoring<sup>[11]</sup>. For the patients between 28 weeks and 34 weeks gestation, it is suggested that antenatal steroid administration and appropriate surveillance improves the perinatal outcome without increasing the maternal morbidity<sup>[12,13]</sup>. The pregnancy continued until indication for delivery arises. There are some patients with severe preeclampsia in this group who will require delivery within 48 hours regardless of gestational age.

The aim of the study was to improve neonatal outcome considering that expectant

management is a favorable approach for both mother and fetus with close monitoring in reducing neonatal complications. As neonatal health facilities are limited in our setup it will help to reduce neonatal mortality by improving neonatal birth weight and APGAR score.

## OPERATIONAL DEFINITION

### SEVERE PRE-ECLAMPSIA:

Severe hypertension (diastolic blood pressure > 110 mmHg or systolic >160 mmhg on more than two occasions with significant proteinuria at least 1 gm/litre.

### NEONATAL OUTCOME:

It was measured in term of mean fetal birth weight and APGAR score at 1 minute and neonatal mortality in first week after birth.

## MATERIAL AND METHODS:

**SETTING:** This study was conducted in Gynae & obstetrics unit D.H.Q Hospital Faisalabad

**DURATION OF STUDY:** 6 months from October 2010 to March 2011.

**STUDY DESIGN:** Descriptive case series.

**SAMPLE SIZE:** 109 patients were included in study.

**SAMPLE TECHNIQUE:** Consecutive non – probability sampling

**INCLUSION CRITERIA:** Pregnant women with blood pressure of 160/110 mmHg , proteinuria up to 1 gm/ litre and no fetal distress on cardiotocograph( baseline variability > 5 beats /one hour, no decelerations).

### EXCLUSION CRITERIA:

- Eclampsia
- HELLP syndrome at the time of admission
- Multiple gestations
- Fetal anomalies
- Pre-mature rupture of membranes.

## DATA COLLECTION PROCEDURE:

Approval from hospital ethical committee was taken. After describing the risks and benefits and fulfilling inclusion criteria admitted patients were included in the study. Exclusion criteria were strictly observed to overcome confounding variables. Patients were kept admitted in high dependency area and carefully monitored for 3 days to 18 days. Monitoring was carried out by

taking blood pressure, respiratory rate, abdominal examination, fetal heart rate, cardiotocography. Patients were monitored for signs and symptoms of imminent eclampsia i.e. headache, blurring of vision, photophobia and epigastric pain. Intravenous fluids and urinary output were monitored. Full blood count, renal function, liver function tests and biophysical profile were performed twice weekly. All the patients were given two doses of injection betamethasone 12 mg intramuscularly 12 hours apart for fetal lung maturity. Mode of delivery was chosen according to maternal condition, gestational age and bishop score. Neonatal outcome (birth weight, APGAR score at 1 minute, neonatal mortality) recorded.

#### DATA ANALYSIS:

Data was analyzed by using SPSS version 23. Mean value calculated for Gestational age (in weeks), birth weight, APGAR score at one minute. Frequency and percentage were calculated for categorical variables like neonatal mortality.

#### RESULTS:

Total number of patients taken were 109 in 6 months period and expectant management was assigned to patients with severe Pre-eclampsia. Mean age of patients was 23 years and mean gestational age was 32 weeks. APGAR score at one minute was minimum 4 and maximum was 7.65 with mean of 5.33. Neonatal birth weight mean was 1613 grams and percentage of neonatal mortality was 11.9 %.

**TABLE 1 :Age and Gestational Age distribution**

	n	Minimum	Maximum	Mean
· AGE	109	21	27	23.38
· Gestational age in weeks	109	28	34	32.28

**Table 2: Neonatal Outcome**

	n	Minimum	Maximum	Mean
APGAR score at 1 min	109	4	7.65	5.33
Neonatal birth weight in grams	109	1400	1800	1613.14

**Table 3: Frequency and percentage of neonatal mortality**

	Frequency	Percent
Yes	13	11.9
No	96	88.1
Total	109	100.0

**DISCUSSION:**

This study was carried out to determine the neonatal outcome in patients with severe pre-eclampsia during 28 -34 weeks of gestation. This study was designed at DHQ hospital Faisalabad which is affiliated with Faisalabad medical university.

The patients with severe preeclampsia remains challenging for the clinician during antepartum and postpartum care. The sequelae of preeclampsia account for a significant portion of maternal and perinatal complications.

Literature reports over one thousand studies are being carried out on the severe preeclampsia, but so far very few of the developing countries of the South East Asia. Preeclampsia and eclampsia form a major high-risk group in many countries and there is greater likelihood of severe preeclampsia with high maternal and perinatal morbidity complicating a large number of these cases. Once the diagnosis of severe preeclampsia is established, the only cure is termination of pregnancy. In every patient delay in delivery should be an individual basis and continuation of pregnancy should be balanced against delivery.

In my study neonatal mortality was present in 13 (11.9%). The results are comparable to the study conducted by Sarsam DS, Shamden M at Al-Batool Teaching hospital in Mosul city, Iraq<sup>[10]</sup>. The study is also comparable to Hadad B, Sibai BM<sup>[9]</sup>.

Almost all aspects of the management of cases of severe preeclampsia are controversial. Not any management strategy is totally satisfactory. This study was conducted mainly to know the fetal outcome by adopting the expectant management.

Sibai and Frangieh<sup>[14]</sup> were early proponents of conservative management at about 28- 34 weeks of Gestation. Patients were selected for this management based on the nature of their disease. Patients with severe thrombocytopenia, fetal compromise was delivered immediately after stabilization. However stable patients in tertiary units were followed with maternal and fetal surveillance can result in improvement of fetal survival without compromising maternal health<sup>[15]</sup>. Immediate delivery may result in high neonatal loss rate while delaying delivery may be associated with an increase in maternal

complications.

In one study Odental et<sup>[15]</sup> al studied 38 severe pre eclamptic patients at gestation between 28–34 weeks. 20 were delivered after stabilisation and 18 patients followed up with steroid therapy , delivery indicated by maternal or fetal Jeopardy). Both managements when compared resulted in a statistically significant prolongation of gestational age by a mean value of 7 – 10 days , reduction in neonatal ventilation ( 11% versus 33 % ) a reduction in total neonatal complications ( 33% versus 75%) and no increase in maternal mortality.

In another study by Sibai et<sup>[16]</sup> al perinatal survival was 94 % with expectant management between 28 -34 weeks gestation as compared to 35 .5 % in the group that underwent delivery immediately. Maternal morbidity was not different in this group of patients.

It is apparent that most pregnancies with severe pre -eclampsia do not permit expectant management for a meaningful duration. At our hospital, there is no neonatal intensive care unit and lung maturity of baby cannot be checked due to non-availability of facilities, so expectant management was adopted in this study for antenatal steroid administration and improvement of neonatal outcome.

In my study mean and standard deviation of neonatal birth weight was 1613 grams. The result are comparable to study by Hadad B, Sibai BM<sup>[9]</sup>.

The results are also compared to DR Hall, H.J. Odendaal, D.W. Steyn, Tygerberg Hospital University of Stellenbosch, South Africa<sup>[16]</sup>.

In my study mean of APGAR score was 5.33. The results are comparable to the study conducted by Sarsam DS, Shamden M at Al-Batool Teaching Hospital in Mosul City, Iraq<sup>[10]</sup>.

**CONCLUSION:**

It is concluded that severe pre-eclampsia represents a management dilemma despite ongoing research into the treatment and appropriate care. The complications of severe pre-eclampsia may result in significant maternal and fetal morbidity and mortality. Early consultation and in-utero transfer of particularly complicated patients is advisable. Although expectant management adds little to the prolongation of gestational age (10–14 days approximately) but still it improves outcome by providing optimal antepartum maternal and

fetal monitoring. Simple clinical and laboratory parameters are useful predictors of maternal and fetal outcome in pregnancy complicated by severe preeclampsia. Antihypertensives, Nifedipine (Adalat retard) and Methyldopa (Aldomet ) are useful agents in the treatment of hypertension.

Pre-eclampsia enhances the risk of fetal growth restriction and low birth weight. Although gestation age at delivery is important in perinatal morbidity and mortality. Labour induction should be considered a reasonable option for patients with the severe pre-eclampsia. At > 34 weeks gestation, the bishop score on admission is the best predictor of success. Chances of successful labour induction increases with gestational age. So, in severe pre-eclampsia the only solution is delivered, better knowledge of etiology and pathogenesis for effective and safe treatment is helpful.

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