



## Observations of expectant management in severe preeclampsia between 24 to 36 weeks of pregnancy

Shyamala Guruvare, MD

Pralhad Kushtagi, MD, DNB, FICOG

Kasturba Medical College Manipal 576104, Karnataka, India.

Address for correspondence: Pralhad Kushtagi Professor in Obstetrics-Gynecology Kasturba Medical College MANIPAL 576104. E-mail: [pralhadkushtagi@hotmail.com](mailto:pralhadkushtagi@hotmail.com)

### Summary

**Objective:** To study the maternal and perinatal outcome of expectant management in severe preeclampsia between 24–34 weeks of gestation.

**Setting:** University medical center Patients and methods: Thirty three (33) women between 24 weeks to 34 weeks of pregnancy with severe preeclampsia were considered for expectant management. The maternal and fetal condition as well as disease progression was monitored by clinical, laboratory and sonographic evaluations. Doses of antihypertensive drugs adjusted and/or other drugs were added. Two doses of intramuscular dexamethasone 12 mg, 12 hours apart were given on inclusion to study. Interval between admission and 'decision to terminate pregnancy' were noted.

**Observations:** Of the 33 cases in the study, 59 per cent were younger than 30 years and the severe preeclampsia was seen between 28 to 34 weeks of pregnancy in 87 per cent of the cases. No predilection for particular gravidity was noted.

Blood pressure was beyond 160/110mm Hg in 45% of the women; proteinuria of >5g/24hours was present in 18%; serum uric acid of >5mg/dl was in 39%; liver enzymes were significantly elevated in 15% and abnormal renal function in 6%; Platelet count was rapidly falling in 6% and one woman had count of < 1,00,000/ cc. One fourth of the women had imminent eclampsia when they presented; and 15% had oliguria.

Pregnancies could be prolonged by an average of 9 days and the average birthweight was 1238 g (sd 338). Abnormal fetal heart tracings and/or Doppler flow abnormalities were noted in 30%, four cases (12%) had placental abruption and one (3%) spontaneous preterm labor. There were nine (27%) stillbirths; neonatal deaths were six (18%) of the total cases and 25% of the live births. Cesarean delivery rate for the group was 57%. Fifteen neonates (45% of the group) had significant neonatal complications. Prolonged neonatal care for more than 7 days was required for 16 of 24 (66%) newborns. Eighteen of 33 cases (54%) went home with live babies.

Acute renal failure (3%) and postpartum eclampsia (3%) were the observed maternal complications and there was no maternal death.

**Conclusion:** Expectant management offered in severe preeclampsia before 34 weeks of gestation for selected patients helped to gain time for fetal maturity and to organize the resources for managing the anticipated complications.

## Introduction

Preeclampsia, especially the early onset severe preeclampsia is the most challenging clinical entity affecting both mother and the fetus.

Traditionally women with severe preeclampsia are delivered immediately regardless of the consequences of extreme fetal prematurity. Delaying this definitive management for severe preeclampsia to at least gain benefit of antenatal steroids and to organize resources for managing the anticipated complications is referred to as expectant management. Such an approach has shown improved perinatal outcome without compromising the maternal wellbeing. The studies have indicated that many women remained stable and even improved while waiting for fetal benefit<sup>1, 2, 3, 4</sup>. The present prospective observational study is an attempt to analyse maternal and perinatal outcome of expectant management in severe preeclampsia.

## Patients and methods

Consenting women between 24 weeks to 34 weeks of pregnancy with severe preeclampsia admitted in a university medical center were recruited for expectant management following Institute ethics committee approval for the designed study.

Cases presenting with any of the complications such as eclampsia, placental abruption, preterm labor, intrauterine fetal death, HELLP syndrome were not included in the study.

Women were monitored in the critical care room (labor room) till they were stabilized. Hourly charting of urine output, frequent recording of blood pressure as guided by the severity were maintained. Proteinuria was estimated daily by dipstick method. Serum analysis of renal function, liver function and uric acid levels and protein estimates in 24 hour urine were done at admission and as indicated by the clinical disease behavior. Fundus oculi was examined for hypertension induced changes and the findings were graded as per Keith, Wagner and Barker (1939) classification. Sonographic estimation of fetal growth, weight and amount of liquor was carried out. Fetal condition was monitored by fetal heart rate auscultation and Doppler analysis up to 30 weeks and fetal heart rate tracings, modified biophysical profile and Doppler studies after 30 weeks.

Women were put on antihypertensive drugs- alfa-methyl dopa and/ or nifedepine till the maximum dosage. Two doses of intramuscular dexamethasone 12 mg, 12 hours apart were given starting at the earliest after admission. Record of vigil was maintained for symptoms of headache or epigastric pain or vomiting or visual disturbances. Pregnancy was terminated at 36 weeks or earlier in case of any of the following (i) uncontrolled hypertension, (ii) persisting or progressively deteriorating clinical symptoms or the biochemical markers (iii) occurrence of complications such as placental abruption/eclampsia/renal failure (v) indication of nonreassuring fetal status.

For the purpose of the study, fetus was considered to be having nonreassuring status if there was any of the following - severe fetal growth restriction and/or severe oligohydramnios, deteriorating doppler waveform evaluation like absent or reversal of umbilical vascular flow or venous pulsatility and in pregnancies after 30 weeks with nonreactive nonstress test.

The decision regarding the mode of delivery was based on estimated fetal weight, amniotic fluid index, gestational age, fetal status and cervical score. The neonates were managed by the specialist neonatology team.

## Observations

Thirty three women with severe preeclampsia between 24 and 34 weeks of gestation were recruited. Eighty-

seven per cent of cases were between 28-34 weeks of pregnancy. The median gestational age at which women presented with severe preeclampsia was 30 weeks 4 days (sd 2.4) and median 27 weeks 2 days (range 24 to 33 weeks). More than half (57%) the cases were aged less than 30 years and 51% were multigravids.

Every second patient of 33 cases with severe preeclampsia had blood pressure beyond 160/110mm Hg and 39% had serum uric acid >5mg/dl; proteinuria of >5grams/24hours and significantly elevated liver enzymes was seen in 18% and 15%, respectively. A patient each had abnormal renal function, rapidly falling platelet count and one with the platelet count of < 1,00,000/ cc. One fourth of the women had imminent eclampsia when they presented; and 15% had oliguria.

Pregnancies could be prolonged by an average of 9 days (sd 7.7) and the average birth weight was 1238 g (sd 338).

Cesarean delivery was resorted to in 57% of cases. The most common indication for termination of pregnancy was nonreassuring fetal status (33%, 11 of 33) as detected by abnormal fetal cardiograph and/or Doppler flow studies (Table 1).

**Table I:** Indications for termination of pregnancy and mode of delivery

Indications	n (%)	Cesarean delivery n (%)	Vaginal delivery n (%)
Worsened PE	11 (33.3)	7 (36.8)	4 (28.5)
Imminent eclampsia	4 (12.1)	3 (15.7)	1 (7.1)
Oliguria	3 (9)	2 (10.5)	1 (7.1)
Placental abruption	4 (12.1)	2 (10.5)	2 (14.2)
Fetal demise	3 (9)	0	3 (21.4)
Oligohydramnios	1 (3)	0	1 (7.1)
Nonreassuring fetal status	11 (33.3)	10 (52.6)	1 (7.1)
Spontaneous labor	1 (3)	0	1 (7.1)
All cases	33	19	14

PE = preeclampsia

The mean gestational age at delivery was 32.1 weeks (sd 2.2) and the median 32 weeks (ranging from 24 weeks to 36 weeks 5days). There were nine (27%) stillbirths in the group, four of them being antepartum. Two of the stillbirths were due to placental abruption (Table 2). Altogether there were four cases of placental abruption one being grade '0' abruption detected at sonography.

**Table II:** Fetal complications

Fetal complications	Number*	Percent
Growth restriction	16	48
Nonreassuring fetal status	10	30
Placental abruption	4	12
Stillbirth - Antepartum - Intrapartum	4	12

\* There were cases with more than one complication

Thirteen (39%) of the babies were <1000 g and 20 (60%) were weighing between 1000–2000g at birth. Six newborns had poor Apgar scores at 1 and 5 min, but all survived.

Neonatal deaths were six (18%) of the total cases and 25% of the live births. Fifteen neonates (45% of the group and 62% of the live births) had serious morbidities. Prolonged intensive neonatal care for more than 7 days was required for 16 of 24 (66%) newborns. The neonatal complications are as listed in Table 3.

Eighteen of 33 cases (54%) went home with live babies.

**Table III: Neonatal complications**

Complications n (%)	Birth weight	
	< 1000g n (%)	1000–2000 g n (%)
No complications*	9 (37.5)	8 (53.3)
Hyaline membrane disease	5 (20.8)	3 (20)
Intraventricular hemorrhage	2 (8.3)	1 (6.6)
Necrotising enterocolitis	1 (4.1)	-
Sepsis	3 (12.5)	3 (20)
Pulmonary hemorrhage	1 (4.1)	1 (6.6)
Jaundice	7 (29.1)	6 (40)
Seizures	1 (4.1)	-
Neonatal death	6 (25)	2 (13.3)
<b>Total</b>	<b>24</b>	<b>15</b>

\* One neonate in each group required prolonged ventilatory support

Acute renal failure (3%) and postpartum eclampsia (3%) were the observed maternal complications and there was no maternal death.

## Discussion

Over past few years, with the hope of improving the perinatal outcome, the clinical approach to severe preeclampsia remote from term has shifted to the conservative mode. It is an evolving concept with few reports and trials available<sup>1, 2, 3, 4</sup>.

The present study group had most women between 20 and 30 years, contrary to the assumption that early onset severe preeclampsia may be common in women above 30 years. Neither the age nor gravidity showed any predilection for the disease.

Studies have shown prolongation of pregnancies from 7 (Odendaal *et al*)<sup>2</sup> to 15 days (Schiff *et al*)<sup>1</sup>, whereas in the present report pregnancy could be prolonged to an average of 9 days with perinatal survival of 54 per cent, cesarean delivery rate of 57 per cent, average newborn weight of 1238g (sd 338g) and no maternal mortality.

Concerning perinatal outcome for expectant management, different survival figures have been reported depending on the study design by the same research team. One study<sup>5</sup> including gestations between 18-27 weeks, without stringent antepartum monitoring had the perinatal mortality as high as 87%. Later, when inclusion of cases was narrowed to 24-27 weeks of gestation, the expectant management yielded significantly higher perinatal survival (76.4% versus 35%), higher birth weights and lower incidence of neonatal complications<sup>6</sup>. Similarly Haddad and colleagues<sup>7</sup> reported higher perinatal deaths and neonatal morbidities when the gestational age at recruitment was < 29 weeks compared to later gestational ages. Concentrating on the outcome of pregnancies in 24-34 weeks period, studies have shown perinatal mortality of as low as 8.8 % (25 of 340)<sup>3</sup> and 13.7% (18 of 131)<sup>8</sup>. Depending on the birth weights of the babies, the perinatal mortality rate had shown values from 24/ 1000 (>1000g) to 44.4/1000 (>1000g)<sup>8</sup>.

Other studies have also shown perinatal death rates varying widely from 22.3% (Odendaal *et al*)<sup>2</sup> to 48% (Moodley *et al*)<sup>10</sup>, in pregnancies with severe preeclampsia before 32 weeks.

The perinatal loss recorded as 45 per cent (15 of 33 cases) in the present series appears higher. Inclusion of women with apparent fetal growth restriction (48%), and recruitment to study of pregnancies with gestations as early as 24 weeks could be the contributing factors for the poorer outcome in the present study group. Besides, there was a case with platelet count < 1, 00,000/cc another with bilateral retinal detachment which fell in the category of aggressive management in other studies. Nonavailability of parenteral antihypertensives like hydralazine may have added to the increased perinatal loss contributed by

termination of expectant management.

It is established that neonatal survival is directly related to gestational age at birth and weight. Even in cases with severe preeclampsia the trend is reflected<sup>11</sup>. Among the 24 live births in the present study, nine had birth weight of < 1000g. The neonatal survival of 66% (5 of 9) in the birth weight cohorts of < 1000g was in itself a reward for the expectant management.

## Conclusion

Expectant management is worth presented to selected patients with severe preeclampsia between 28–34 weeks of gestation in hospitals offering multidisciplinary team services without risking maternal life with the hope of improving perinatal outcome. However self evaluation of the protocol in the given setting is imperative and modifications are required in order to better the results.

**Authorship:** SG - conceptualisation, literature search, conduct of study, data collection and analysis, manuscript preparation; PK - conceptualisation, design of study, conduct of study, data analysis, manuscript editing and review.

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