

A Study of Perinatal Outcome in Expectant Management of Early Onset Severe Preeclampsia Between 24 - 34 Weeks Gestation



Medical Science

KEYWORDS : Prolongation of gestation; perinatal morbidity; neonatal survival; maternal complications.

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ABSTRACT

Objective: To study expectant management of early onset severe preeclampsia between 24 – 34 weeks of gestation.

Methods: It was a prospective observational study. 60 patients with early onset severe preeclampsia between 24 – 34 weeks of gestation were included. Patients were subjected to expectant management. Frequent clinical and biochemical monitoring of maternal status was done. The maternal outcome was measured by prolongation of gestation and maternal complications. Fetal outcome included still birth, neonatal ICU admissions and neonatal morbidities.

Results: Most of them were in the age group of 20 - 25 years (50%). Mean gestational age at diagnosis was 30 weeks. A mean of 6.2 days were gained by expectant management. 50% women experienced major complications. Prolongation of pregnancy was associated with a reduction in perinatal morbidity and mortality. Chief contributors for perinatal morbidity and mortality were RDS, sepsis, NEC, IVH. Neonatal outcome depends on gestational age at the time of delivery and birth weight. Survival rate of babies was found to be 61.6%.

Conclusion: Careful expectant management and timely intervention in a tertiary care centre can diminish and limit the impact of serious maternal and perinatal outcomes

PRIMARY OBJECTIVE: To study perinatal outcome in expectant management of early onset severe preeclampsia.

SECONDARY OBJECTIVE: 1.To study maternal complications which are associated with early onset preeclampsia. 2.To identify the clinical and biochemical factors associated with early onset preeclampsia.

METHODOLOGY

STUDY DESIGN: Prospective Observational study

SOURCE OF DATA: Patients with early onset severe preeclampsia between 24 to 34 weeks of gestation admitted in the Obstetrics ward of St John's Medical College Hospital will be included in the study between Oct 2012- April 2014. Written informed consent was obtained from all participants. Ethical committee approval was obtained.

INCLUSION CRITERIA

- Patients with gestational age between 24-34 weeks
- Primi and multigravida

EXCLUSION CRITERIA

- Patients with less than 24 wks and more than 34 wks of gestation
- Patients who are chronic hypertensives, Type II Diabetes Mellitus, Systemic lupus erythematosus
- Multiple gestation

SAMPLE SIZE: 60 Patients

The following criteria were applied to diagnose preeclampsia:

Preeclampsia was defined if BP \geq 140/90mmHg and Proteinuria \geq 300mg/24 hours or \geq 1+ dipstick. The indicators of severe preeclampsia were as follows :

ABNORMALITIES	MILD	SEVERE
Diastolic Blood Pressure	< 110 mmHg	\geq 110 mmHg
Systolic Blood Pressure	< 160 mmHg	\geq 160 mmHg

Proteinuria	\leq 2+	\geq 3+
Headache	Absent	Present
Visual disturbances	Absent	Present
Upper abdominal pain	Absent	Present
Oliguria	Absent	Present
Convulsions(eclampsia)	Absent	Present
Serum creatinine	Absent	Elevated
Thrombocytopenia	Absent	Present
Serum transaminase elevation	Minimal	Marked
Fetal growth restriction	Absent	Obvious

Patients were subjected to expectant management and closely observed for any maternal or fetal complications. Considering age, socio-economic status, parity index, the gestational period was determined by means of Last Menstrual Period (LMP), obstetric ultrasound or both. The gestational period was categorized between 24-28weeks, 28-32weeks and 33-34weeks.

Detailed history taking and clinical examination was carried out on admission.

INVESTIGATIONS: Complete blood count, PT, APTT, INR, Renal and Liver Function tests, Serum electrolytes, Urine albumin, Urine Routine and microscopy, culture sensitivity, Non-stress test, Obstetrics ultrasound, Doppler study.

If any of the clinical and laboratory parameters deteriorated, expectant management was stopped and steps were taken to terminate pregnancy. If after 24 hours of expectant management, maternal BP was controlled, laboratory parameters improved, expectant management was continued till term or till there was deterioration in the clinical condition or laboratory parameters. Inj.MgSO4 was omitted after 24 hours and anti-hypertensives were continued.

OUTCOME MEASURES:

Maternal outcome: measured by prolongation of gestation, gestational age at delivery, termination of pregnancy, mode of

delivery and maternal complications.

Fetal outcome: Low birth weight, still birth, Apgar score, neonatal ICU admissions and neonatal complications.

STATISTICAL ANALYSIS:

The statistical software namely SPSS 18.0 was used for the analysis of the data and Microsoft word and excel have been used to generate tables and graphs.

Descriptive statistical analysis has been carried out in this study. Results on continuous measurements are presented on Mean \pm SD (Min- Max) and results on categorical measurements are presented in number (%). Chi-square and Fisher Exact test have been used to test the significance of categorical outcome between two groups. Anova test is used to compare the means of more than two groups. Probability value less than 5% was considered statistically significant (p-value <0.005).

RESULTS : Majority of the patients were 20 to 25 years of age (As shown in Table 1) . 61.7% of the patients were primigravidas. 48.3% of the patients were of 28-32 weeks of gestation, with 12% and 19% of the patients in the 24-27 weeks and 33-34 weeks of gestation respectively.

Fig 1: Age of the patients

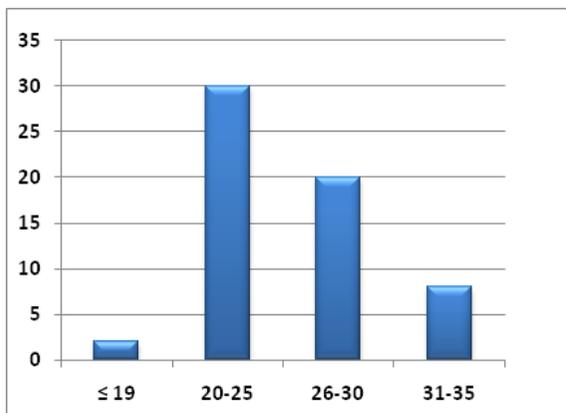


Table 1: Gestational age of the patients

GA at Diagnosis (weeks)	Frequency	%
24-27	12	20
28-32	29	48.3
33-34	19	31.7
Total	60	

Table 2: Perinatal Outcome

Mean Birth weight	1.2kg
Apgar score (majority of babies)	8-10
Neonatal ICU admission	73.3%
Perinatal morbidity	RDS -15%, Sepsis- 6.7%, NEC- 6.7%, IVH-1.7%
Perinatal mortality	38.3%

Prolongation of pregnancy was associated with a reduction in perinatal morbidity and mortality. Chief contributors for perinatal morbidity and mortality were RDS, sepsis, NEC, IVH. 70% of neonates had no significant perinatal morbidity. Neonatal

outcome depends on gestational age at the time of delivery and birth weight. Survival rate of babies was found to be 61.6%.

Table 3: Maternal Outcome

Mean prolongation of pregnancy was 6.2 days.

Indication for termination of pregnancy	Maternal indication- 78.3%, Fetal- 20%, Maternal+fetal-1.7%
Maternal complications	50% (HELLP-25%,Abruption-15%,Eclampsia-10%)
Maternal mortality	Nil

Postpartum hospitalization was required for an average of 7 days. Prolonged hospitalization was mainly because of the neonatal admission in ICU.

Table 4: Investigations

Investigations	Frequency	%
Hyperuricemia	31	51.7
Elevated Liver Enzymes	16	26.7
Hypoalbuminemia	24	40
Deranged Coagulation	2	3.3
Thrombocytopenia	9	15
Renal Impairment	7	11.7
Electrolyte Imbalance	6	10
Retinal Changes	23	38.3

Out of the 60 patients studied, 31 had hyperuricemia, 24 had hypoalbuminemia, 16 had elevated liver enzymes, 2 had deranged coagulation profile, 9 had thrombocytopenia, 6 had electrolyte imbalance, 23 patients had hypertensive retinal changes and 7 patients had renal impairment.

DISCUSSION: Preeclampsia is a major cause of maternal and perinatal morbidity and mortality. The clinical course of severe preeclampsia may be associated with progressive deterioration in both maternal and fetal outcome.

Table 5: Comparison of perinatal outcome

Outcome	Hall et al	Our study
Birth Weight (Kg)	1.4	1.2
Apgar (<6) (%)	5.6	8.2
NICU admission (%)	40	73.3
Perinatal Complications (%)		
RDS	14.9	33.3
NEC	5.3	6.7
Perinatal mortality(%)	5.8	16.7

Perinatal morbidity and mortality was found to be high at early gestational age. Still births, neonatal deaths, RDS and necrotizing enterocolitis were high between 28-32 weeks. In a multivariate analysis by Witlin² et al, neonatal outcome in women with severe preeclampsia between 24-34 weeks of gestational age was directly correlated with increasing birthweight. Perinatal outcome was found to be less favourable in our study (n=60) when compared to Hall et al (n=340). Termination of pregnancy was solely for maternal indication in 78% of the subjects, in our

study. Hence, mean prolongation of pregnancy was 6.2 days in our study, when compared to Hall et al (11 days), thereby decreasing the birth weight of the neonate and increasing the perinatal morbidity and mortality.

Table 6: MATERNAL COMPLICATIONS

STUDY	ABRUPTION	HELLP	ECLAMPSIA
D R HALL ¹	20%	5%	1.20%
MURPHY D J ³	1.50%	21%	1.40%
Our study	15%	25%	10%

Our study showed a lower incidence of abruption and higher incidence of eclampsia as compared to a study by Hall et al. Incidence of HELLP in this study was similar to that of Murphy D J³ et al. 50% of the patients had complications in our study when compared to 25% in the other studies. This explains the need for early termination of pregnancy in our study, and hence poorer perinatal outcome compared to other studies.

Hyperuricemia is an established marker of severe preeclampsia, correlating histologically with the severity of renal lesions, and clinically with adverse fetal outcomes⁴. Mean uric acid was found to be high in 57.7% of the patients, in our study.

CONCLUSION

Expectant management of preeclampsia between 24-28 weeks of gestation, where the woman and fetus are otherwise stable, in a tertiary care centre, with pragmatic cut off points allows valuable time to be gained to enable the fetal growth in a closely monitored high risk group pregnancy and is an acceptable safe option. A gain of even 48 hours that allows the administration of steroids for fetal surfactant and lung maturity is desirable.

It requires intensive serial monitoring of maternal and fetal parameters, immediate dynamic decision making, intensive labour and neonatal monitoring. This will go a long way in preventing adverse maternal or fetal complications. This study of a small number of cases gives a hope that expectant management in well selected early onset severe preeclamptic patients may benefit the fetus by allowing it to reach closer to term without severely and adversely affecting the mother.

Conflicts Of interest: None

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