



## Early Third Trimester Termination of Pregnancy in Case of Severe Preeclampsia with IUGR

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### Abstract

Pre-eclampsia is a multi-systemic disorder whose cause remains unknown and is unique to human pregnancy. It is the major culprit in many births related adverse outcomes including intrauterine growth restriction. In this study, we observed the demographics, mode of delivery and pregnancy outcome of 49 patients that were admitted to our hospital with severe pre-eclampsia and IUGR. Most common age group of study subjects were found to be between 18-25 years (n = 22) while pregnancies were usually terminated after crossing 34 weeks gestation (n = 22). More than half the patients had to undergo caesarian sections (n = 27) followed by spontaneous vaginal delivery in 19 cases. Eleven cases needed medications for termination of pregnancy using mifepristone alone (9.1%), mifepristone followed by misoprostol (63.6%); and intrauterine catheter in combination with mifepristone or misoprostol (27.3%). A minimum of four hours and a maximum of 49 hours were spent between induction of labor and the delivery of the fetus. The overall survival rate of the fetuses was 77.6%. If predicted early and managed adequately, fetomaternal morbidity and mortality can be reduced among severe cases of pregnancy with intrauterine growth restriction.

**Keywords:** Early; Third Trimester Termination; Preeclampsia; IUGR

### Introduction

Preeclampsia (PE) and intrauterine growth restriction (IUGR) are major causes of maternal and perinatal morbidity as well as mortality [1]. Early onset of PE is associated with IUGR showing an abnormal umbilical artery on doppler evaluation. It further can lead to adverse maternal and neonatal outcomes [2-4]. Conversely,

late onset PE ( $\geq 34$  weeks gestation) is usually associated with mild maternal disease with favorable perinatal outcomes [5].

For the past two decades, prediction of PE or IUGR has been a major issue for research with diagnosis being made using uterine artery doppler examination at 20-24 weeks of pregnancy. However, the timing of delivery and the outcome both depends on the esti-

mated risks of continuing pregnancy on the woman and fetus as compared to the neonate’s risk for preterm delivery [6].

While there is a lot of literature available on severe pre-eclampsia, there is confusion and controversy regarding the terminology, prediction, diagnosis, treatment, and management of severe pre-eclampsia. However, one aspect that most studies generally agree on is that delivery is the only way of seizing the disease. Hence, the aim of our study is to evaluate the demographics, mode of delivery and feto-maternal outcomes following such terminations of pregnancy in early third trimester.

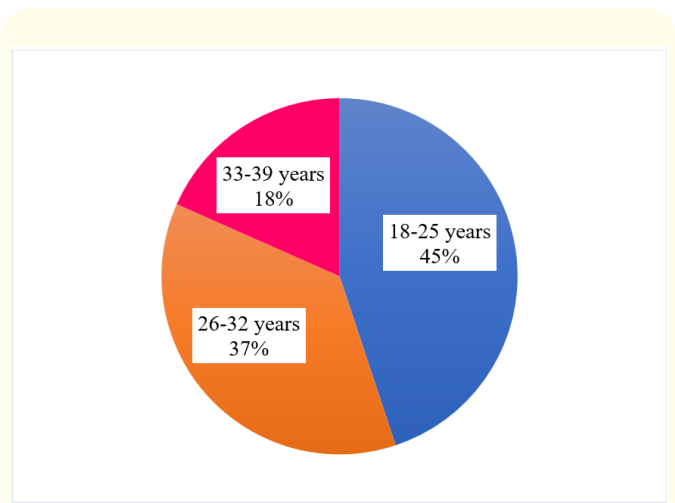
**Materials and Methods**

This was a prospective observational study conducted at the obstetrics and gynaecology department of Chattogram Maa- O Shishu Hospital Medical College from January to June 2021. Patients who presented to the outpatient department of a tertiary care hospital were initially evaluated clinically and then using diagnostic radiology. Cases of severe pre-eclampsia at any gestational age with intrauterine growth restriction were included as study subjects. Women with multiple pregnancies, with a gestational age above 34 weeks were excluded. Patient details were recorded on a case record form and their follow up and management were recorded until after termination of pregnancy. Pre-eclampsia was defined as a patient who had a blood pressure  $\geq 140/90$ mmHg with or without proteinuria or edema. Intrauterine growth restriction was defined as babies who had a birth weight below the 10<sup>th</sup> centile of the average for their gestational age. Severe pre-eclampsia was defined as patients having a blood pressure of  $\geq 160/110$ mmHg in more than one reading taken at least 6 hours apart and having proteinuria. The data was analyzed using the statistical software SPSS version 22.

**Results**

A total of 49 women were enrolled as study subjects. The most common age group was the 18-25 years age group. In regard to gestational age, most pregnancies were terminated at 34+ weeks of gestation.

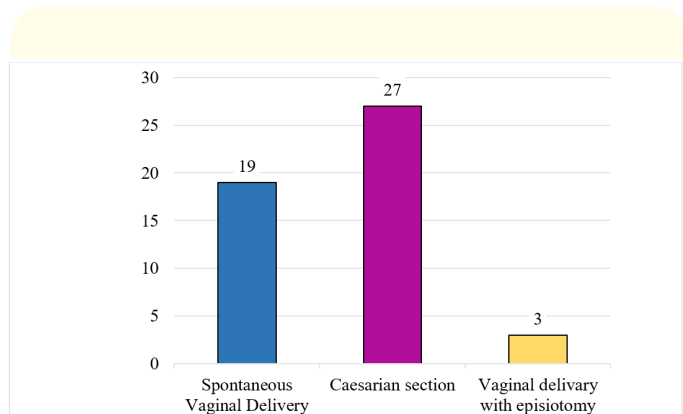
The most common mode of delivery was caesarian section followed by spontaneous vaginal delivery. Only three cases underwent vaginal delivery with episiotomy and both babies had low birthweight.



**Figure 1:** Age of study subjects.

Gestational age	Frequency	Percentage
26+ weeks	1	2
27+ weeks	1	2
28-30 weeks	5	10.3
31-33 weeks	20	40.8
34 weeks	22	44.9
Total	49	100

**Table 1:** Gestational ages at termination of pregnancy (n = 49).



**Figure 2:** Mode of Delivery (n = 49).

A total of nine intrauterine deaths were observed among which one was a case of abruptio placentae. Another 15 cases had intrauterine growth restriction at the time of pregnancy termination. Two cases were missed abortion, 16 neonates were born with low birthweight and 7 had normal weight.

Causal Factors	Frequency	Percentage
Mild pre-eclampsia	6	12.2
Gestational HTN with impending sign	4	8.2
Severe preeclampsia with associated comorbidity	36	73.5
Chronic hypertension with superimposed PE	3	6.1
Total	49	100.0

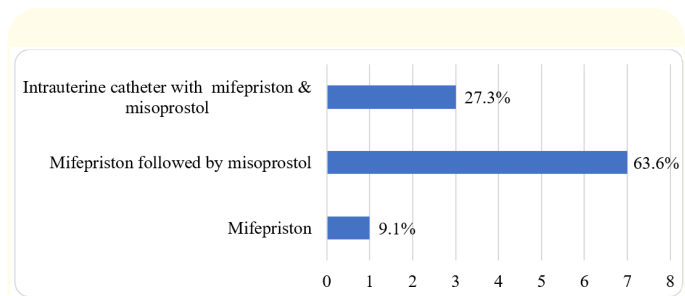
**Table 3:** Causal factors for early termination of Pregnancy.

Table 3 shows the different causes of early termination of pregnancy. As observed, majority of cases (73.5%) were diagnosed as severe pre-eclampsia. Among them, some had associated comorbidities such as hypothyroidism and gestational diabetes mellitus. Other causes for early termination of pregnancy were mild pre-eclampsia (12.2%), Gestational hypertension with impending sign (8.2%) and chronic hypertension with superimposed pre-eclampsia (6.1%).

For termination of pregnancy by spontaneous vaginal delivery, eleven out of 19 subjects with this mode of delivery required medications. Out of them, the most common was the use of mifepristone followed by misoprostol.

Induction and delivery interval in hours	Frequency	Percentage	Cumulative Percentage
4	1	9.1	9.1
6	3	27.3	36.4
7	1	9.1	45.5
10	2	18.2	63.6
18	1	9.1	72.7
24	1	9.1	81.8
48	1	9.1	90.9
49	1	9.1	100.0

**Table 4:** Induction and delivery interval of study subjects (n = 11).



**Figure 3:** Method of termination of pregnancy spontaneously (n = 11).

The interval between induction and delivery of the fetus varied widely among the study subjects. A minimum of four hours and a maximum of 49 hours were spent between induction of labor and the delivery of the fetus. The highest frequency was observed in the 6-hour interval between induction and delivery (27.3%).

**Discussion**

The mean age of the study subjects were 26.7 years and their most common gestational age at termination of pregnancy was between 28 to more than 34 weeks. A similar study that assessed the maternal outcome of pregnant women with severe pre-eclampsia had an age group of 18-35-year-olds as the most common age at presentation. And similar to our study, most patients had their pregnancies terminated at 28-37 weeks gestation [7]. Another study showed termination of pregnancy to be done between 24 to 33 weeks of gestation, however, since this study deliberately chose women within this specific age group to evaluate the predictors of neonatal outcome [8], it cannot be agreed upon that most women with severe pre-eclampsia and IUGR usually present at this gestational age.

The most common mode of delivery was caesarian section (56.3%) followed by spontaneous vaginal delivery (39.6%). Only two cases underwent normal vaginal delivery (4.2%) and both babies had low birthweight. The main reason for an increased rate of caesarian section in this cohort of study subjects was to improve fetal outcome since pre-eclampsia and eclampsia are strong indicators for c-section [9].

A total of nine intrauterine deaths were observed among which one was a case of abruptio placentae. Another 15 cases had intra-

uterine growth restriction at the time of pregnancy termination. Two cases were missed abortion, 16 neonates were born with low birthweight and 7 had normal weight. All nine intrauterine deaths along with two cases of missed abortion were expelled using intrauterine mifepristone and misoprostol as well as using intrauterine catheter along with mifepristone or misoprostol, for cervical ripening. A study by Sharma, *et al.* [10] found the combined use of mifepristone followed by misoprostol to have a significantly lower induction delivery interval than using misoprostol alone. In our study, only one subject received mifepristone alone and three got intrauterine catheter with combination of mifepristone or misoprostol. The rest of them all received mifepristone followed by misoprostol. Nevertheless, we could not find a significant correlation between using either of these methods and induction delivery interval in this study. In another study by Chen, *et al.* [11] a comparison between three clinical methods for induction of labor (using foley catheter, misoprostol and dinoprostone). In that study, no superiority was observed between any of the modes of induction and decision depended on having a delivery within 24 hours with minimal incidences of uterine hyperstimulation and adverse fetal heart rate changes.

Among the maternal complications observed with severe preeclampsia, placental abruption was observed in one patient. No other complications were noted. Yet, one other study by Sibai, *et al.* [12] found a range of complications from abruptio placentae to eclampsia, coagulopathy, renal failure, intracerebral hemorrhage, hypertensive encephalopathy and ruptured hepatic hematoma. The overall perinatal mortality rate was 87% in that study where either still birth or neonatal deaths were common. One reason could be that women in the Sibai study were managed conservatively until fetal lung maturity was achieved or until maternal or fetal complications (fetal distress or death) were discovered.

One factor our study failed to record were the neonatal complications following early delivery. Witlin, *et al.* [8] described the complications neonates suffered from when delivered at a gestational age between 24-33 weeks. In case of women who underwent caesarian section, respiratory distress syndrome of the neonates was observed. Again, this was inversely related to increased gestational age at delivery. At the same time, survival of the neonate was directly associated with birth weight.

## Conclusion

Termination of pregnancy early in the third trimester if managed well can lead to better fetal survival. In cases of severe preeclampsia with intrauterine growth restriction, a favorable outcome can be expected provided such patients can be diagnosed early and managed in a timely manner.

## Conflict of Interest

In this study, the authors declare no conflict of interests.

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