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A COMPARATIVE STUDY OF EARLY ONSET PRE-ECLAMPSIA V/S LATE ONSET PRE-ECLAMPSIA: MATERNAL AND PERINATAL OUTCOME

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ABSTRACT

Aim & Objective: The aim of the study is a comparative study of early onset pre-eclampsia versus late onset pre- eclampsia: maternal & perinatal outcome.

Methodology: This Cohort study was carried out Antenatal women attending antenatal outpatient department as well as women admitted to obstetric ward & labour room at the department of Obstetrics &Gynaecology in Government Maternity hospital, SVMC, Tirupati from November 2021 to October 2022 after obtaining permission from institutional ethics committee.

Results: In an association between age group & groups, in a total of 50 cases of group-1, 62.0% of cases had aged between 18 to 25 years, 24.0% of cases had aged between 26 to 30 years, 10.0% of cases had aged between 31 to 35 years, & 4.0% of cases had aged more than 35 years. The mean ±SD gestational age in group-1 was 27.54±4.33 weeks & in group-2 was 38.40±1.84 weeks. The comparison between group-1 & group-2 for age was shown statistically significant ($P < 0.0001$). In an association between severity PE & group, 56.0% of cases had severe of severity PE, 44.0% of cases had mild severity PE in group-1. Whereas in group-2, 60.0% of cases had mild severity PE, 40.0% of cases had severe severity PE. The association between Severity PE & group was shown statistically not significant ($P =0.109$). In an association between eclampsia & group, 22.0% of cases in group- 1 & 12.0% of cases in group-2 had eclampsia. However, the association between eclampsia & group was shown statistically not significant ($P = 0.183$).

Conclusion: We came to the conclusion that pre-eclampsia far from term, or early onset pre-eclampsia, is related with more maternal & perinatal complications than pre-eclampsia at term based on the study's data.

Keywords: Pre-eclampsia, Perinatal, Maternal, Pregnancy.

INTRODUCTION

Pre-eclampsia is a leading cause of maternal & perinatal mortality & morbidity worldwide.[1] It is a major complication during pregnancy, & possessing at first pregnancy that increases the risk of having it again in future pregnancies. It is unclear if the onset or severity of pre-eclampsia in a first pregnancy is related to the likelihood of recurring pre-eclampsia.[2] Pre-eclampsia is increasingly understood to be divided into two distinct conditions: early-onset pre-eclampsia, which affects women before 34 weeks of pregnancy, & late-onset pre-eclampsia, which affects women beyond 34 weeks of pregnancy.[3]Poor early placentation is

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especially associated with early onset sickness. Predisposing metabolic or cardiovascular risks for endothelial dysfunction as a result of an enhanced systemic inflammatory response may be the reasons of late-onset pre-eclampsia.[4]There are differences between the effects of early-onset & late-onset pre-eclampsia on the mother & new-born.[3]

pre-eclampsia is a multisystem disorder that only occurs during pregnancy in humans & has an unknown aetiology. It is characterized by an abnormal vascular response to placentation that is accompanied by increased Systematic Vascular Resistance (SVR), enhanced platelet aggregation, activated coagulation system, & endothelial dysfunction. It continues to be a significant contributor to maternal & fetal/new-born morbidity & mortality. pre- eclampsia accounts for one in three cases of obstetric morbidity & more than 50,000 maternal fatalities annually globally. The two main maternal symptoms are proteinuria & hypertension. Additionally, the liver, kidney, coagulation system, & central nervous system can all be impacted. The rate of fetal complications is mostly influenced by the gestational age at delivery.

Pre-eclampsia is a frequent pregnancy-specific condition that originates in the placenta & is connected to both maternal & fetal hazards (growth restriction, preterm, & mortality), whereas hypertension without proteinuria normally has a much more benign course (cerebrovascular, cardiac, hepatic, & renal complications). It starts to show after 20 weeks of pregnancy & fadesgone when the placenta is delivered.

Pre-eclampsia, which develops after 20 weeks of pregnancy, is characterized by proteinuria that is greater than 0.3 g/L in a 24-hour urine collection or 1+ by qualitative urine tests.

pre-eclampsia is classified as non-severe when the systolic & diastolic blood pressures are less than 160 mm Hg & 110 mm Hg respectively and severe when the systolic blood pressure is greater than 160 mm Hg & the diastolic blood pressure is greater than 110 mm Hg. pre-eclampsia increases the risk of maternal mortality as well as maternal morbidities such as stroke, seizures, abruptio placentae, severe renal failure, cerebrovascular & cardiovascular problem, liver hemorrhage, & disseminated intravascular coagulation.

Prematurity, somatic growth retardation, thrombocytopenia, low APGAR scores, delayed adaptation, patent ductus arteriosus, & gastro intestinal hypo motility are much more common in the infants of preeclamptic women. The primary cause of the rise in prenatal morbidity & mortality is prematurity. There are no logical preventive or treatment interventions available for pre-eclampsia because substantial study has not yet clarified the genesis of the condition. The only sensible course of action is delivery, which is advantageous to the mother but harmful to the fetus if it is not near term. Only 1% of pregnancies result in early-onset pre-eclampsia (gestational age 34 weeks). However, because the probability of developing into severe maternal disorders is inversely proportional to gestational age at onset, it is linked to maternal morbidity. The primary factor in infant mortality & morbidity in patients with severe pre-eclampsia is consequent preterm. Although the debate is still ongoing, expectant, non-interventional therapy is proposed to boost perinatal survival in patients with pre-eclampsia who are far from term. Magnesium sulphate is used to avoid eclampsia, corticosteroids are used to improve fetal lung maturity, & antihypertensive medicine is used to regulate hypertension as part of this temporizing therapy approach to lengthen pregnancy.

The mis- understanding over the clinical classification of this syndrome, which has led to the use of numerous classifications in recent years, is a key concern in the identification of the clinical risk factors for women at risk of pre-eclampsia. Thus, this cohort study was taken to compare the obstetric outcomes of women with PE remote from term to those of late onset PE.

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AIMS & OBJECTIVES OF THE STUDY

Aim of the study: -

The aim of the study is a comparative study of early onset pre-eclampsia versus late onset pre- eclampsia: maternal & perinatal outcome.

Objectives of the study: -

The main objectives of the study are:

- To study the obstetric outcome in women with pre-eclampsia in general.
- To compare the maternal outcomes in women with pre-eclampsia remote from term (i.e., early onset pre-eclampsia) & women with pre- eclampsia near term (i.e., late onset pre-eclampsia).
- To compare the perinatal outcomes in women with pre-eclampsia remote from term (i.e., early onset pre-eclampsia) & women with pre- eclampsia near term (i.e., late onset pre-eclampsia).

MATERIALS & METHODS

STUDY DESIGN **:** Cohort study

STUDY AREA **:** Government Maternity hospital, SVMC, Tirupati.

STUDY SUBJECTS **:**Antenatal women attending antenatal out patient department as well as women admitted to obstetric ward & labour room.

STUDY PERIOD **:1** Year (November 2021 to October2022) from date of approval from institution, scientific committeeand ethical committee.

SAMPLE SIZE **:** 100.

Following counselling and the receipt of written informed permission, 100 pregnant patients in the antenatal outpatient clinic as well as patients admitted to the obstetric ward and labour room were evaluated and included in the study according to the established inclusion and exclusion criteria. A detailed clinical history and examination were performed. All the women underwent standard and Pre-eclampsia specific examinations, were monitored through delivery, and had their maternal and perinatal outcomes recorded.

The diagnosis of PE was done according to NHBPEP working group on high blood pressure.

- Chronic HTN (BP> 140/90 mm Hg before 20 weeks of gestation)
- Gestational HTN (BP>140/ 90 mm Hg after 20 weeks)
- pre-eclampsia (PIH +Proteinuria > 300 mg/dl)
- Eclampsia (pre-eclampsia + seizures)

To classify severe PE the following criteria were used

- BP > 160 mm Hg systolic or > 110 mm Hg diastolic
- Proteinuria >5 gm/dl
- Oliguria defined as <500 ml per 24 hours
- Cerebral / visual disturbances
- Impaired liver function

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- Thrombocytopenia

Impaired renal function

- Epigastric/right upper quadrant pain
- Pulmonary edema
- Foetal growth restriction /Oligohydramnios

HELLP*syndrome was defined by the Mississippi classification*

Platelet count 150,000/ul, LDH > 600 IU, and AST/ALT > 40 IU were the classification criteria. There are three classifications of HELLP syndrome based on the severity of the laboratory changes.

Based on a clinical assessment of elevated blood pressure and proteinuria, PE was diagnosed. When properly taken blood pressure exceeded 140 mm of Hg systolic & 90 mm of Hg diastolic, hypertension was diagnosed. Diastolic pressure was determined using Korotkoff off phase V.

Gestational age of all patients was critically evaluated depending upon their last menstrual period, regularity of menstrual cycle, early USG/clinical examination details. These patients were grouped into two groups as per their gestational age. Only those women who were willing to sign the consent & were willing to deliver in this hospital were included in the study.

A total 100 women satisfying inclusion & exclusion criteria were included in the study & they were grouped into two groups as per their gestational age.

Group 1: - *50 pregnant women with pre-eclampsia remote from term with gestational age between 20-34 weeks of gestation. (Early onset PE)*

Group 2: - *50 pregnant women with pre-eclampsia near term with gestational age between 35-42 weeks of gestation. (Late onset PE)*

This was carried out & taken into consideration of the following of inclusion & exclusion criteria's

Inclusion criteria

- Patients booked in the first trimester with known first trimester BPrecord.
- Pregnant women between 20-42 weeks of gestation.

- Blood pressure ≥140mm of Hg systolic & ≥90mm of Hg diastolic with proteinuria: diagnostic of pre-eclampsia.
- Singleton pregnancy
- Women with good dates/ or having early USG/clinical examinationdetails
- Women willing to deliver in this hospital.
- Women who are willing to give written consent.

Exclusion criteria

- Gestational age <20 weeks or > 42 weeks
- Multifetal gestation
- Women who are neither sure of their dates nor having early USG
- Known case of essential hypertension
- Known case of renal disease
- Gestational hypertension

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- Presence of diabetes-mellitus
- Heart disease
- Not willing to participate in the study
- Not willing to deliver in this hospital

METHODOLOGY: -

Women in both the groups were studied for demographic data such as age, gravity, family history & severity of pre-eclampsia.

A complete clinical exam was performed in accordance with the case record form, taking into account BP, edema, pallor, etc. A thorough obstetric examination was performed, including obstetric palpation, presentation, alcohol consumption, and fetal heart sounds. All the women underwent regular and PE- specific investigations, were treated in accordance with hospital procedure, monitored up until birth, and had the maternal and perinatal outcomes reported. Once PE was identified in the ladies, they were hospitalized, looked into for PE, and treated with anti-hypertensives in accordance with hospital practice. They received follow-up care, including a clinical checkup, investigations, and BP records. The justification for ending a pregnancy was a deterioration in the condition. The severity of PE, maternal complications such Abruptio placentae, HELLP syndrome, eclampsia, DIC, ARF, pulmonary edema, and maternal death were documented for the maternal outcome. The perinatal outcome was noted in the form of birth weight, IUGR, birth asphyxia, NICU admission & perinatal mortality. The platelet count, liver enzymes & serum uric acid levels in both the groups were studied & compared. Maternal & perinatal outcome in these women with **pre-eclampsia remote from term** i.e., early onset PE (Group-1: 20 to 34 weeks of gestation) in a tertiary care hospital were studied &were compared with **pre-eclampsia near term** i.e., late onset PE (Group-2:35 to 42 weeks of gestation) & the outcome of 100 women with PE wasanalyzed.

Statistical analysis:

The data has been entered into MS-Excel & statistical analysis was done by using IBM SPSS Version 25.0. The data values were expressed as number & percentages for discrete data, & for continuous data, the data values were expressed as Mean & Standard Deviation. To test the association between the groups, chi-square test was used & to test the mean difference between the groups, student's t-test was used. All the p-values were having $P < 0.05$ were considered as statistically significant.

Table-1: Distribution of number of women into two groups

Group	Number	Percentage (%)
Group-1	50	50.0
Group-2	50	50.0
Total	100	100.0

Table 1 shows that total of 100 women with pre-eclampsia were included in study & were distributed into two groups.

Group 1: 50 women with pre-eclampsia remote from term or early onset PE i.e., 20 to 34 weeks of gestation.

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Group 2: 50 women with pre-eclampsia near term or late onset PE i.e., 35 to 42 weeks of gestation.

Table-2: Association of subjects according to age between two groups

			Group		Total
			Group-1	Group-2	
Age Group	18 to 25 Years	Count	31	17	48
		% Within Age Group	64.6%	35.4%	100.0%
		% Within Group	62.0%	34.0%	48.0%
	26 to 30 Years	Count	12	20	32
		% Within Age Group	37.5%	62.5%	100.0%
		% Within Group	24.0%	40.0%	32.0%
	31 to 35 Years	Count	5	12	17
		% Within Age Group	29.4%	70.6%	100.0%
		% Within Group	10.0%	24.0%	17.0%
	> 35 Years	Count	2	1	3
		% Within Age Group	66.7%	33.3%	100.0%
		% Within Group	4.0%	2.0%	3.0%
Total		Count	50	50	100
		% Within Age Group	50.0%	50.0%	100.0%
		% Within Group	100.0%	100.0%	100.0%

Chi-square value = 9.299, P-value = 0.026 (Sig.)

Table-2 showed that the association between age group & groups, in a total of 50 cases of group-1, 62.0% of cases had aged between 18 to 25 years, 24.0% of cases had aged between 26 to 30 years, 10.0% of cases had aged between 31 to 35 years, & 4.0% of cases had aged more than 35 years. In a total of 50 cases of group-2, 34.0% of cases had aged between 18 to 25 years, 40.0% of cases had aged between 26 to 30 years, 24.0% of cases had aged between 31 to 35 years, & 2.0% of cases had aged more than 35 years.

Table-3: Association of GA between groups

			Group		Total
			Group-1	Group-2	
	20 to 24	Count	16	0	16
		% Within GA Group	100.0%	0.0%	100.0%
		% Within Group	32.0%	0.0%	16.0%
	25 to 28	Count	12	0	12
		% Within GA Group	100.0%	0.0%	100.0%
		% Within Group	24.0%	0.0%	12.0%

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GA Group	29 to 34	Count	22	0	22
		% Within GA Group	100.0%	0.0%	100.0%
		% Within Group	44.0%	0.0%	22.0%
	35 to 37	Count	0	21	21
		% Within GA Group	0.0%	100.0%	100.0%
		% Within Group	0.0%	42.0%	21.0%
	38 to 40	Count	0	21	21
		% Within GA Group	0.0%	100.0%	100.0%
		% Within Group	0.0%	42.0%	21.0%
	41 to 42	Count	0	8	8
		% Within GA Group	0.0%	100.0%	100.0%
		% Within Group	0.0%	16.0%	8.0%
Total		Count	50	50	100
		% Within GA Group	50.0%	50.0%	100.0%
		% Within Group	100.0%	100.0%	100.0%

Table-3 showed that the association between GA group & groups, in a total of 50 cases of group-1, the most cases (44.0%) of gestational age was between 29 to 34 weeks, followed by 20-24 weeks (32.0%), 25-28 weeks (24.0%). Whereas in a total of 50 cases of group-2, 42.0% of cases had aged between 35 to 37 weeks, 42.0% of cases had aged between 38 to 40 weeks, & 16.0% of cases had aged between 41 to 42 weeks. Moreover, the association between GA group & groups was statistically significant (P <0.0001).

Table-4: Association of Gravida between groups

			Group		Total
			Group-1	Group-2	
Gravida	Multi	Count	24	12	36
		% Within Gravida	66.7%	33.3%	100.0%
		% Within Group	48.0%	24.0%	36.0%
	Primi	Count	26	38	64
		% Within Gravida	40.6%	59.4%	100.0%
		% Within Group	52.0%	76.0%	64.0%
Total		Count	50	50	100
		% Within Gravida	50.0%	50.0%	100.0%
		% Within Group	100.0%	100.0%	100.0%

Chi-square value = 6.250, P-value = 0.012 (Sig.)

Table-4 showed that the association between gravida & groups, in a total of 50 cases of group-1, 48.0% of cases had multi gravida, 52.0% of cases had primi gravida. Whereas in a total of 50 cases of group-2, 24.0% of cases had multi gravida, 76.0% of cases had primi gravida. Moreover, the association between gravida & groups was statistically significant (P = 0.012).

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Table-5: Association of family history between groups

			Group		Total
			Group-1	Group-2	
Family History	No	Count	42	45	87
		% Within Family History	48.3%	51.7%	100.0%
		% Within Group	84.0%	90.0%	87.0%
	Yes	Count	8	5	13
		% Within Family History	61.5%	38.5%	100.0%
		% Within Group	16.0%	10.0%	13.0%
Total		Count	50	50	100
		% Within Family History	50.0%	50.0%	100.0%
		% Within Group	100.0%	100.0%	100.0%

Table-5 showed that the association between family history & groups, 16.0% of cases had family history in group-1, & 10.0% of cases had family history in group-2. Moreover, the association between family history & groups was statistically not significant (P = 0.372).

Table-6: Association of severity of PE between groups

			Group		Total
			Group-1	Group-2	
Severity PE	Mild	Count	22	30	52
		% Within Severity PE	42.3%	57.7%	100.0%
		% Within Group	44.0%	60.0%	52.0%
	Severe	Count	28	20	48
		% Within Severity PE	58.3%	41.7%	100.0%
		% Within Group	56.0%	40.0%	48.0%
Total		Count	50	50	100
		% Within Severity PE	50.0%	50.0%	100.0%
		% Within Group	100.0%	100.0%	100.0%

Table-6 showed that the association between severity PE & group. 56.0% of cases had severe of severity PE, 44.0% of cases had mild severity PE in group-1. Whereas in group-2, 60.0% of cases had mild severity PE, 40.0% of cases had severe severity PE. The association between Severity PE & group was shown statistically not significant (P =0.109).

Table-7: Association of platelet count between groups

			Group		Total
			Group-1	Group-2	
Platelet count (PLT_CNT)	< 1	Count	9	6	15
		% Within PLT_CNT	60.0%	40.0%	100.0%
		% Within Group	18.0%	12.0%	15.0%
	1-1.5	Count	7	11	18

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		% Within PLT_CNT	38.9%	61.1%	100.0%
		% Within Group	14.0%	22.0%	18.0%
	1.6-2.0	Count	10	15	25
		% Within PLT_CNT	40.0%	60.0%	100.0%
		% Within Group	20.0%	30.0%	25.0%
	> 2	Count	24	18	42
		% Within PLT_CNT	57.1%	42.9%	100.0%
		% Within Group	48.0%	36.0%	42.0%
Total		Count	50	50	100
		% Within PLT_CNT	50.0%	50.0%	100.0%
		% Within Group	100.0%	100.0%	100.0%

Table-7 showed that the association between classification of platelet count & group. Most of the cases in both the groups of group-1 (48.0%) & group-2 (36.0%) had platelet count of more than 2. However, the association between classification of platelet count & group was shown statistically not significant (P= 0.341).

Table-8: Association of AST between groups

			Group		Total
			Group-1	Group-2	
AST_GRP	<= 40	Count	7	12	19
		% Within AST_GRP	36.8%	63.2%	100.0%
		% Within Group	14.0%	24.0%	19.0%
	> 40	Count	43	38	81
		% Within AST_GRP	53.1%	46.9%	100.0%
		% Within Group	86.0%	76.0%	81.0%
Total		Count	50	50	100
		% Within AST_GRP	50.0%	50.0%	100.0%
		% Within Group	100.0%	100.0%	100.0%

Table-8 showed that the association between AST group & group. Most of the cases in both the groups of group-1 (86.0%) & group-2 (76.0%) had AST group of more than 40. However, the association between AST group & group was shown statistically not significant (P = 0.202).

Table-9: Association of ALT group between groups

			Group		Total
			Group-1	Group-2	
ALT_GRP	<= 40	Count	47	42	89
		% Within ALT_GRP	52.8%	47.2%	100.0%
		% Within Group	94.0%	84.0%	89.0%
	> 40	Count	3	8	11
		% Within ALT_GRP	27.3%	72.7%	100.0%
		% Within Group	6.0%	16.0%	11.0%
Total		Count	50	50	100
		% Within ALT_GRP	50.0%	50.0%	100.0%
		% Within Group	100.0%	100.0%	100.0%

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Table-9 showed that the association between ALT group & group. Most of the cases in both the groups of group-1 (94.0%) & group-2 (84.0%) had AST group of <= 40. However, the association between ALT group & group was shown statistically not significant (P = 0.110).

Table-10: Association of mode of delivery between groups

			Group		Total
			Group-1	Group-2	
Mode of Delivery	LSCS	Count	21	23	44
		% Within Mode of Delivery	47.7%	52.3%	100.0%
		% Within Group	42.0%	46.0%	44.0%
	Vaginal	Count	29	27	56
		% Within Mode of Delivery	51.8%	48.2%	100.0%
		% Within Group	58.0%	54.0%	56.0%
Total		Count	50	50	100
		% Within Mode of Delivery	50.0%	50.0%	100.0%
		% Within Group	100.0%	100.0%	100.0%

Table-10 showed that the association between mode of delivery & group. Most of the cases in both the groups of group-1 (58.0%) & group-2 (54.0%) had vaginal delivery. However, the association between mode of delivery & group was shown statistically not significant (P = 0.687).

Table-11: Association of eclampsia between groups

			Group		Total
			Group-1	Group-2	
Eclampsia	**No**	Count	39	44	83
		% Within Eclampsia	47.0%	53.0%	100.0%
		% Within Group	78.0%	88.0%	83.0%
	Yes	Count	11	6	17
		% Within Eclampsia	64.7%	35.3%	100.0%
		% Within Group	22.0%	12.0%	17.0%
Total		Count	50	50	100
		% Within Eclampsia	50.0%	50.0%	100.0%

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	% Within Group	100.0%	100.0%	100.0%

Table-11 showed that the association between eclampsia & group. 22.0% of cases in group-1 & 12.0% of cases in group-2 had eclampsia. However, the association between eclampsia & group was shown statistically not significant (P = 0.183).

Table-12: Association of maternal mortality between groups

			Group		Total
			Group-1	Group-2	
Maternal Mortality	**No**	Count	49	50	99
		% Within Maternal Mortality	49.5%	50.5%	100.0%
		% Within Group	98.0%	100.0%	99.0%
	Yes	Count	1	0	1
		% Within Maternal Mortality	100.0%	0.0%	100.0%
		% Within Group	2.0%	0.0%	1.0%
Total		Count	50	50	100
		% Within Maternal Mortality	50.0%	50.0%	100.0%
		% Within Group	100.0%	100.0%	100.0%

Table-12 showed that the association between maternal mortality & group. 2.0.0% of cases in group-1 & none of cases in group-2 had maternal mortality. However, the association between maternal mortality & group was shown statistically not significant (P = 0.315).

Table-13: Association of LBW between groups

			Group		Total
			Group-1	Group-2	
LBW	**No**	Count	22	34	56
		% Within LBW	39.3%	60.7%	100.0%
		% Within Group	44.0%	68.0%	56.0%
	Yes	Count	28	16	44
		% Within LBW	63.6%	36.4%	100.0%
		% Within Group	56.0%	32.0%	44.0%
Total		Count	50	50	100
		% Within LBW	50.0%	50.0%	100.0%
		% Within Group	100.0%	100.0%	100.0%

Table-13 showed that the association between LBW & group. 56.0% of cases in group-1 & 22.0% of cases in group-2 had Low birth weight. However, the association between LBW & group was shown statistically significant (P = 0.016).

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Table-14: Association of Subjects NICU admissions between groups

			Group		Total
			Group-1	Group-2	
NICU	**No**	Count	39	41	80
		% Within NICU	48.8%	51.2%	100.0%
		% Within Group	78.0%	82.0%	80.0%
	Yes	Count	11	9	20
		% Within NICU	55.0%	45.0%	100.0%
		% Within Group	22.0%	18.0%	20.0%
Total		Count	50	50	100
		% Within NICU	50.0%	50.0%	100.0%
		% Within Group	100.0%	100.0%	100.0%

Table-14 showed that the association between NICU admissions & group. 22.0% of cases in group-1 & 18.0% of cases in group-2 were in NICU admissions. However, the association between NICU admissions & group was shown statistically not significant (P = 0.617).

Table-15: Association of birth asphyxia between group

			Group		Total
			Group-1	Group-2	
Birth Asphyxia	**No**	Count	39	43	82
		% Within Birth Asphyxia	47.6%	52.4%	100.0%
		% Within Group	78.0%	86.0%	82.0%
	Yes	Count	11	7	18
		% Within Birth Asphyxia	61.1%	38.9%	100.0%
		% Within Group	22.0%	14.0%	18.0%
Total		Count	50	50	100
		% Within Birth Asphyxia	50.0%	50.0%	100.0%
		% Within Group	100.0%	100.0%	100.0%

Table-15 showed that the association between birth asphyxia & group22.0% of cases in group-1 & 14.0% of cases in group-2 had birth asphyxia. However, the association between birth asphyxia & group was shownstatistically not significant (P = 0.298).

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Table-16: Comparison of different parameters between groups

	Group	N	Mean	Std. Deviation	t-value	P-value
Age (years)	Group-1	50	24.96	4.616	-2.706	0.008
	Group-2	50	27.40	4.399		
Gest. Age	Group-1	50	27.54	4.334	-16.308	<0.0001
	Group-2	50	38.40	1.841		
Platelet Count	Group-1	50	1.6924	.57607	0.257	0.798
	Group-2	50	1.6650	.48822		
AST	Group-1	50	73.30	23.515	2.209	0.03
	Group-2	50	62.68	24.560		
ALT	Group-1	50	36.40	16.157	-0.478	0.634
	Group-2	50	37.96	16.469		

Table-16 showed that the comparison between group-1 & group-2 for different parameters as., The mean ± SD age in group-1 was 24.96±4.62 years & in group-2 was 27.40±4.39 years. The comparison between group-1 & group-2 for age was shown statistically significant (P = 0.008). The mean ± SD gestational age in group-1 was 27.54±4.33 weeks & in group-2 was 38.40±1.84 weeks. The comparison between group-1 & group-2 for age was shown statistically significant (P <0.0001). The mean ± SD platelet count in group-1 was 1.69±0.57 & in group-2 was 1.67±0.49. The comparison between group-1 & group-2 for platelet count was shown statistically not significant (P = 0.798). The mean ± SD AST in group-1 was 73.30±23.52 & in group-2 was 62.68±24.56. The comparison between group-1 & group-2 for AST was shown statistically significant (P = 0.03). The mean ± SD ALT in group-1 was 36.40±16.16 & in group-2 was 37.96±16.47. The comparison between group-1 & group-2 for ALT was shown statistically not significant (P = 0.634).

DISCUSSION

This Cohort study was carried out Antenatal women attending antenatal outpatient department as well as women admitted to obstetric ward & labour room at the department of Obstetrics & Gynaecology in Government Maternity hospital, SVMC, Tirupati from November 2020 to November 2022 after obtaining permission from institutional ethics committee. A complete clinical examination was performed in accordance with the case record form, taking into account BP, edoema, and pallor. A thorough obstetric examination was conducted, including fetal heart sounds, presentation, the quantity of alcohol, and obstetric palpation. All the women underwent regular and PE-specific investigations, were treated in accordance with hospital procedure, followed up until birth, and had both maternal and perinatal outcomes recorded. Once the ladies were identified as having PE, they were hospitalized, looked into for PE, and treated with antihypertensive in accordance with hospital policy. A BP record, investigations, and a clinical assessment were used as a means of follow-up. The sign that a pregnancy should be terminated was a deteriorating

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illness. Maternal outcomes included maternal problems such Abruptio placentae, HELLP syndrome, eclampsia, DIC, ARF, pulmonary edoema, and maternal death. Birth weight, IUGR, birth asphyxia, NICU hospitalization, and perinatal death were recorded as the perinatal outcome. In both groups, the platelet count, liver enzymes, and serum uric acid levels were examined and compared. pre-eclampsia remote from term, or early onset PE (Group-1: 20-34 weeks of gestation), was researched and compared with pre-eclampsia near term, or late onset PE (Group-2: 35-42 weeks of gestation), and the result of 100 women with PE was analyzed.

In a study of Von-Dadelszen et al. (2009)[5], the mean age in pre- eclampsia was 26.6±5.6 years. In a study of Rathore et al. (2010)[6], the mean age in women with PE was28.2 ±5.2years. In the present study, in an association between age group & groups, in a total of 50 cases of group-1, 62.0% of cases had aged between 18 to 25 years, 24.0% of cases had aged between 26 to 30 years, 10.0% of cases had aged between 31 to 35 years, & 4.0% of cases had aged more than 35 years. In a total of 50 cases of group-2, 34.0% of cases had aged between 18 to 25 years, 40.0% of cases had aged between 26 to 30 years, 24.0% of cases had aged between 31 to 35 years, & 2.0% of cases had aged more than 35 years. Moreover, the association between age group & groups was statistically significant (P = 0.026). The mean ±SD age in group-1 was 24.96±4.62 years & in group-2 was 27.40±4.39 years. The comparison between group-1 & group-2 for age was shown statistically significant (P = 0.008).

Gestational age

In a study of Kishwara et al. (2005)[7], the mother's mean gestational age was 36.90±1.03 weeks in pre-eclampsia group as compared to 38.27±1.26 weeks in control group was statistically significant (P<0.001). In a study of Fatemeh et al. (2010)[8], the mean gestational age was significantly lesser in PE group (37.37±2.25) than the control group (38.81±1.71) (P<0.001).

Gravida

In a study Kishwara et al. (2005)[7], PE was more common in Primigravida (63.33%) than the multigravida (36.71%). In a study of Saadat et al. (2007)[9] in 2005-2006, 65.6% of cases were multigravida& 34.4% of cases were primi gravida. In a study of Von-Dadelszen et al. (2009)[5], 33% of primigravida & 67%of multigravida.

Severity PE: -

Management, maternal & perinatal outcome of PE depends on severity of pre- eclampsia & gestational age. Mild PE- systolic BP <160 mm of Hg or diastolic BP <110 mm of Hg. Severe PE- Systolic BP≥160 mm of Hg or diastolic BP≥110mm of Hg or with premonitory signs & symptoms. In a study of Von-Dadelszen et al. (2009)[5], 52.0% of cases had non- severe PE, & 48.0% of cases had severe PE. In a study of Fatemeh et al. (2010)[8] 51.0% cases had mild PE, &49% cases had severe PE. In a study of Kuchake et al. (2010)[10], Out of 73 patients with PE, 87.67%had mild PE, & 12.33% had severe PE.

AST group: -

In the present study, in an association between AST group & group, most of the cases in both the groups of group-1 (86.0%) & group-2 (76.0%) had AST group of more than 40. However, the association between AST group & group was shown statistically not significant (P = 0.202). The mean ± SD AST in group-1 was 73.30±23.52 & in group-2 was 62.68±24.56. The comparison between group-1 & group-2 for AST was shown statistically

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significant (P = 0.03).

ALT group: -
In the present study, in an association between ALT group & group, most of the cases in both the groups of group-1 (94.0%) & group-2 (84.0%) had AST group of <= 40. However, the association between ALT group & group was shown statistically not significant (P = 0.110). The mean ± SD ALT in group-1 was 36.40±16.16 & in group-2 was 37.96±16.47. The comparison between group-1 & group-2 for ALT was shown statistically not significant (P = 0.634).

Mode of Delivery

In a study of Saadat et al. (2007)[9], out of 1235 patients with PE, 70% patients delivered vaginally, & in 30% cases LSCS was performed. In a study of Singhal et al. (2009)[11], in EOP, 91.1% cases had vaginal, 8.9% of cases had LSCS, whereas in LOP, 11.1% of cases had vaginal, 88.9% of cases had LSCS. In a study of Rathore et al. (2010)[6], out of 100 patients, 85% patientshad a vaginal delivery,& 15% patients had LSCS.

Abruptio placenta: -
In a study of Singhal et al. (2009)[11], 11.0% of cases had abruptio placenta. In a study of Gupta (2018)[12], 8.60% of cases had abruptio placenta.

HELLP syndrome: -
In a study of Singhal et al. (2009)[11], 2.0% of cases had HELLP syndrome. In a study of Lacobelli et al. (2017)[13], 8.60% in EOP, 2.50% in LOP had HELLP syndrome. In a study of Gupta (2018)[12], 1.60% of cases had HELLP syndrome. In a study of Stanek (2019)[14], 24.3% of cases in EOP, 13.0% of cases in LOP had HELLP syndrome.

Eclampsia: -
In a study of Lacobelli et al. (2017)[12], 2.60% in EOP, 3.30% in LOP had eclampsia. In a study of Gupta (2018)[12], 1.60% of cases had eclampsia. In a study of Wadhwani et al. (2020)[15], 17.3% of cases in EOP, & 13.3% of cases in LOP had eclampsia. In the present study, in an association between eclampsia & group, 22.0% of cases in group-1, & 12.0% of cases in group-2 had eclampsia. However, the association between eclampsia & group was shown statistically not significant (P = 0.183).

MATERNAL MORTALITY: -
In the present study, in an association between maternal mortality & group, 2.0% of cases in group-1, & none of cases in group-2 had maternal mortality. However, the association between maternal mortality & group was shown statistically not significant (P = 0.315). In a study of Saadat et al. (2007)[9], a great incidence of LBW, Birth asphyxia was seen in 6.9% of cases,5.6% of cases had perinatal mortality. In a study of Singhal et al. (2009)[11], 71.43% of cases had LBW, 52.40% of cases had birth asphyxia, & 5.6% of cases had perinatal mortality.

STRENGTHS & LIMITATIONS: -
One of this study's key advantages is that it was managed by a single team and according to a single established management methodology, minimizing the influence of individual preferences or bias on the time of delivery. We are aware of no study that has looked at the delivery frequencies across a late preterm/term pre-eclamptic group. The study's main

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weaknesses include its ambiguous sample size and the fact that it only provides indicators for delivery data based on the proportion of instances. However, study of the data at hand and comparison with a subset of verified data have demonstrated the correctness of the recording.

CONCLUSON

We came to the conclusion that pre-eclampsia far from term, or early onset pre-eclampsia, is related with more maternal & perinatal complications than pre-eclampsia at term based on the study's data. pre-eclampsia far from term has a two-fold greater relative risk of obstetric problems than pre- eclampsia at term. pre-eclampsia is associated with serious maternal and perinatal issues.

Even though pre-eclampsia is not an obstetric sickness that can be prevented, it is nevertheless important to provide quick and proper prenatal treatment. This will minimise the severity of the pre-eclampsia's early-onset complications and the resulting morbidity and death.

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Conflict of Interest

None

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