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Original Research Paper

Clinical trends of severe pre-eclampsia

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ABSTRACT:
Introduction: More than 70% of maternal deaths are due to five major complications: haemorrhage, infection, unsafe abortion, obstructed labour, and hypertensive disorders of pregnancy, including preeclampsia and eclampsia. Preeclampsia refers to a syndrome characterized by the new onset of hypertension and proteinuria after 20 weeks gestation in a previously normotensive woman. Eclampsia refers to the development of grand mal seizures in a woman with gestational hypertension or preeclampsia. The World Health Organization (WHO) estimates the incidence of preeclampsia to be seven times higher in developing countries (2.8% of live births) than in developed countries (0.4%). Multiorgan involvement may be seen in such cases, and the impairment of uteroplacental perfusion could potentially lead to gestational complications and poor fetal outcomes including intrauterine fetal growth restriction and preterm delivery. As the situation worsens, it may become life-threatening for both the mother and the fetus, in terms of increasing the rate of mortality and morbidity. Therefore, this study attempts to provide comprehensive information and a representative picture of potential maternal and infant health outcomes among women with preeclampsia/ eclampsia. **Methods:** The present Retrospective observational study was carried out at department of obstetrics and gynaecology amongst 44 Pregnant individuals with severe preeclampsia admitted in tertiary care hospital during January 2023 to June 2023. All basic demographic details like maternal age, parity, address, booking status, gestational age at diagnosis, chief complaints, pre-monitory symptoms (like headache, vomiting, blurring of vision and epigastric pain), detailed menstrual history, obstetric history and antenatal complication, past history of medical illness, if any in present pregnancy which was assessed from antenatal records. The high-risk factors that were noted- nulliparity, previous history of preeclampsia, maternal age >40, molar pregnancy, vascular, endothelial or renal diseases, maternal smoking, obesity (BMI>35 kg/m2) and certain genetic factors. **Results:** Majority of the patients had impending Eclampsia 41 (41%), headache 23(23%) followed by vomiting 11 (11%). 92 (92%) of the patients had platelet count more than 1 lakh, 4 patients had < 75,000 platelet count, majority 82(82%) of the patients had creatinine levels ≤ 0.8. 24 (24%) patients required ICU admission, 8 (8%) had PPH, 7 (7%) had Eclampsia and 7 (7%) landed with HELLP syndrome. The pregnancy in 79(79%) patients completed with LSCS. In 91(91%) cases final outcome was live birth and 9(%) ended with IUD. In majority 28(28%) of the babies had birth weight between 1.6 – 2 kgs, 24 (24%) had birth weight between 2.1 – 2.5 kgs, while 24 (24%) had birth weight less than 1.5 kgs. 56(56%) of the patients needed NICU support while 44(44%) were with their mothers. **Conclusion:** Timely recognition and appropriate management are essential to mitigate risks to maternal and fetal health. Further research is needed to explore interventions aimed at improving outcomes in severe preeclampsia.

Keywords: hypertensive disorders, preeclampsia, Eclampsia, HELLP syndrome, proteinuria

INTRODUCTION:

Globally, an estimated 292,982 maternal deaths occurred in 2013. Among this global burden, 85% (245,000) occurred in sub-Saharan Africa (56%) and southern Asia (29%). More than 70% of maternal deaths are due to five major complications: haemorrhage, infection, unsafe abortion, obstructed labour, and hypertensive disorders of pregnancy, including preeclampsia and eclampsia [1].

Preeclampsia refers to a syndrome characterized by the new onset of hypertension and proteinuria after 20 weeks gestation in a previously normotensive woman. Eclampsia refers to the development of grand mal seizures in a woman with gestational hypertension or preeclampsia [2]. The global incidence of preeclampsia (the precursor to eclampsia) ranges between 2% and 10% of pregnancies and varies greatly from one country to another. The World Health

Organization (WHO) estimates the incidence of preeclampsia to be seven times higher in developing countries (2.8% of live births) than in developed countries (0.4%). Eclampsia increases the risk of maternal death in both developed countries (0.5 to 1.8%) and in developing countries (as high as 15%) [3].

Historically, women with advanced age, obesity, nulliparity, underlying medical conditions, and assisted reproductive technology treatment are more likely to develop PE.[4]

Multiorgan involvement may be seen in such cases, and the impairment of uteroplacental perfusion could potentially lead to gestational complications and poor fetal outcomes including intrauterine fetal growth restriction and preterm delivery. As the situation worsens, it may become life-threatening for both the mother and the fetus, in terms of increasing the rate of mortality and morbidity [5,6]. In terms of severity preeclampsia could be classified as "non severe" or "severe" types, with the latter group exhibiting clinical features including blood pressure exceeding 160/100 mmHg, headache, visual disturbances, upper abdominal pain, oliguria, elevated serum creatinine, thrombocytopenia (<100,000/_L), elevated level of liver enzymes, fetal growth restriction, pulmonary edema, onset at an early gestational age, and the presence of convulsion (eclampsia) [7].

Therefore, this study attempts to provide comprehensive information and a representative picture of potential maternal and infant health outcomes among women with preeclampsia/ eclampsia.

METHODS:

The present Retrospective observational study was carried out at department of obstetrics and gynaecology amongst 44 Pregnant individuals with severe preeclampsia admitted in tertiary care hospital during January 2023 to June 2023.

Inclusion criteria: Patients with severe preeclampsia.

After written valid informed consent of the patient, case proforma filled with all basic demographic details like maternal age, parity, address, booking status, gestational age at diagnosis, chief complaints, pre-monitory symptoms (like headache, vomiting, blurring of vision and epigastric pain), detailed menstrual history, obstetric history and antenatal complication, past history of medical illness, if any in present pregnancy which was assessed from antenatal records. The high-risk factors that were noted- nulliparity, previous history of preeclampsia, maternal age >40, molar pregnancy, vascular, endothelial or renal diseases, maternal smoking, obesity (BMI>35 kg/m2) and certain genetic factors.

On general examination, pulse, blood pressure (seated or at 45° recline position), height and weight were recorded. Abdominal and vaginal examination done to decide the mode of management and delivery. Investigations like hemogram, LFT, RFT, coagulation profile, ultrasonography done to identify the complications of severe preeclampsia. Frequencies, percentages, means, and standard deviations were obtained.

RESULTS:

Table 1: Distribution of patients according to Age-groups.

Age-Group	No. of patients	Percentage
≤20 years	19	19.0
21-25	28	28.0
26-30	23	23.0
31-35	17	17.0
36-40	11	11.0
41-45	2	2.0
Total	100	100.0
Mean±SD	26.95±6.37 years	

Table no.1 shows that the majority 51 (51%) of the patients were from the age group between 21 – 30 years of age. Less no. of patients was from the age group between 41 – 45 years.

Table 2: Distribution patients according to Clinical features.

Clinical features	No. of patients	Percentage
Impending Eclampsia	41	41.0
Headache	23	23.0

Vomiting	11	11.0
Convulsion	05	05.0
Blurring of Vision	05	05.0
Epigastric Pain	01	1.0%
No Symptoms	52	52.0

Table no.2 shows that majority of the patients had Impending Eclampsia 41 (41%), headache 23(23%) followed by vomiting 11 (11%).

Table 3: Distribution patients according to Platelet count.

Platelet count	No. of patients	Percentage
< 50,000	02	02.0
50,000-75,000	02	2.0
75,000-1 Lakh	04	4.0
>1 Lakh	92	92.0
Total	100	100.0
Mean ± SD	196777.78 ± 73680.57	
Creatinine levels	No. of patients	Percentage
≤ 0.8	82	82.0
>0.8	18	18.0
Total	100	100.0
Mean ± SD	0.99 ± 1.27	
Liver Function tests	No. of patients	Percentage
Raised	19	19.0
Normal	81	81.0
Total	100	100.0

Table no.3 shows that majority 92 (92%) of the patients had platelet count more than 1 lakh, 4 patients had < 75,000 platelet count, also, majority 82(82%) of the patients had creatinine levels ≤ 0.8.

Table 4: Distribution of patients according to Maternal outcome (Morbidity).

Maternal outcome (Morbidity)	No. of patients	Percentage
ICU Requirement	24	24.0
PPH	8	8.0
Eclampsia	7	7.0
HELLP	7	7.0

Table no.4 shows that majority 24 (24%) of the patients required ICU admission, 8 (8%) had PPH, 7 (7%) had Eclampsia and 7 (7%) landed with HELLP syndrome.

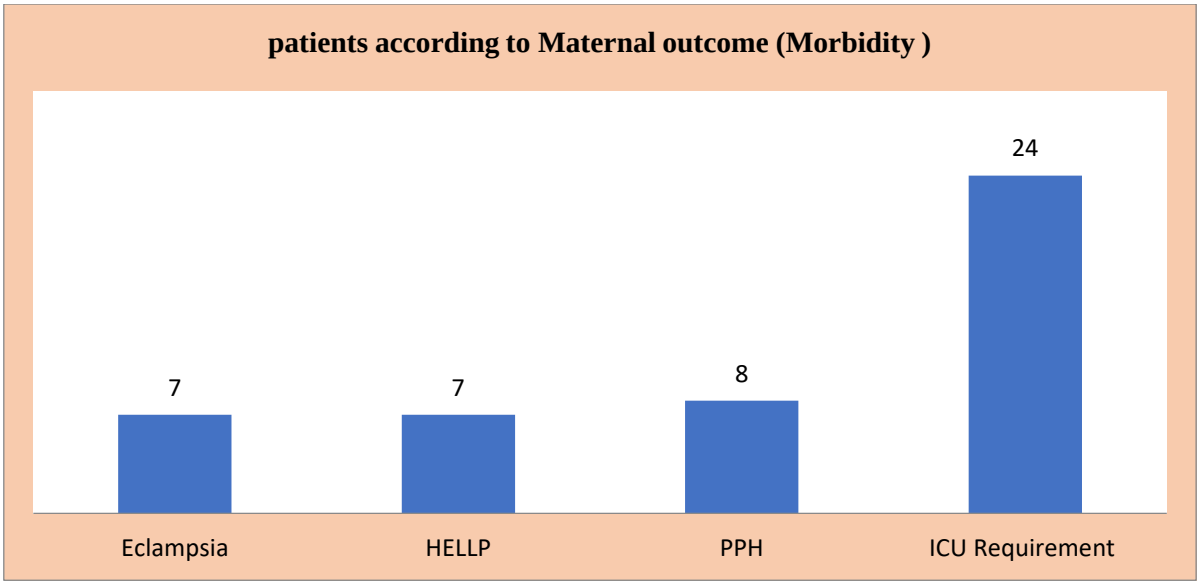

Table 5: Distribution patients according to Mode of termination.

Mode of termination	No. of patients	Percentage
LSCS	79	79.0
Vaginal	21	21.0
Total	100	100%

Table no.5 shows that majority 79(79%) of the patients underwent LSCS.

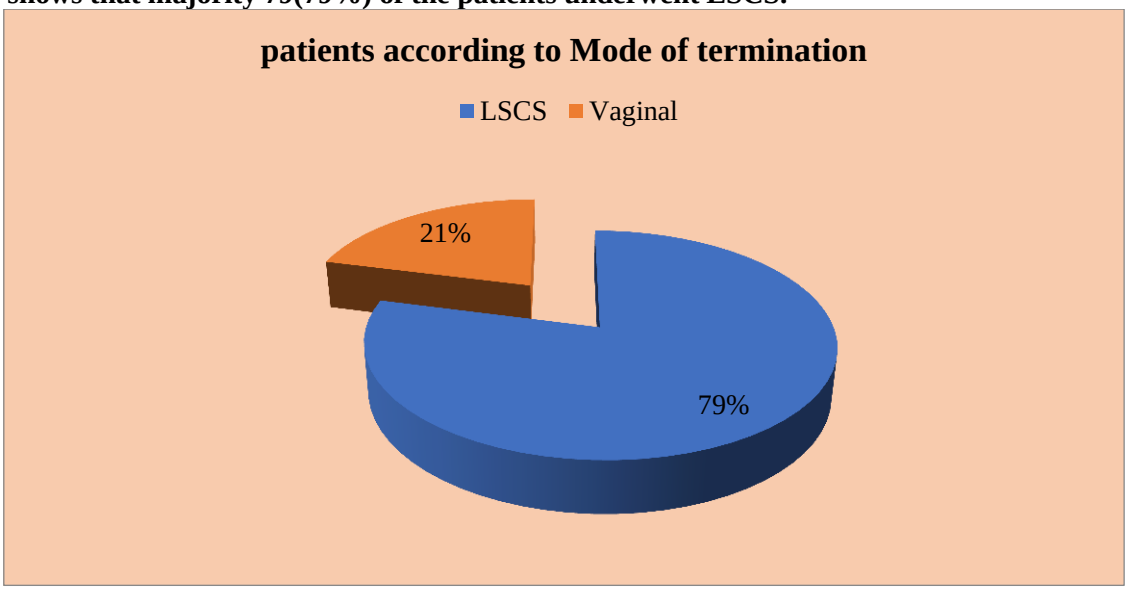

Table 6: Distribution patients according to Fetal Outcome.

Fetal Outcome	No. of patients	Percentage
Live	91	91.0
IUD	9	9.0
Total	100	100.0

Table no.6 shows that majority 91(91%) cases final outcome was live birth and 9(%) ended with IUD.

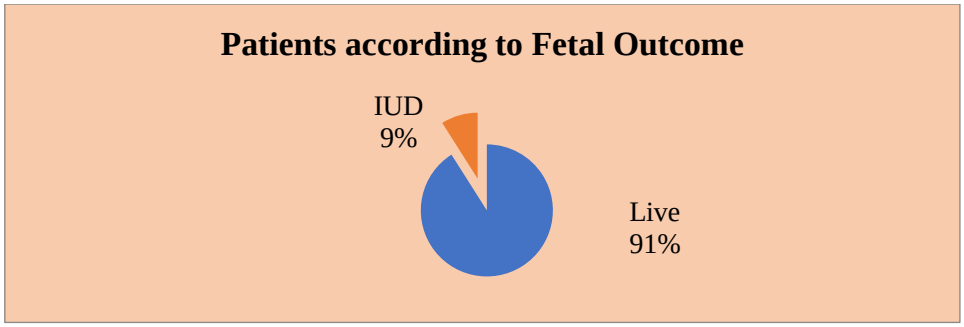

Table 7: Distribution patients according to FGR

FGR	No. of patients	Percentage
FGR	55	55.0
Normal	45	45.0
Total	100	100.0

Table no.7 shows that majority 55(55%) of the patients had FGR and 45 (45%) patients had normal.

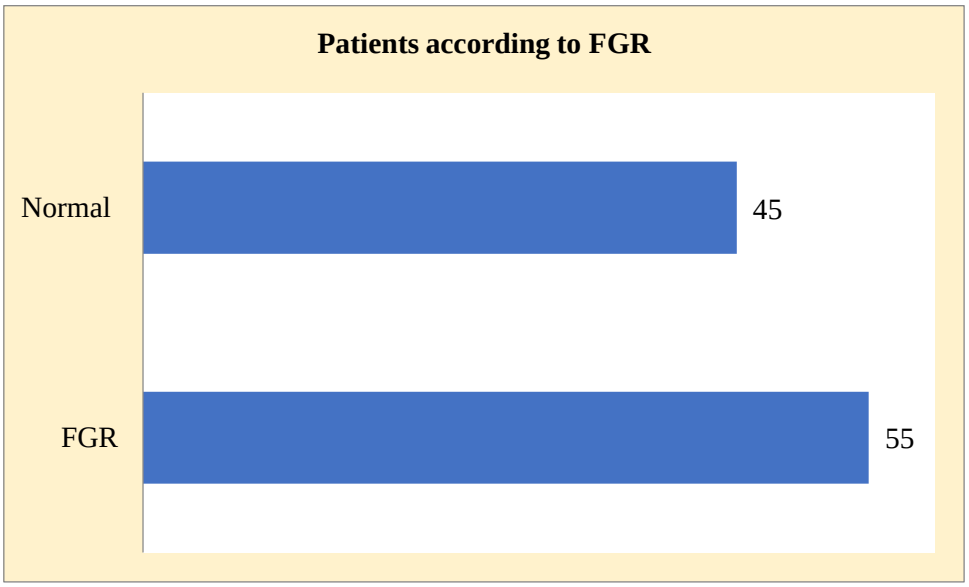

Table 8: Distribution patients according to Birth Weight

Birth Weight	No. of patients	Percentage
<1.0 Kg	12	12.0
1.0-1.5 Kg	12	12.0
1.6-2.0 kg	28	28.0
2.1-2.5 kg	24	24.0
2.6-3.0 kg	17	17.0
3.1-3.5 kg	07	07.0
Total	100	100.0
Mean±SD	2.01 ± 0.75 Kg	

Table no.8 shows that majority 28(28%) of the babies had birth weight between 1.6 – 2 kgs, 24 (24%) had birth weight between 2.1 – 2.5 kgs, while 24 (24%) had birth weight less than 1.5 kgs.

Table 9: Distribution patients according to Fetal Outcome.

Fetal Outcome	No. of patients	Percentage
NICU	56	56.0
With Mother	44	44.0
Total	100	100.0

Table no.9 shows that majority 56(56%) of the patients needed NICU support while 44(44%) were with their mothers.

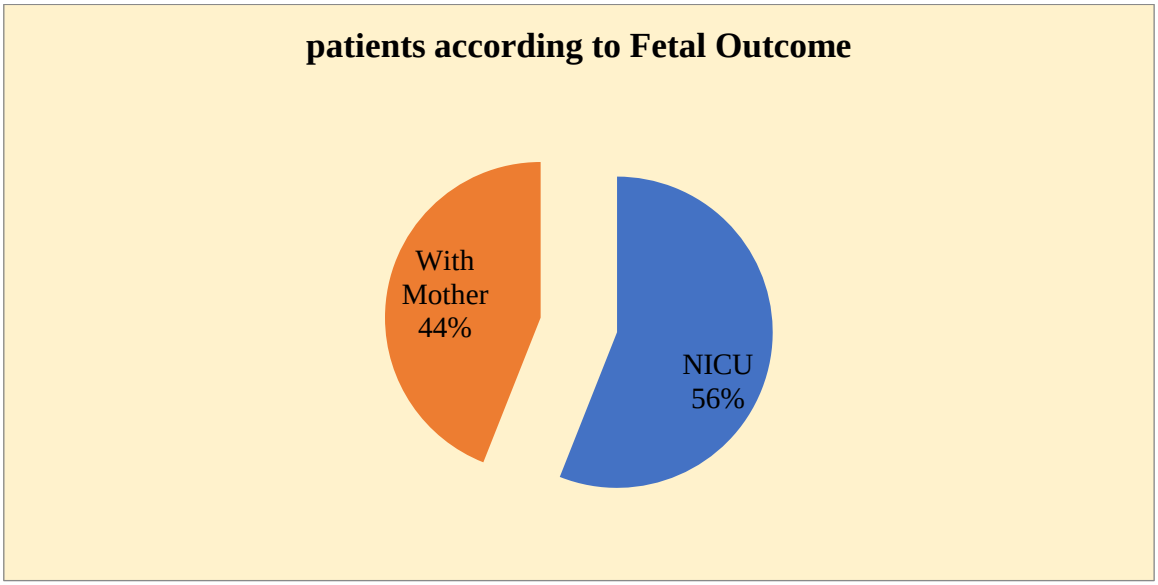

Table 10: Association between Gestational Age and Different risk factors

	Gestational Age			P-value
	<34 weeks (n=31)	34-37 weeks (n=43)	>37 weeks (n=26)	
Platelet Count (Less Than 1 Lakh)	02(25.0%)	03 (37.5%)	03 (37.5%)	P=0.792 NS
Deranged S. Creatinine	04(22.2%)	07(38.9%)	07(38.9%)	P=0.454 NS
Deranged LFT (SGOT, SGPT, ALP)	07(36.8%)	10(52.6%)	02(10.5%)	P=0.042 S
LSCS	20(25.3%)	34(43.0%)	25(31.6%)	P=0.014 S
Vaginal Delivery	11(52.4%)	09(42.8%)	01(4.8%)	P=0.014 S
Eclampsia	00	03(66.7%)	04(33.3%)	P=0.178 NS
HELLP Syndrome	02(28.6%)	04(33.3%)	01(14.3%)	P=0.650 NS
PPH	03 (37.5%)	04(50.0%)	01(12.5%)	P=0.661 NS
ICU	05(20.8%)	12(50.0%)	07(29.2%)	P=0.464 NS
FGR	18(32.7%)	24(43.6%)	13(23.6%)	P=0.391 NS
NICU	23(41.1%)	19(33.9%)	14(25.0%)	P=0.216 NS
I.U.D	06(66.7%)	03(33.3%)	00	P=0.032 S

Table no.10 shows that when association between Gestational age and different risk factors was assessed, majority factors were not found statistically significant.

DISCUSSION:

In the present study majority 51 (51%) of the patients were from the age group between 21 – 30 years of age. This result correlates with the studies done by Pillai et al (mean age was 26 years).[8] Less number of patients were from the age group between 41 – 45 years. Patients were equally divided into primigravida 46(46%) and multigravida 45(45%). Also, majority 61% of the patients were from urban area. In the present study majority 43(43%) of the patients belonged to the 34-37 weeks of Gestational age. This correlates with the study by Nisha Gusain [9] 53.5% of patients have gestational age between 37 to 40 weeks which forms the majority of patients of severe preeclampsia.

In the present study most of the patients had impending Eclampsia 41 (41%), headache 23(23%) followed by vomiting 11 (11%). Similarly, **Suparna Grover et al** in their found that the important complications observed in this woman with severe preeclampsia/eclampsia included 48 cases (38.09%) of eclampsia, nine cases (7.14%) of abruptio placenta, 4(3.17%) of HELLP syndrome, 15(11.9%) of acute respiratory distress, one (0.79%) of coagulopathy, two (1.59%) of postpartum haemorrhage, and four (3.17%) of renal impairment. **[10]** Also, in a study by **Maereg Wagnew et al** found that among mothers who had preeclampsia and eclampsia present at admission, many complained of one or more of the following signs and symptoms: 88.8% complained of headache, 49.5% of blurred vision, 35.9% of epigastric pain, and 17% of abnormal body movement.**[11]**

In the present study majority 92 (92%) of the patients had platelet count more than 1 lakh, 4 patients had < 75,000 platelet count and majority 81(81%) had normal Liver Function tests. Relating to our study, a study by **Nisha Gusain,** found that among the laboratory investigations, 15.79% patients had deranged RFT with serum creatinine >1.2 mg/dl and BUN>40 mg/dl, 8.78% had platelet count less than 100000/mm3, liver enzymes (SGOT and SGPT) were raised more than 100 IU in 4.38% of patients and 2.63% patients had deranged INR (value >1.6). **[9]**

In the present study majority 24 (24%) of the patients required ICU admission, 8 (8%) had PPH, 7 (7%) had Eclampsia and 7 (7%) landed with HELLP syndrome. Similar to our study results were noted by a study by **Nisha Gusain,** found that maternal ICU care was needed in 11 subjects out of 114. Most common reason for ICU admission was acute renal failure in 2.6% of subjects who later needed dialysis for treatment, DIC (1.7%), eclampsia (1.7%) and HELLP syndrome in 1.7% subjects (Table 6). All patients recovered from ICU. Similarly, in a study by found that the important complications observed in this woman with severe preeclampsia/eclampsia included 48 cases (38.09%) of eclampsia, nine cases (7.14%) of abruptio placenta, 4(3.17%) of HELLP syndrome, 15(11.9%) of acute respiratory distress, one (0.79%) of coagulopathy, two (1.59%) of postpartum haemorrhage, and four (3.17%) of renal impairment. The most common interventions required in these cases were 14 (11.11%) ICU admissions, 11 needed (8.73%) ventilatory support, 25 (19.84%) requiring blood components for anaemia, haemorrhage or coagulopathy [10].

In the present study majority 79(79%) of the patients underwent LSCS and in majority of 91(91%) cases final outcome was live birth and 9(%) ended with IUD. Similar to our study results were noted by a study by **Nisha Gusain,** found that the overall caesarean rate in the study population was 45.93% while it was slightly higher (53.17%) in those with severe hypertension which was not a statistically significant difference (OR 1.68, p=0.09) [10].

Relating to our study, a study by **Nisha Gusain,** found that Mode of delivery was LSCS in 56.7% patients, vaginal delivery in 42.4% and Forceps delivery in 0.9%. Indication for LSCS was maternal factors in 28 subjects and fetal factors in 31 subjects. Most common fetal factor was meconium-stained liquor with fetal distress (10.5%) and most common maternal factor was impending eclampsia (6.1%) and severe preeclampsia for maternal sake (6.1%) [9].

In the present study majority 28(28%) of the babies had birth weight between 1.6 – 2 kgs, 24 (24%) had birth weight between 2.1 – 2.5 kgs, while 24 (24%) had birth weight less than 1.5 kgs. While, in the present study majority 56(56%) of the patients needed NICU support while 44(44%) were with their mothers.

Relating to our study, a study by **Nisha Gusain,** found that Low birth weight is commonly seen in neonates born to preeclamptic mother. 60.5% neonates were low birth weight (<2.5 kg) and 39.5% had normal birth weight (>2.5 kg). Mean birth weight was 2.38±0.54 kg. Out of 114 neonates, 29 neonates required NICU admission. Mean Days in NICU was 8.43±5.574 days. Most common indication for NICU care was low birth weight in 10.5% of neonates, respiratory distress in 6.14%, birth asphyxia in 4.38%, 1.8% in meconium aspiration syndrome and preterm neonates [9].

A study by **Amos Dasari et al** This was also noticed in our study where there were an increased number of pre-term births (35.2% in pre-eclamptics and 58.8% in eclamptics) as well as low birth weight babies [12].

Also, a study by **Maereg Wagnew et al** found that, 66.4% of neonates had at least one complication; the majority of complications were low birth weight, respiratory distress syndrome, premature birth, and still birth. The rate of neonatal complications is notably higher in women with preeclampsia/eclampsia [11].

In the present study association between Gestational age and different risk factors was assessed, majority factors were not found statistically significant.

CONCLUSION:

Timely recognition and appropriate management are essential to mitigate risks to maternal and fetal health. Further research is needed to explore interventions aimed at improving outcomes in severe preeclampsia.

Conflict of Interest: No Conflict of interest

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