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RESEARCH ARTICLE

A STUDY OF MATERNAL OUTCOME IN SEVERE PRE-ECLAMPSIA

Dr. Kishwar Jahan[1], Dr. Suman Umeshchandra[2] and Dr. Meenakshi D.[3]

1. MRMC, Kalaburagi.
2. Professor, MRMC, Kalaburagi.
3. Professor& HOD, MRMC, Kalaburagi.

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Key words:-
HELLP: Hemolysis, Elevated Liver enzyme levels, and Low Platelet levels
DIC: Disseminated intravascular coagulation
ARDS: Adultrespiratory distress syndrome
PPH: Postpartum Hemorrhage
PRES: Posterior Reversible Encephalopathy Syndrome
PPCM: Peripartum cardiomyopathy
MODS: Multiple organ dysfunctionsyndrome

Abstract

Background&MaterialsandMethods: Pre-eclampsiaisapregnancy-induced hypertensive disorder seen after 20 weeks of gestation with multi–systeminvolvement.Inhealthynulliparouswomen,theprevalenceofpreeclampsia ranges between 2% and 7%. It is a major cause of maternal morbidity and mortality in healthy nulliparous women.Itis amultisystemdisorderthatleadstocertaincomplicationslikeplacentalabruption,HELLPsyndrome,eclampsia,DIC,pulmonaryedema,adultrespiratory distress syndrome (ARDS), and acute renal failure leading to highmaternal morbidity and mortality. The aim of the study is to evaluate the maternaloutcomein severe preeclampsia. Cases with severe preeclampsia (B.P readingof≥160/110mmHgwith1+ormorealbuminuria)after 28weeksof gestational age were included in the study and followed upto 6weeks postpartum.Atotal number of 100 cases were included in the study. Study variables were modeofdelivery,maternalmorbidity-mortality. Result: This study analyzed 100 patients with severe preeclampsia.Out of the 100 patients in the present study, maximum (43.0%) cases were inthe agegroupof 21to 25years,most (62.0%) of them were primigravida,and most of the cases were < 34 weeks of pregnancy. Inourstudy,themostcommonmodeofdelivery(61.0%) was cesarean delivery. (39.0%) of patients delivered vaginally. Outof all normal deliveries, (29.0%) of patients delivered spontaneously, around(9.0%) of all deliveries are preceded by labor induction, and (1.0%) ofpatients needed vacuum delivery during the secondstage of labor. The most common maternal complication in the present studywas abruption (10.0%), followed by oligohydramnios (9.0%) and PPH(6.0%),HELLP(6.0%),eclampsia (4.0%), posterior reversible encephalopathy syndrome (PRES-3.0%), PPCM (2.0%), multiple organ dysfunction syndrome (2.0%), pulmonaryedema(1.0%) andDIC (1.0%). In ourstudyabruptio placenta was the most common one.
Conclusion: Preeclampsia continues to be a significant cause of maternal morbidity and mortality. Regular antenatal check-ups are very important to emphasizeearlywarningsymptoms&signssothatlife-threateningcomplications can beprevented.Provision ofqualitymaternalhealth

Corresponding Author:- Dr. Kishwar Jahan
Address:- MRMC, Kalaburagi.

careservices,increasingpatientawarenessaboutvariouswarningsymptoms, investigations, timely referral of patients to higher centers, the timely use ofantihypertensivedrugs,timelydelivery&intensivemonitoringintheintrapartum &postpartum period can result in improvement in maternaloutcome.

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Introduction:-

Hypertension is the most common medical disorderencountered during pregnancy.[1] Pre-eclampsia is apregnancy-inducedhypertensivedisorderseenafter

20 weeks of gestation with multi-systeminvolvement.Inhealthynulliparouswomen,theprevalenceofpreeclampsiarangesbetween2%and7%.[2,3]Preeclampsiaisamajorcauseofmaternalmorbidity and mortality.[4]
Hypertensivedisordersofpregnancyaccountfornearly 18% of all maternal deaths worldwide.[5]Preeclampsiaisconsideredsevereifthereisseveregestational hypertension in association withabnormalproteinuriaorifthereishypertensioninassociationwithsevereproteinuria(atleast5gper24-hourperiod).Inaddition,preeclampsiaisconsideredsevereinthepresenceofmulti-organinvolvementsuchaspulmonaryedema,seizures,oliguria(lessthan500mLper24-hourperiod),thrombocytopenia (platelet count less than100,000/mm3)abnormalliverenzymesassociatedwithrightupperquadrantpainorpersistentepigastricpain,persistentcentralnervoussystemsymptoms(headaches,alteredmentalstatus,blurredvisionorblindness).[6]RiskfactorsforPreeclampsiaarenulliparity,multifetalgestation,obesity,familyhistoryofpreeclampsia-eclampsia,preeclampsiainapreviouspregnancy,maternalageabove40,abnormaluterinedopplerstudiesat18and24weeks,pregestational diabetes mellitus,presenceofthrombophilia, hypertension or renal disease,maternalsmoking,and certaingeneticfactors.[7]

The prevalence of preeclampsia is higher in womenwithtwingestationandthosewithaprevioushistoryofpreeclampsia.[8,9]

Therateofprogressiondependsongestationalageat the time of diagnosis; the rate reaches 50% whengestational hypertension develops before 30 weeksof gestation.[10]

Preeclampsia is a multisystem disorder leading tosomecomplications.Severepreeclampsiaisassociatedwithanincreasedriskofmaternalmortality(0.2%)andmaternalmorbidities(5%)such as eclampsia, pulmonary edema, ARDS (adultrespiratory distress syndrome),acute renal or hepaticfailure,liverhemorrhage,DIC(disseminatedintravascularcoagulopathy),HELLPsyndrome(Haemolysis, elevated liver enzymes, low platelets)and stroke. These complications are usually seen inwomen who develop preeclampsia before 32 weeksgestation and in those with a preexisting medicalcondition.[11-13]

Delivery is the ultimate cure for severe preeclampsia& eclampsia, because of the worsening of fetal &maternal status. Proper obstetric care is one of thecornerstones of the management, undue delay in thedeliveryofthefetus&placentamayadverselyaffectfetal&maternaloutcomes,Hence,theabdominalrouteofdeliverywhen thevaginalrouteisnotimminentwillhelpinimprovingthematernal/fetaloutcome.[14]therateofcesareandelivery is increased because of increased rates ofinductionoflabor.[8]

Materials and methods:-

It was a prospective observational study conducted on 100 cases of severepre-eclampsia in thedepartment of Obstetrics and Gynaecology in Basaveshwara teaching and general hospital and Sangameshwar teaching hospital attached to MahadevappaRampure Medical College,Kalaburagi during April 2022 to March 2024.

Mode of delivery and maternal morbidity-mortality werethestudyvariables.Caseswith severe preeclampsia after28 weeks of gestational agewere included in the study and followed upto 6weeks postpartum.

On admission patient's detailed demographic,obstetric, personal, medical, and family history wastaken. General physical examination and systemic,abdominal,andpelvicexaminationswerecarriedout.Allnecessaryinvestigationsdone.Anti-hypertensiveandanti-convulsanttreatmentwasstartedwhereverneeded which also covered the neuro protection. Steroids are also administered for fetal lung maturity wherever required.Obstetricsmanagementwas done according to the standard protocol.

Theprimaryoutcomewasmeasuredintermsofmode of delivery,maternalmorbidity and mortality.Complications were abruption, acute renal failure, pulmonaryedema,disseminatedintravascularcoagulation(DIC),HELLPsyndrome, PRES,P P C M andeclampsia.

Inclusioncriteria
B.P reading of ≥160/110 mmHg with 1+ or morealbuminuriawastheinclusioncriteriaforseverepreeclampsia.Eclampsiawasthepresenceofseizures in women with preeclampsia which couldnotbe attributed toothercauses.

ExclusionCriteria
Women withchronic hypertension before 20 weeks ofgestation, any medical disorders and mild pre eclampsia were not included in the study.

Results:-

Thisstudyanalyzed100patientswithseverepreeclampsia
Outof the100patients in thepresentstudy,themaximum (43.0%) cases were inthe agegroupof 21to 25years,most (62.0%) of them were Primigravida,and most of the cases were < 34 weeks of pregnancy.

Table 1:- Distribution of women according to age group

AGE GROUP	NO. OF CASES	PERCENTAGE
15-20years	11	11.0%
21-25years	43	43.0%
25-30years	27	27.0%
>30 years	19	19.0%

Majority of cases i.e, 43 were in the age group of 21-25 years.

Table 2:- Distribution according to gravidity.

GRAVIDITY	NO. OF CASES	PERCENTAGE
PRIMIGRAVIDA	**62**	**62%**
MULTIRAVIDA	**38**	**38%**

The majority of the cases (62) are Primigravida.

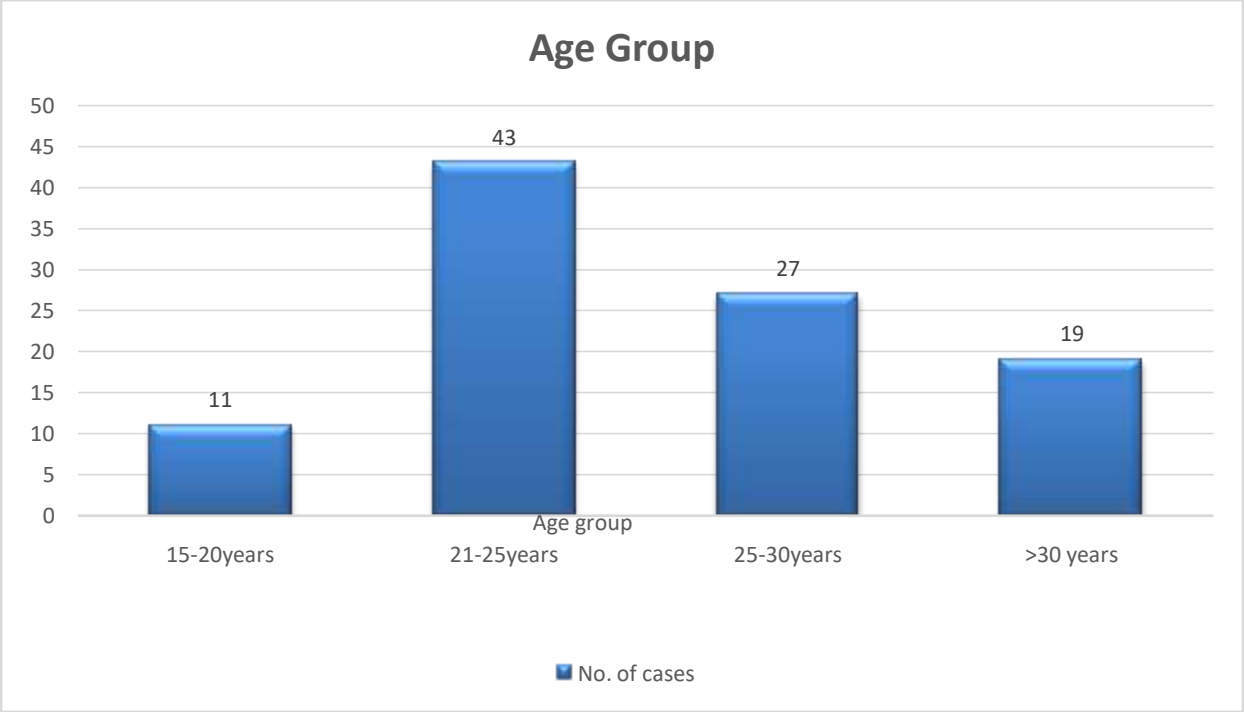
Table 3:- Distribution according to gestational age.

GESTATIONAL AGE	NO. OF CASES	PERCENTAGE
<34 WEEKS	**41**	**41%**
34-37 WEEKS	**29**	**29%**
>37 WEEKS	**25**	**25%**

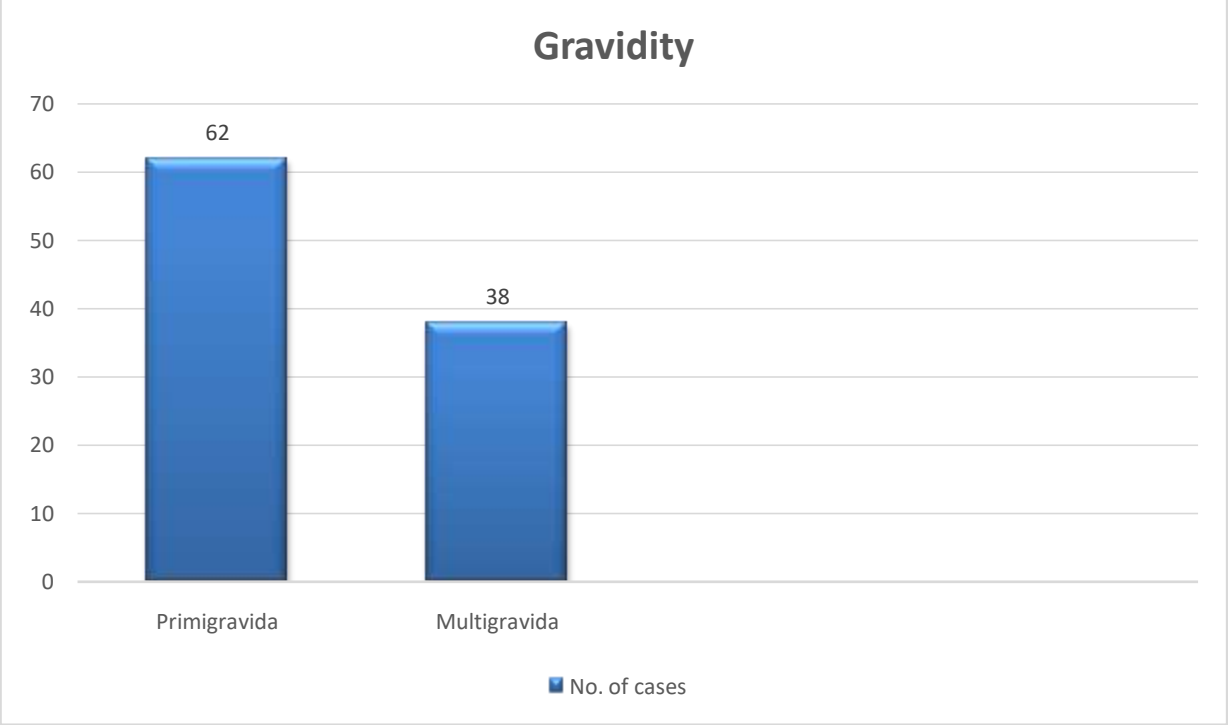
>40 WEEKS	**5**	**5%**

Majority of the cases (41) are less than 34 weeks of gestation.

Graph 1:- Graph depicting distribution of women according to age group.



Graph 2:- Graph depicting distribution according to gravidity.



Graph 3:- Graph depicting distribution according to gestational age.

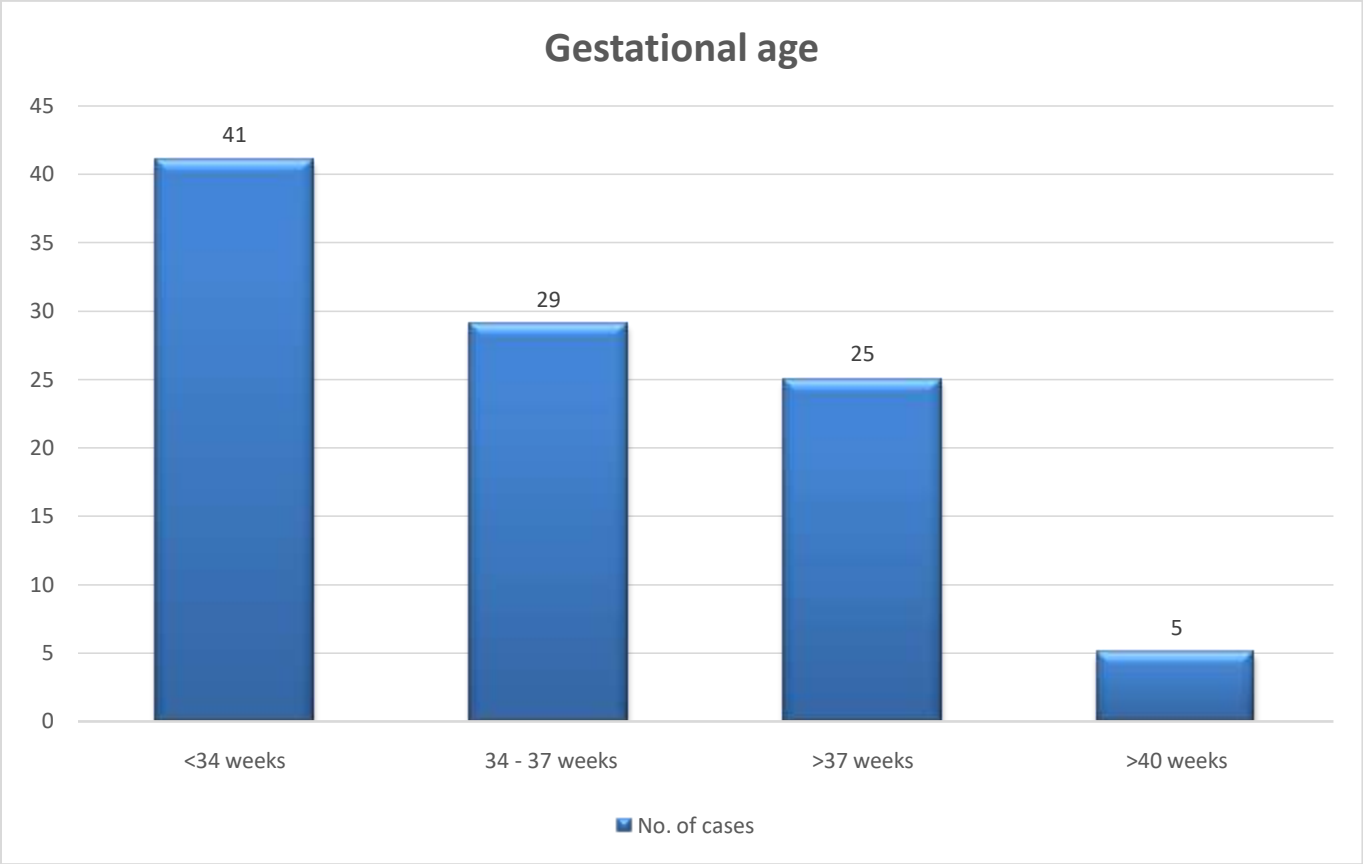


Table 4:- Distribution of women according to mode of delivery.

MODE OF DEIVERY	NO. OF CASES	PERCENTAGE
SPONTANEOUS VAGINAL DELIVERY	29	29%
INDUCED VAGNAL DELIVERY	9	9%
VACUUM DELIVERY	1	1%
CAESAREAN SECTION	61	61%

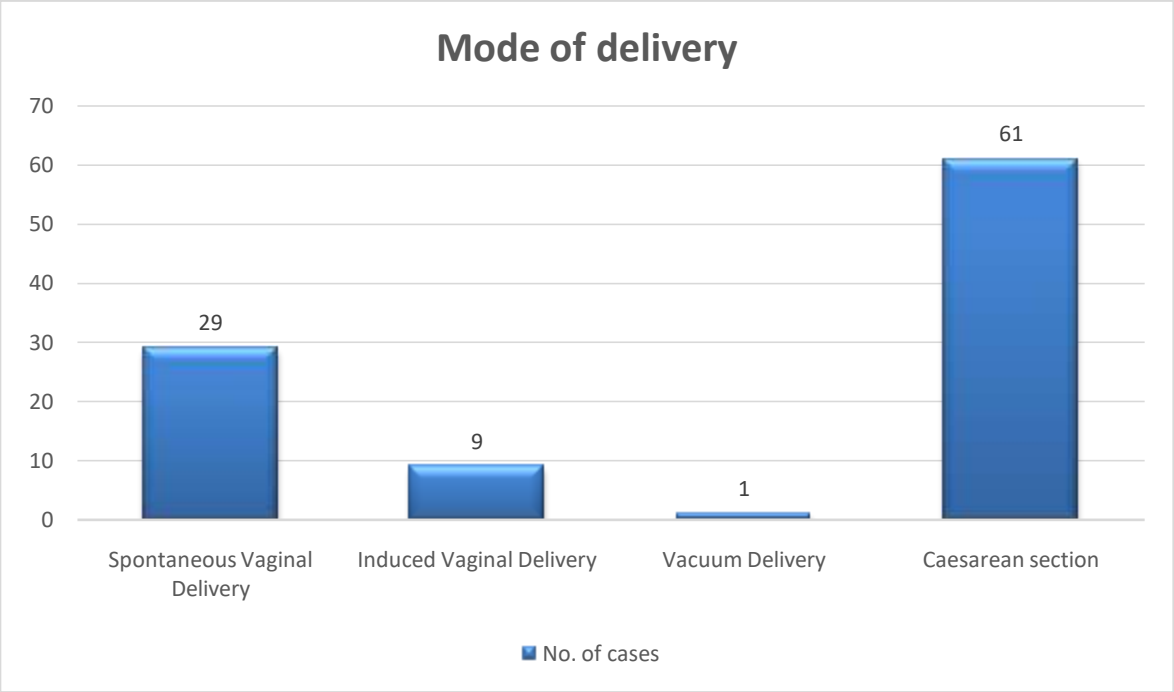
61% i.e.61 cases had LSCS.
39% i.e.39 cases had vaginal delivery.

Table 5:- Distribution of women according to maternal complications.

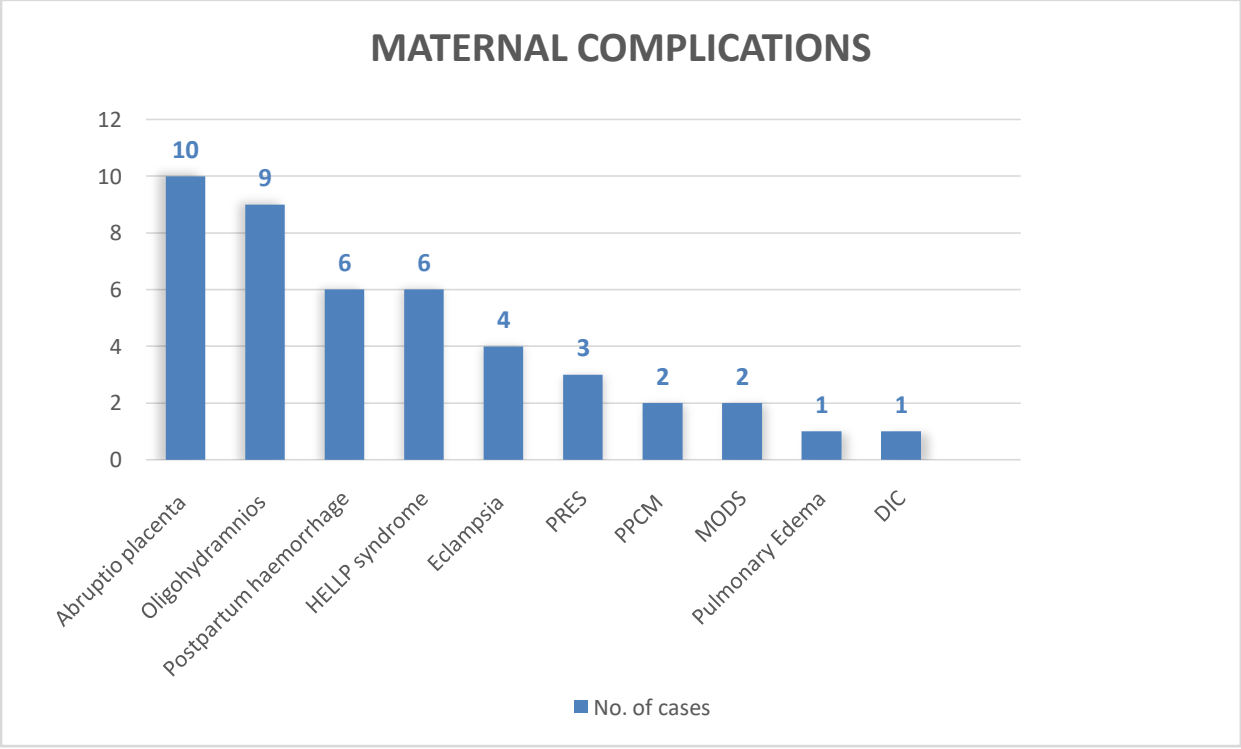
COMPLICATIONS	NO. OF CASES	PERCENTAGE
ABRUPTIO PLACENTA	10	10%
OLIGOHYDRAMNIOS	9	9%
POSTPARTUM HAEMORRHAGE	6	6%
HELLP SYNDROME	6	6%
ECLAMPSIA	4	4%
PRES	3	3%

PPCM	2	2%
MODS	2	2%
DIC	1	1%
PULMONARY EDEMA	1	1%

Graph 4:- Graph depicting distribution of women according to mode of delivery.



Graph 5:- Graph depicting distribution of women according to maternal complications.



Discussion:-

Severepre-eclampsiaremainsamajorcauseofmaternalmorbidityandmortalityandisalsoassociatedwithincreasedperinatalproblems.Despite intensive research over the years, the exactreasonforpre-eclampsiawithseverefeaturesremainsunknown.

Inthepresentstudy [Table 1],outofthe100patients, our study's highest percentage was in the 21-25 years age group (43%), aligning closely with Gawde et al. (45%) but higher than Singh et al. (41%) and Ahmed et al. (38%).

In our study, 62.0% were Primigravida [Table 2]andpreeclampsiawasmorecommoninprimigravida (57.14%). As gravidity increased, incidence ofpre-eclampsia decreasedwhichwas in correlationwith the following studies done by Gawde et al[16],Singh et al[17]andAhmed et al[18]in their studies casesofprimigravidawere48%,58.9%,and60%respectively.

Theincidenceofseverepreeclampsiaandeclampsiaarehigheramong unregisteredpatientsasreported by manystudies.[15-20]

In our study, themost common mode of delivery [Table 4]wascesareandelivery(61.0%)andthetotalnumber of vaginal deliveries was (39.0%). Out ofallnormaldeliveries,(29.0%)patientsdeliveredspontaneously,(9.0%)ofcasesinductionwasneeded,and(1.0%)wasvacuum delivery.Gawdeet al[16], Singh et al[17] and Ahmed et al[18]concluded in theirstudy that LSCS was 64.54%,48.42% and 71.2% respectively. was the more common modeofdeliveryascomparedtovaginaldelivery.

The most common maternal complication [Table 5] in the present studywas abruption (10.0%), followed by oligohydramnios (9.0%) and PPH(6.0%),HELLP(6.0%),Eclampsia (4.0%),PRES (3.0%), multiple organ dysfunction syndrome (2.0%), PPCM (2.0%), Pulmonaryedema(1.0%) andDIC (1.0%). In our study the most common complication was abruption.

Gawde et al. [16] reported abruption rate of 8.9%, postpartum hemorrhage (PPH) rate of 7.3%, eclampsia at 6.5%, HELLP syndrome at 3.0%, PRES at 2.0%, PPCM at 2.0%, pulmonary edemaat 2.0%.This data suggests a moderate prevalence of PPH and abruption compared to other studies. In our study abruption at 10.0% and PPH at 6.0% go in accordance with this study.

Singh et al. [17] reported a PPH rate of 8.5%, abruption at 6.0%, HELLP syndrome at 4.0%, eclampsia at 5.0%, PPCM at 2.0%, PRES at 1.0%, and pulmonary edema at 1.0%. In our study eclampsia at 4.0% go in accordance with this study.

Ahmed et al. [18] reported PPH at 9.0%, eclampsia rate of 5.6%, HELLP syndrome at 5.0%, PPCM at 3.0%, abruption rate of 2.0%, PRES at 2.0%, Pulmonary edema at 2.0%. In our study HELLP syndrome at 6.0% go in accordance with this study. This data shows a lower incidence of abruption compared to Gawde et al. and a notable eclampsia rate, which contributes to the overall understanding of maternal complications in their study.

So, these studies go in accordance with our study.

Conclusion:-

Preeclampsia & eclampsia continue to be significantcauses of maternal & fetal morbidity &mortality. Regular antenatal check-ups are very important to emphasize early warning symptoms &signs so that life-threatening complications can beprevented. Provision of quality maternal health careservices, increasing patient awareness about variouswarning symptoms, investigations, early diagnosisand timely referral of patients to higher centers, thetimely use of antihypertensive drugs, timely delivery&intensivemonitoringintheintrapartum&postpartumperiodcanresultinimprovementinmaternal & perinatal outcome. Proper coordinationacross different specialties including obstetricians,neonatologists,intensivists, cardiologists, neurologists and nephrologistscanfurtheroptimize maternalandneonataloutcomes.Education&empowerment of women, training of medical andparamedicalpersonnelofprimaryhealthcarecenters&functionalandaccessiblehealthcarefacilities,especiallytothesocio-economicallydeprived& rural populations are theneedof thehour.

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