ORIGINAL RESEARCH PAPER | Medical Science | Volume : 6 | Issue : 7 | July 2016 | ISSN - 2249-555X | IF : 3.919 | IC Value : 74.50

A Study to Assess Association of Preeclampsia with Neonatal Outcome at Tertiary Care Hospital of Central India

KEYWORDS: Preeclampsia,Neonatal outcome ,Low birth weight

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ABSTRACT *Introduction:Preeclampsia is a common complication in antenatal women , is a major cause of maternal and perinatal morbidity and mortality. Aim of our study was to determine neonatal outcome in preeclamptic patients.A prospective study was done in NSCB Medical College and Hospital Jabalpur in department of Obstetric and Gynecology from 1 st june 2012 to 31 st October 2013.Study included all patients of preeclampsia BP>=140/90 mm Hg and proteinuria after 20 weeks of gestation .Other important informations also collected such as detail history,cinical examination, investigations performed ,method of induction of labour and neonatal outcome.*

Result-In our study 83.7% cases of preeclampsia gave preterm birth.6.39% neonate were still born.73.8% neonate had low birth weight.52.9% women had mild preeclamptic and 47.09%severe preeclamptic..Maximum cases of preeclampsia spontaneously underwent in labour.

Conclusion-we concluded that by antenatal screening of preeclampsia cases ,regular follow up of these cases and management in institution neonal morbidity and mortality can be reduced.

Introduction

Preeclampsia is defined as hypertension BP>=140/90 mm Hg on two occasions 4-6 hrs apart or single reading of diastolic biood pressure of> 110mm Hg) and proteinuria developing after 20 weeks of pregnancy up to 6 weeks postpartum in previously normotensive nonproteinuric women. (1)

In developing countries preeclampsia rank second only to anemia with approximatelt 7-10 % of all pregnancies complicated by some form of hypertensive disorder.(2)

The exact etiology of preeclampsia remain unknown, factor that are currently more accepted include abnormal trophoblast invasion of uterine blood vessels,increased vasopressure response and vasospasm,immunological intolerance to fetus and genetic abnormalities.(3)

Preeclampsia significantly increases the risk of low birth weight baby by preterm birth as well as reducing fetal growth.Other risks of fetus of preeclamptic mother are –Hypoxaemia, acidosis,birth asphyxia and intrauterine death. However the occurrence of these will not be prevented unless induction of labour or caesarean delivery terminates the pregnancy as the centra cause of preeclampsia lies within the placenta and resolution of preeclampsia,eclampsia start with removal of placenta at delivery(4)

More maternal and neonatal complications were encountered in women in whom pre eclampsia was severe and pregnancy had to be terminated earlier.(5)

This study was planned to assess the association of preeclampsia with neonatal outcome with following objectives:

1. To assess socio demographic distribution of mothers having preeclampsia.
2. To find out association of neonatal outcome with the preeclampsia.

MATERIAL AND METHOD

This prospective study was carried out in department of Obstetrics and gynecology of NSCB Medical College and Hospital Jabalpur from 1 st june 2012 to 31 st October 2013.172 confirmed cases of preeclampsia included in study .Informed and written consent was taken.The data was collected through a proforma ,whicjh included name,age,obstetric history,history of present illness,general examination and systemic examination-Abdominal and vaginal examination.Preeclampsia diagnosed on basis of history,examination,and laboratory investigations including urine albumin ,liver function tests,renal function tests. Method of induction of labour noted.APGAR Score 1 and 5 minutes recorded.

Sample Size calculation-

Sample size was determined using simple random sampling formulae- $N=z2pq/d^2$.

Where,z=1.96 at 5% alpha,95%of confidence and 80 power(beta),p is estimated prevalence of gestational hypertension which was assumed at 12%,q is 1-p and d is marginal error(absolute precision)which was considered 5%.

This yielded 113 numbers required. Further multiplied by 1.5 as design effect to adjust clustering of samples and finally found total required sample size was 169 or 170 in each group.

RESULT AND DISCUSSION-

Pregnancy induced hypertension (PIH) is a syndrome of hypertension in pregnancy, with or without edema and proteinuria. In a number of patients, the clinical appearance is mild, presenting only with small increase in blood pressure or protein in the urine. Though, in other patients severe maternal and fetal complications(6), such as the eclampsia, HELLP syndrome, preterm delivery, abruptio placenta, intra-uterine fetal growth restriction or fetal death may take place.

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The danger of pregnancy induced hypertension is higher when the age of pregnant women is less than 25 years. In our study, 69.19% of the patients were less than 25 years of age. A study from Andhra Pradesh done by Mohanty S et al in 2006, India reported that primiparous patients with PIH below 20 years of age were 26% while only 15% of the controls were less than 20 years, signifying that younger age of pregnant women was a causative feature to pregnancy induced hypertension[8]. Therefore, it can be assumed from the results of this study that younger age of pregnant women are commonly associated with PIH.

In our study group of PIH patients 72.67% of cases were primiparous.

According to three cohort studies [9,10,11] primiparity almost triples the risk for pregnancy induced hypertension (OR 2.91, CI 1.28 - 6.61); this is supported by adjusted odds ratios for primiparity from two other cohort studies[12,13]. Different case-control studies[9,13-5] propose that women with pregnancy induced hypertension are two times expected to be primiparous as women without PIH (OR 2.35, CI 1.80 - 3.06). A study from Canada reported, that women with hypertensive disorders were more expected to be nulliparous (range 42.2% -78,2%) when matched with normotensive (4 1.9%) pregnant women. In our study group of PIH patients 72.67% of cases were primiparous.

In our study 47.09%had severe preeclampsia.The risk of pressure value is an important marker of intense vasospasm and endothelial dysfunction affecting almost all the vessels ,particularly those of uterus,kidney ,placental bed and brain.[16.s]65% patient of preeclampsia spontaneously underwent in labour.Only 35.4% cases required induction of labour by medical method. .

Perinatal conditions showed93.6 % of live birth and 6.93 %still birth. Lower rates were seen in other studies.[17].Low birth weight <2.5 kg was seen in 73.8% cases.The association of low birth weight was particularly evident with severe preeclampsia as compared to mild preeclampsia.[18]. APGAR Score >7 at 5 minutes of life presented in 54.6% cases.

Perinatal mortality increases as severity of preeclampsia increases (Table-3)The cause of perinatal mortality in preeclampsia due to prematurity and low birth weight. sibai and Barton also reported that severe preeclampsia is associated with high perinatal morbidity and mortality.Main factors which determine prenatal mortality are lack of antenatal booking of all pregnant women,lack of regular check up and special attention to complicated and high risk cases,and awareness of symptoms of preeclampsia,decrease fetal movements ,late referral to tertiary care centre,all contributes to intrauterine growth retardation,intrauterine death and still birth.

Conclusion-

Preeclampsia is preventable complication of pregnancy and responsible for high maternal and perinatal morbidity and mortality.Most important cause of perinatal mortality are-preterm and low birth weight neonate.Proper antenatal care must be given to all pregnant women and screen cases of preeclampsia and give special attention to them. By increase health awareness in public,education of primary health care workers and improvement of socio-economic status can be helpful to improve maternal and neonatal outcome.

Tables:

Table 1: socio demographic, parity, gestational age, PIH and method of induction distribution of cases of preeclampsia

Age Group	Variables	No. of cases	Percentage %
	<21 Yrs	30	17.44
	21-25 Yrs	119	69.19
	26-30 Yrs	18	10.47
	31-35 Yrs	4	2.33
	>36 Yrs	1	0.58
Parity	Primi	125	72.67
	Multi	47	27.33
Gestational Age	Preterm <37 Wks	144	83.7
	Term >37 Wks	28	16.27
Severity of PIH	Mild	91	52.9
	Severe	81	47.09
Method of induction of Labour	Spontaneous	111	64.5
	Medical induction	61	35.4

Table-2

Distribution of neonatal outcome among cases of preeclampsia

	Variables	No. of Cases	%
Viability	Live born	161	93.6
	Still born	11	6.39
Birth weight	<2.5 kg	127	73.8
	>2.5kg	45	26.1
APGAR	>7	94	54.6
	<7	78	45.3

Table-3

Distribution of perinatal mortality among cases of preeclampsia

	Mild Preeclampsia	Severe Preeclampsia
No. of Cases	91	81
No. of Perinatal Mortality	2 (2.197%)	9 (11.11%)

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Volume : 6 | Issue : 7 | July 2016 | ISSN - 2249-555X | IF : 3.919 | IC Value : 74.50

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