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OUTCOMES IN WOMEN WITH PREECLAMPSIA AND THEIR NEONATES

Obstetrics & Gynaecology

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ABSTRACT

Preeclampsia is a pregnancy specific syndrome which affects almost every organ system, affecting both the maternal and neonates. Adverse effects can be minimized by identifying the disease at early stage. The ability to predict these complications early could aid in management and enhancing the maternal outcomes. Our objective was to understand the outcomes among women diagnosed with preeclampsia and into their neonatal outcomes. A total of 105 women with preeclampsia were included in the study. Hemoglobin levels were significantly reduced in 52.38% while serum Creatinine was increased in 47.61% of patients. 64.76% of women delivered by cesarean. we had 116 children born, of which one woman gave birth to triplets and 4 women gave birth to twin babies, which constituted to 116 babies. Of this 116 babies, 5.71% [n=6] women had intra uterine deaths, so the total live babies being 110. 56.19% [n=59] had low birth weight, while 30.46% had low APGAR score. 2.85% [n=3] children were born with malformations. Neonatal complications were seen in 33.33%, while maternal complications was noticed in 3.80% [n=4] of patients. Preeclampsia has been significantly associated maternal and fetal complications. In developing country like us, morbidity and mortality rates among fetomaternal is quite alarming. Screening of pregnant women at early stage is required and high risk group of population should be identified in order to minimize both the maternal and fetal risk. Subsequent monitoring and proper treatment should be made available.

KEYWORDS

Preeclampsia, Pregnant women with hypertension, neonates, maternal, eclampsia

INTRODUCTION

Preeclampsia is a pregnancy specific syndrome which affects almost every organ system [1]. It is the development of hypertension in pregnancy along with proteinuria, (greater than 0.3g/L in a 24 hour urine collection or greater than 1g/L in a random sample and/or generalized edema after 20 weeks of gestation. If left untreated, this disorder affects both mother and the neonate[2]. It is one of the main causes for maternal morbidity and mortality.

The studies over the years have shown that the primary event in preeclampsia is abnormal development of placenta, which is characterized by an inadequate trophoblastic invasion of the spiral arterioles of the placental bed. In preeclamptic women, there is decrease utero-placental perfusion which causes endothelial cell damage. This is responsible for biochemical changes that characterize preeclampsia and result in wide spectrum of clinical presentations.[2] James M Roberts and colleagues proposed the relationship of placenta to the maternal syndrome in a two stage model [3,4]

During the early 1990s, all women with severe preeclampsia were delivered without delay. However, in the past 25 years,a different approach has been advocated for women with severe preterm preeclampsia. This approach of management aims at improving neonatal outcome without compromising maternal safety. Aspects of such management always include frequent monitoring of the mother and her fetus [2]. When there is occurrence of generalized tonic-clonic seizures in hypertensive pregnant patients with no coincidental neurological disease, it is called eclampsia [5]. The generalized seizures in eclampsia may appear before, during or after labor [1]. However, others have reported that the proportion of women who develop eclampsia after 48 hours postpartum has increased [6].

The ability to predict these complications early could aid in management and enhancing the maternal outcomes. The recent studies related to preeclampsia mainly was to aim at its prognosis and assists in its early intervention [7]. Our objective was to observe the maternal and fetal outcomes among preeclamptic women.

METHODS

This prospective, cross sectional study was conducted in a tertiary care hospital in Bangalore, Karnataka, India, after obtaining ethical committee clearance. In this study, we had planned to enroll 125 patients, who attended outpatient and inpatient departments of obstetrics and gynecology, for duration of one year between Feb 2018 to Feb 2019. Patients with confirmed diagnosis of preeclampsia visiting outpatient / inpatient department of OBG were enrolled in the study only after obtaining consent. Pregnant women ≥ 18 to ≤ 40 years who were on treatment for preeclampsia/eclampsia were included. Patients with major neurologic disabilities such as mental retardation, aphasia, or motor deficits, patient with epilepsy, Known hypertensive, renal disorders, multiple pregnancies, essential hypertension were excluded from the study. Data was collected using specially designed Case Record Form [CRF], which included demographic characteristics as per modified kuppuswamy scale. Pregnancy details like Last menstrual period, expected delivery date, diagnosis of Preeclampsia, BP, duration of hypertension since diagnosed, family history, past obstetric history, co morbid conditions [diabetes]. History of present illness, Treatment details like drugs received, dose, dosage, duration of treatment, alternative systems of medications, treatment for co morbid conditions. With respect to investigational data: Routine and specific investigations like CBC, Platelet, LFT, blood urea, serum uric acid levels, Serum Creatinine, urine examination, fundus examination, ultrasound, Doppler. Regular follow up of the patient were done either by telephonic interview or direct interview to know the information on delivery and neonatal outcomes like Duration of labor, mode of delivery, indication for delivery, Apgar score, birth weight, maternal complications [if any], period of NICU admission [If any], fetal morbidity and mortality [delivery of a stillborn baby, an early neonatal death], any malformations were noted down.

RESULTS

Out of 125 patients, A total of 105 were included in the study and 20 patients were lost to follow up. The majority of patients were in the age group of 18-28 years (72.3%), followed by 29-39 years (27.6%) of age. 81.9% belonged to Hindu religion, while 15.2% were Muslims and 1.9% were Christians. Majority i.e., 51.42% of the pregnant women were from lower middle class family followed by upper lower class, according to modified kuppuswamy scale. On regular antenatal checkups 81.9% of the women had high blood pressure among which 8.57% had family history of hypertension. Majority of women presented with symptoms like pain in the abdomen, pedal edema and headache. 39% of women were of primi and 38% were gravida. All the women either received Nifidipine 10mg (38%) or labetalol 100mg (62%) for their treatment of preeclampsia. On looking into their co

morbid conditions 26.66% of women presented with diabetes, asthma and others.

On analyzing the routine investigational reports among preeclamptic women, hemoglobin levels were significantly reduced in 52.38% while serum Creatinine was increased in 47.61% of patients. Urine Albumin was present in 22.85% of patients. On analyzing the liver function tests, we noticed that 75.25% of patients had significant increase i.e >120U/L of alkaline phosphate [ALP] while 76.19% of patients had decrease in albumin level i.e., <3.5gm/dl. On fundus examination, 90.47% of patients were normal while 9.52% of patients were diagnosed with hypertension retinopathy. Doppler test was abnormal in 32.38% of patients.

With respect to neonatal outcomes, 64.76% of women delivered by cesarean section, 24.76% had normal vaginal delivery while the 4.76% delivered by vacuum assisted delivery and FTND. Of 105 women, we had 116 children born, of which one woman gave birth to triplets and 4 women gave birth to twin babies, which constituted to 116 babies. Of this 116 babies, 5.71% [n=6] women had intra uterine deaths, so the total live babies being 110.

Of 110 babies, 56.19% [n=59] had low birth weight, while 30.46% had low Apgar score. 2.85% [n=3] children were born with malformations being congenital pulmonary airway malformation, anorectal malformation and midgut volvulus. Neonatal complications were seen in 33.33% of babies where they had respiratory disturbances [23.80%], neonatal seizures [4.76%], hypoglycemia [2.85%] and sepsis [1.90%]. Maternal complications were also noticed in 3.80% [n=4] of patients, which included traumatic PPH with cervical tear, antepartum heamorrhage, CKD with secondary to diabetic nephropathy and retinopathy.

DISCUSSION

Clinicians face a lot of challenge in managing preeclampsia patients. They face challenges to balance and to achieve fetal maturation along with risks for mother as well as fetus in order to continue the pregnancy till delivery. These risks can be progression of condition for preeclampsia to eclampsia, HELLP (haemolysis, elevated liver enzymes, low platelet count) syndrome or development of placental abruption.

In our study, we noticed that the majority of the women were young i.e., between18-28 yrs followed by 29-39 yrs. A study conducted by Jantasing and his colleagues [8], concluded that the mean maternal age was 30.7±6.3 years, while that of Moodley and Koranteng where the average age was 29±6.4 years [9], which was similar to our study. As our hospital is located in the outskirts of the city, the patient's socioeconomic was lower middle class followed by upper lower class family which was justifiable.

Hypertensive disorder during pregnancy is one of the major worldwide health problems. A study done by authors Bryant and his colleagues concluded that their patients had systolic blood pressures more than 160 mmHg (43 vs. 17%, p=0.01) [10], which correlated to our study. Increase in the maternal hemoglobin levels is usually associated with maternal and prenatal outcomes. Our study results had reduced maternal hemoglobulin levels which were in contrast to the studies conducted by Murphy et al. where they had high levels of hemoglobin at first and second trimester [11]. Maternal Serum Creatinine levels were increased in our study, which was supporting the evidences reported from other studies [12]. With respect to increase in the ALP levels, many case reports have been published that, few patients had increase in the ALP levels, which was similarly noted in our study [13]. Caesarean deliveries were reported higher in patients with preeclampsia, which supported the results from our study [14]. In contrast to our study, Tavassoli had not reported caesarean deliveries instead reported that vaginal deliveries were feasible [15]. It is said that vaginal delivery is suggested or recommended in cases with severe preeclampsia and in absence of obstetric indications in order to reduce serious complications of mother and fetus.

Neonatal complications like IUD, IUGR, low birth weights, low APGAR score were reported during delivery. These findings were similar to the study results by Yucesoy [16] and Dagdeviren [17]. Neonatal morbidity is common in preeclampsia patients and no maternal deaths were reported in our study. Low birth weights reported in our study was similar to study done by Heitall et al [18]. The reason for low birth weights could be due to prematurity while our study did not show statistical significant results similar to Xiong et.al.[19]. We found that Apgar score was significantly reduced in preeclampsia patients which was similar to previous study done by Ayaz and his colleagues [20]. Preterm birth and fetal hypoxia are the two possible reasons for low Apgar score. Among preeclamptic women it is known that there is decrease in uteroplacental blood flow due to hypertension [21]. We observed that the neonatal death in our study constituted to 5.71% which was similar to the neonatal mortality rate reported by Ussanaee and his colleagues [21]. Reason for neonatal mortality could be due to respiratory distress syndrome, hypoglycemia and sepsis which were observed in our study. This was similar to the previous studies reported [17, 21]. 2.85% of children were born with malformations, which was not statistically significant. Possible reason for malformation could be that it may be associated with preeclampsia which could have been the consequence of maternal disease, which is an extrinsic pathophysiology when compared to an intrinsic defect in fetal genetic potential. Maternal complications were also noted in our study, which was of no statistical significance.

To conclude, Preeclampsia has been significantly associated maternal and fetal complications. In developing country like us, morbidity and mortality rates among fetomaternal is quite alarming. Screening of pregnant women at early stage is required and high risk group of population should be identified in order to minimize both the maternal and fetal risk. Subsequent monitoring and proper treatment should be made available.

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