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Original Research Article

## Prospective study of fetomaternal outcome in epilepsy in pregnancy in a tertiary care hospital

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### ABSTRACT

**Background:** Epilepsy is the second most common neurological disorder in obstetrics after migraine. There are conflicting reports about the effect of epilepsy on pregnancy. Objective of present study was to evaluate fetomaternal outcome in patients with epilepsy.

**Methods:** This prospective study was conducted in Government Thanjavur medical college hospital, Tamil Nadu, India over a period of 15 months from January 2015 to March 2016 in all epilepsy cases. Total 110 epilepsy cases were admitted. In all cases maternofetal outcome were noted.

**Results:** This study showed that the incidence of epilepsy in pregnancy in our hospital is 0.6%. 86.36% of patients were treated with antiepileptic medications during their pregnancies. Pregnancy complications were anemia, gestational diabetes mellitus, gestational hypertension, intrauterine growth retardation, premature rupture of membrane, and vaginal bleeding. Live birth rate was 91.82%. Low birth weight babies were recorded in 24 (21.82%) infants. Only one baby had congenital anomaly of cleft lip and palate.

**Conclusions:** There was no significant increase in the risk of complications of pregnancy or delivery. Frequency of cesarean section is not increased in epileptic patients. There is no undue risk to pregnancy and childbirth in most of the cases.

**Keywords:** AED- antiepileptic drugs, Epilepsy, Maternal outcome, Pregnancy

### INTRODUCTION

Epilepsy is the most commonly encountered neurological disorder in Obstetrics after migraine. Incidence of seizure disorder in pregnancy is estimated to be 0.3 - 0.5% of all births.<sup>1</sup> Pregnancy with epilepsy is considered high risk mainly due to teratogenic potential of antiepileptic drugs and increased risk of pregnancy and neonatal complications like hypertension, preeclampsia, antepartum hemorrhage, caesarean delivery, still births, neonatal deaths, intrauterine growth restriction and preterm delivery. However, several studies have also been published that no significant increase in these complications in pregnancy with epilepsy.<sup>2-4</sup> A few studies have focused on the effect of pregnancy on

epilepsy and a possible worsening of epilepsy during pregnancy, but there are studies which do not show increase in seizure frequency during pregnancy and puerperium.<sup>5-7</sup> About 2.5 million women in India suffer from epilepsy, with 52 (25%) of them being in the reproductive age group.<sup>8</sup> Majority of women with epilepsy will have normal, healthy infants. Effective preconceptional counseling and medical care is essential for the treatment of the pregnant women with epilepsy.<sup>9,10</sup> Exposure to AED has been associated with two to three times increase in major malformations in infants exposed in utero as compared to the ordinary population. We report an observational prospective study of fetomaternal outcome in pregnancy with epilepsy attending a tertiary care hospital.

## METHODS

This prospective study was conducted over a period of 15 months from January 2015 to March 2016 at department of obstetrics and gynecology of Government Thanjavur medical college hospital, Tamil Nadu, India. Total 110 epilepsy cases were included in this study. These patients were managed with a team of neurologist, obstetrician, radiologist and a neonatologist.

Maternal variables analysed were age, parity, duration of epilepsy, seizure during pregnancy, antiepileptic drug usage in pregnancy, maternal complications and mode of delivery. Fetal outcome variables observed were number of live birth, still birth, birth weight, Apgar score, observation of congenital anomalies and other perinatal complications. Maternal and fetal outcome variables were presented as frequencies and percentages.

## RESULTS

In this study, 110 epilepsy patients were included. The incidence of epilepsy in pregnancy in our hospital is 0.6%.

**Table 1: Maternal age.**

Age distribution	No.	Percentage
< 21years	10	9.10
21-25	53	48.18
26-30	24	21.81
31-35	18	16.36
>35	05	4.55
Total	110	100

Maximum number of cases 53 (48.18%) were in the age group between 21-25 years. Most 58 (52.73%) of the cases were primigravida.

**Table 2: Distribution of parity.**

Parity	No.	Percentage
P0	58	52.73
P1	25	22.73
P2	16	14.55
P3	5	4.54
P4 and above	6	5.45
Total	110	100

**Table 3: Duration of epilepsy.**

No. of years	No.	Percentage
<1 year	8	7.27
1-5	34	30.91
6-10	22	20
11-15	19	17.27
>15	27	24.55
Total	110	100

Most 68 (61.82%) had epilepsy of more than 5 years. 15 patients had seizure during pregnancy. Of which 2 had new onset seizures. Among 110 patients, 15 patients were not on any anti-epileptic drugs.

**Table 4: Seizure during pregnancy.**

Duration of epilepsy	No. of patients
New onset	2
< 5years	7
5-10years	1
> 15	5
Total	15

37 patients received more than one drug. Among the maternal complications, 38 (35.43%) cases had complications. Of which Gestational hypertension was the commonest which occurred in 22 (20%) patients. Premature rupture of membrane (PROM) occurred in 8 (7.27%) cases.

**Table 5: Antiepileptic drugs in pregnancy.**

Drug	No.	Percentage
No treatment	15	13.64
Carbamazepine	35	31.82
Levitriacetem	11	10
Sodium valproate+Clobazem	4	3.64
Sodium valproate	8	7.27
Phenytoin+clobazem	4	3.64
Carbamazepine+clobazem	25	22.73
Phenytoin sodium	3	2.73
Sodium valproate+Levodopa	1	0.90
Lamotrigine+clobazem	3	2.73
Topiramate	1	0.90
Total	110	100

Abruption placenta occurred in 3 (2.72%) cases. 3 cases each had Gestational Diabetes and Hypothyroidism. Other associated maternal problems like Bell's palsy, Neurofibromatosis, Systemic Lupus Erythematosus (SLE) with Ventricular septal defect (VSD), Myoclonus, Tuberous sclerosis, H/O head injury and meningitis were present in 10 cases.

**Table 6: Maternal complications.**

Complications	No.	Percentage
Gestational hypertension	22	20
Abruption placenta	3	2.72
PROM	8	7.27
GDM	3	2.72
Hypothyroid	3	2.72
Total	38	35.43

1 patient died of acute Pulmonary edema due to severe pre-eclampsia 5 days after discharge from hospital. Among the mode of delivery, 5 cases had spontaneous abortion.

Vaginal delivery was the commonest mode of delivery. 74 (67.27%) cases had vaginal delivery. Caesarean delivery occurred in 31 (28.18%) cases.

**Table 7: Maternal mortality.**

Mortality	No.	Percentage
	1	0.90

Acute pulmonary edema due to severe preeclampsia.

**Table 8: Other maternal factors.**

Factors	No.
Bells palsy	1
Neurofibromatosis	2
Systemic lupus erythematosus with ventricular septal defect	1
Myoclonus	1
Tuberous sclerosis	1
H/O Head injury	3
H/O Meningitis	1
Total	10

In fetal outcome, live birth occurred in 96 (91.43%) cases. Intrauterine Fetal death (IUFD) occurred in 9 (8.57%) cases. 22 babies had birth weight <2.5 kg. Most of the babies had birth weight >2.5 kg.

**Table 9: Mode of delivery.**

Mode of delivery	No.	Percentage
Labour natural	69	62.72
Forceps	3	2.73
Ventouse	2	1.82
Caesarean section	31	28.18
Abortion	5	4.55
Total	110	100

**Table 10: Fetal outcome.**

Outcome	No.	Percentage
Live birth	96	91.43
Still birth	9	8.57
Total	105	100

Prematurity occurred in 12 (11.43) babies. IUGR in 10 babies, Birth asphyxia in 2, Neonatal death in 2.

**Table 11: Birth weight and Apgar.**

Weight in Kg	No .	Percentage
<2 kg	9	8.57
2-2.4	13	12.38
2.5-3	74	70.48
>3	9	8.57
Total	105	100
APGAR at 1 minute	7.28±0.89	
APGAR at 5 minute	9.29±0.78	

Congenital anomaly (cleft lip/ cleft palate) occurred in one baby. All the neonates received intramuscular Vitamin K after delivery.

**Table 12: Perinatal outcome.**

Outcome	No.	Percentage
Low birth weight	22	20.95
Prematurity	12	11.43
Still birth	9	8.57
Intra uterine growth restriction (IUGR)	10	9.52
Birth Asphyxia	2	1.90
Neonatal death	2	1.90
Congenital anomaly (Cleft lip and palate)	1	0.95

## DISCUSSION

The review of literature shows vast majority of cases are uncomplicated but there are increased obstetric risks and increased adverse neonatal outcome when compared to general population.

After the diagnosis of pregnancy, the regimen should be reassessed and monotherapy rather than polytherapy should be prescribed to minimize the risk of complications.

Pregnant women with epilepsy have a 4-8% chance of giving birth to a child with a major malformation as compared to only 2 to 4% of the general population.<sup>9-11</sup> Frequency of seizures is increased during pregnancy in one-third of women with epilepsy.<sup>9,13</sup>

The type of anomalies occurring in infants born to pregnant women with epilepsy are orofacial clefts, cardiac diseases and neural tube defects which affects the child's life seriously. In pregnant mothers with epilepsy on one AED this occurs in 4 to 8% and is probably greater in those receiving more than one AED.<sup>11,12</sup> The most common anticonvulsant used in our study was carbamazepine in 35 (31.82%) patients. Studies with newer drugs show that the incidence of major malformations are not higher than with the older AEDs.<sup>14</sup>

In this study 52.73% of cases were primigravida and 47.27% of cases were multigravida as compared to study by Jeyarani et al.<sup>15</sup> In this study, 59 cases had monotherapy. 15 cases were not on any treatment. Remaining 36 cases had combined AEDs. In this study, 95 (86.36%) patients were seizure free during pregnancy as compared to other study by Malik R et al.<sup>16</sup> 38 cases had pregnancy related complications of which the most commonest was gestational hypertension in 22 (20%) cases which is comparable to Goel et al study has reported PIH (24.3%), abruption (5.4%), GDM (2.7%) of cases in his study.<sup>17</sup>

Mode of delivery in epileptic women is nearly comparable to study of Goel et al who observed normal vaginal delivery in 62% of cases and LSCS in 27% and instrumental delivery of 10.8%.<sup>17</sup>

In present study, the rate of cesarean section was 28.18%, Labour natural in 62.72%. In present study, IUGR observed in 9.52% and preterm labour in 11.43% which is comparable to Chattopadhyay et al observed IUGR (9.3%) and preterm labour in (9.3%) of cases.<sup>18</sup> Neonatal bleeding can occur in mothers taking AEDs because of diminished amount of Vitamin K dependent clotting factors.<sup>19,20</sup>

No case of neonatal bleeding was observed in this study. In a study by Saleh AM et al in Saudi Arabia in 2008 no significant difference was confirmed for fetal complications between epileptic and non-epileptic women.<sup>21</sup> Preferably, WWE should be on the least possible dosage and monotherapy of AEDs at the time of conception.<sup>22</sup> In this study, only one baby had cleft palate and cleft lip.

## CONCLUSION

Pregnancy with epilepsy presents a unique challenge both for the mother and her baby. In this study we observed that though pregnancy with epilepsy needs comprehensive antenatal care and this results in uneventful pregnancies with good feto-maternal outcome.

These women should be managed with monotherapy at the lowest possible dosage to diminish the risk of complications and also maintain good seizure control. They must be subjected to high-definition anomaly ultrasound scan at 18-20 weeks. These women should be managed with mandatory folate supplementation and the neonates must be given Vitamin K. These high risk pregnancies need spontaneous referral to tertiary care centers for better maternal and neonatal outcome. The perinatal complications can be diminished by the close coordination between the neurologist, obstetrician and the pediatrician.

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