



Maternal outcome in epilepsy complicating pregnancy

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Abstract:

Epilepsy is not a contraindication to pregnancy. Women with epilepsy can be reassured that having epilepsy should not prevent them from having children. However close medical care is essential and a multidisciplinary approach is recommended. It is very important that all women with pregnancies have a preconception evaluation done by a neurologist, when the need to continue AEDs or possibility of reducing AED load could be assessed. This present study was a prospective study undertaken to evaluate the effect of epilepsy on pregnancy regarding the maternal outcome in 75 cases. Out of 75 epileptic women with pregnancy were assessed for a good maternal outcome. 77% had epilepsy for more than 10 years. 98.7% of patients had generalized tonic clonic seizures and 1.3% had partial seizures. 72% of patients were on monotherapy and 6.7% of patients were on polytherapy. 85.3% had term deliveries and 14.7% had preterm deliveries. 66.7% had normal delivery and 28% underwent caesarean sections for various obstetric indication. Effective pre-conceptual counselling and medical care is essential for the treatment of the pregnant women with epilepsy.

Key words: AED- antiepileptic drugs; Epilepsy; Maternal outcome; Pregnancy; Seizures

Introduction

Pregnancy of women with known epilepsy refer to 'Epilepsy in pregnancy'. The most common cause for seizures during pregnancy is pre-existing epilepsy. Some women with epilepsy may experience

seizure only during pregnancy which is termed 'gestational epilepsy' such women would be seizure free between pregnancies. Another subgroup (Gestational onset Epilepsy) may have their first seizure during pregnancy and thereafter may continue to get spontaneous recurrent seizures [1]. Epilepsy is

the second common chronic neurological disorder complicating pregnancy after migraine [2]. About 2.7 million women in India suffer from epilepsy, with 52% of them being in the reproductive age group [3]. Incidence of seizure disorder in women attending antenatal clinics is estimated to be 0.3-0.5% of all births. Pregnancy in the woman who has epilepsy raises several concerns about the risk of adverse maternal outcome.

The most important goal of therapy, both prenatally and during pregnancy, is to optimally control seizures. Regarding the general management of epileptic women the first and foremost is to determine whether a woman of childbearing age requires antiepileptic drugs [1]. If needed as far as possible monotherapy should be the aim. Diet before conception should contain adequate amounts of folate. Free or plasma levels of AEDs should be regularly checked and they need one antenatal ultrasonography to rule out congenital malformations.

Aim

To evaluate the effect of epilepsy on pregnancy regarding the maternal outcome.

Materials and Methods

This prospective study on epilepsy complicating pregnancy was conducted in Government Rajaji hospital (GRH), Madurai from June 2010 to May 2011. Permission from Ethical Committee of the hospital was obtained for research purpose. All consecutive epileptic patients admitted in department of **Obstetrics and Gynecology**, Government Rajaji Hospital, Madurai, were recruited for this study with fulfillment of following criteria.

Inclusion criteria:

1. All pregnant women with history of epilepsy
2. Both primigravida and multigravida
3. Both booked and unbooked cases
4. All type of seizure disorder (GTCS, Partial)
5. Patients on regular or irregular intake of AEDs
6. Patients on Monotherapy or polytherapy of AEDs
7. Patients not on AEDs as per neurologist advice
8. Patients who discontinued AEDs by themselves

Exclusion criteria:

1. Eclamptic patients
2. Postpartum seizure (including Eclampsia, CVT)
3. Cases of metabolic encephalopathy / drug toxicity
4. Psychogenic causes

Pregnant women with history of epilepsy, recruited for this study were enquired with detailed history regarding their age, booking status, gravida and details of menstrual history to arrive expected

date of delivery. Their detail obstetric history was recorded especially about their performance during previous delivery. History of imminent symptoms like headache, nausea, vomiting, blurring of vision, epigastric pain and oliguria was obtained. History of other obstetrical complications like oligohydramnios, PIH, antepartum hemorrhage was also obtained. Past history regarding the age of onset of seizures, type of seizure, period at which the patient had last seizure, disease free interval and history of status epilepticus was obtained. The details of antiepileptic drugs, type and duration of therapy, regular or irregular intake of AED and folic acid intake was obtained. Presence of other medical conditions like diabetes mellitus, hypertension, tuberculosis, heart disease and renal disease were elicited. Detail neurological history to rule out CNS lesion, trauma, infection, and tumor and drug intake was elicited. General and systemic examination including thorough CNS examination, per abdominal and per vaginal examination was done for all patients. Blood pressure measurement and fundus examination was also done. Neurologist opinion was obtained for all cases. Investigations like HB%, urine (Alb, sugar) blood urea, sugar, serum creatinine, serum uric acid, serum electrolytes, liver function tests and platelet count were done. EEG was taken for all cases. Ultrasonographic examination was done for gestational age assessment, liquor status, IUGR and to rule out congenital anomalies.

All pregnant epileptic women were admitted in ward before the expected date of delivery and evaluated for epilepsy and their treatment was individualized according to neurologist advice. As the patient gets into labour, they were monitored carefully during labour with partogram and the mode of delivery in all patients was recorded. Caesarean section was done for obstetric indications. Maternal outcome was evaluated by the occurrence of seizures during labour or postpartum and for other obstetric complications like oligohydramnios, PIH, antepartum haemorrhage, postpartum haemorrhage. All delivered epileptic patients were observed in the labour ward for period of 48 hours following delivery. Postnatally all patients were subjected to CT to rule out other causes. AEDs were continued postnatally and patients were discharged after obtaining neurologist advice. Postnatal counseling done to continue the AEDs.

Statistical Tools: The information collected regarding all the selected cases were recorded in a Master Chart. Data analysis was done with the help of computer using Epidemiological Information Package (EPI 2010) developed by Centre for Disease Control, Atlanta. Using this software range,

frequencies, percentages, means, standard deviations, chi square and 'p' values were calculated. Kruskal Wallis chi-square test was used to test the significance of difference between quantitative variables. A 'p' value less than 0.05 is taken to denote significant relationship.

Results

Maternal outcome: The age of pregnant women with epilepsy was taken into account. Majority of patients 42/ 75 (56%) belong to 21- 25 years of age group with mean age of 24.1 years. Table.1

Table 1: Age Distribution

Age(In years)	Cases	
	No	%
Up to 20 years	14	18.7
21-25 years	42	56
26-30 years	14	18.7
> 30 years	5	6.7
Total	75	100
Range	18-33 years	
Mean	24.1 years	
S.D	3.6 years	

Out of 75 cases 66 were Booked cases (88%) and 9 were unbooked (12%). Among 75 cases studied primigravida constitute (53.3%) and multigravida constitute 46.7 %. Table 2 &3.

Table 2: Antenatal Care

Antenatal care	Cases	
	No	%
Booked	66	88
Unbooked	9	12
Total	75	100

Table 3: Parity

Parity	Cases	
	No	%
Primi	40	53.3
Multi	35	46.7
Total	75	100

The duration of epilepsy in 45.3 % of cases was 10 - 15 years. 77% of patients had duration of disease more than 10 years. There were no cases of epilepsy less than 1 year duration. (Table 4)

Table 4: Duration of disease

Duration of disease (in years)	Cases	
	No	%
0-1 years	-	-
2 – 5 years	2	2.7
6- 10 years	15	20
10 – 15 years	34	45.3
> 15 years	21	32
Total	75	100
Range	3 – 25 years	
Mean	13.4 years	
S.D	4.1 years	

Out of 75 cases, 74 (98.7 %) had generalised tonic clonic seizures and only one case (1.3 %) had partial seizure. 16 cases out 75 (21.3%) had epileptic seizures during their antenatal period. Out of 75 cases studied 54 cases (72%) were on monotherapy and 5 cases (6.7%) were on polytherapy. 13.3% had irregular intake of AED and 2.7% of cases discontinued the treatment after becoming pregnant. About 5.3% cases were not on any treatment as per neurologist advice. Tables 5,6,7.

Table 5: Type of seizure

Type of seizure	Cases	
	No	%
GTCS	74	98.7
Partial	1	1.3
Total	75	100

Table 6: Disease free interval

Disease free interval	Cases	
	No	%
0 – 9 months	16	21.3
> 9 months	59	78.7
Total	75	100
Range	2 days – 14 years	
Mean	5.1 years	
S.D	4.0 years	

Table 7: Type of AED therapy

Type of therapy	Cases	
	No	%
Mono therapy	54	72
Polytherapy	5	6.7
Irregular	10	13.3
Discontinued	2	2.7
Nil	4	5.3
Total	75	100

Table 8: Folic acid intake

Folic acid intake	Cases	
	No	%
Yes	68	90.7
Irregular	2	2.7
No	5	6.7
Total	75	100

Among 75 cases (90.7 %) of epileptic women with pregnancy were on folic acid along with AED. 2 women (2.7%) had irregular intake of folic acid and 5 women (6.7%) had no intake of folic acid. Table:8. Most of the women with epilepsy had abnormal EEG (69.3%) and normal CT (88%). EEG was normal in 30.7% of cases while 12% had abnormal CT. Table:9

Table 9: EEG / CT Abnormalities

Investigation	Results			
	Normal		Abnormal	
	No	%	No	%
EEG	23	30.7	52	69.3
CT	66	88	9	12

Table 10 : Gestational Age at delivery

Gestational Age at delivery(in weeks)	Cases	
	No	%
< 34 weeks	2	2.7
34 – 36 weeks	9	12
≥ 37 weeks	64	85.3
Preterm	11	14.7
Term	64	85.3
Total	75	100
Range	32 – 42 weeks	
Mean	37.4 weeks	
S.D	1.9 weeks	

The gestational age at delivery ranged from 32-42 weeks in this study. 11/75 cases (14.7%) had preterm delivery and 64/75cases (85.3 %) delivered at term. Table :10. 50/ 75 (66.7 %) of cases had normal delivery while 21/ 75 (28%) of cases underwent LSCS for various indication. Assisted breech and outlet forceps delivery accounted for 2.7% each. Table 11. Out of 75 cases studied 48 cases (64%) had no complications and 27 cases (36%) had mentionable complications. Table:12. Maternal outcome was good in all cases (100%). Table 13.

Table 11 : Mode of delivery

Mode of delivery	Cases	
	No	%
Labour natural	50	66.7
Outlet	2	2.7
Assisted breech	2	2.7
LSCS	21	28
Total	75	100

Table 12 : Obstetric Complications

Obstetric Complications	Cases	
	No	%
IUD with Preterm	1	1.3
IUGR	2	2.7
Malpresentation	4	5.3
Oligohydroamnios	2	2.7
Oligo & IUGR	2	2.7
Postdatism	6	8.0
Pre term	8	11
Preterm & Malpresentation	2	2.7
Total cases with	27	36
Cases without	48	64
Total	75	100

Table 13 : Maternal Outcome

Maternal Outcome	Cases	
	No	%
Good	75	100
Poor	Nil	-
Total	75	100

Discussion

Maternal outcome:

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. In this study the age of the patients ranged from 18-33 years and mean maternal age was 24.1 years. The age group in this study is nearly comparable with the study conducted by Thomas SV et al [4]. in which the maternal age range was from 19-38 years with mean age of 26.

In this study 53.3% of cases were primigravida and 46.7% of cases were multigravida whereas in the study by Goel et al [5]. The majority of the case was of multigravida 70.2%. Most of the cases in this study were booked cases (88%). The duration of epilepsy for more than 10 years accounted for 77% of

cases in this study while in the study conducted by Goel et al [5]. 72 % of the cases had duration of epilepsy for less than 10 years. There were no cases with duration of epilepsy for less than 1 year. Regarding the types of seizures, Thomas et al [4]. observed, 59.38% had GTCS and 40.37% of other types. Chattopadhyay et al [2] in his study observed 56 % of GTCS and 44 % of other types. In this study majority of the cases were of GTCS type (98.7%) and only one case (1.3%) had partial seizures.

In this study 54 cases (72%) of patients were on monotherapy with 46 cases (61%) were on carbamazepine and 8 cases (10.6%) were on phenytoin 6.7% of the patients were on polytherapy combination of carbamazepine and phenytoin- 3 cases, carbamazepine and clobazam -7 cases, phenytoin and lamotrigine -1 case), 13.3% were on irregular treatment and 2 cases (2.7 %) discontinued AED after becoming pregnant. In the study conducted by Thomas SV et al [4] 87.5% of cases were on monotherapy and 12% of cases were on polytherapy. About 90.7% of patients on epileptic drug were on regular intake of folic acid and 2.7 % were on irregular intake, while 6.7 % did not have any drug intake. According to Thomas SV et al [4] regular consumption of folic acid was documented in only in 40% of patients. In this study majority of cases were on regular folic acid intake.

Premature delivery had been reported by Chattopadhyay et al [2] for 18.6% and Goel et al [5] for 21.6% among their patients. In this study 14.7% delivered prematurely and 85.3 % cases delivered at term. It shows there is slight increase incidence of prematurity in epileptic women. 66.7 % of cases had normal delivery while 28% of cases underwent LSCS for various indications including failed induction, fetal distress, oligohydroamnios, IUGR and postcaesarean pregnancy with associated complications. Assisted breech and outlet forceps delivery accounted for 2.7% each. Mode of delivery in epileptic women is nearly comparable to study of Goel et al [5] who observed normal vaginal delivery in 62% of cases and LSCS in 27% and instrumental delivery of 10.8%.

While Thomas SV et.al [4] and Chattopadhyay et al [2] in their studies had more number of women undergoing LSCS accounting for 40.6% and 65.1% respectively. Thomas SV et al[4].had mentioned fetal distress, failed induction and uterine inertia as indication for LSCS. In this study out of 75 cases, there were (5.3%) 4 cases of IUGR, (5.3%) 4 cases of oligohydramnios, (8%) 6 cases of malpresentation, (8%) 6 cases of postdatism. Preterm cases accounted for 14.7% (11 cases). There was one

case of intrauterine death. Induction of labour was done in 14 cases (18.7%).

Goel et al [5] has reported PIH (24.3%), abruptio (5.4%), GDM (2.7%) and induction of labour in (18.9) % of cases in his study. Induction of labour was similar in this study, but there was no case of abruptio placenta, PIH or gestational diabetes. Thomas SV et al [4] observed over quarter of patients with PIH, preeclampsia, IUGR, postdatism, placental previa and hydramnios. Chattopadhyay et al [2] observed IUGR (9.3 %) and preterm labour in (9.3%) of cases and there was no case of abruptio placenta, placenta previa, PIH or gestational diabetes. Type and occurrence of obstetric complications appear variable in different studies.

Conclusion

The good maternal outcome with reduced occurrence of obstetric complications in this study may be due to early booking, regular antenatal care, regular intake of anti epileptic drugs (preferentially monotherapy) and regular intake of folic acid along with antiepileptic drugs, which was found in most of our cases. Increased seizure frequency should be anticipated in patients with shorter disease free interval and may be advised to have regular antiepileptic drug intake and more frequent antenatal visits. Pregnant patients with epilepsy has to be considered as high risk pregnancy which need evaluation, specialist opinion and referral to tertiary care centres for better maternal outcome.

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References

1. Charu Jandial, S.K. Gupta, Shashi Gupta, Sudhaa Sharma, Dheeraj Gandotra- Pregnancy with Epilepsy. JK Science Vol. 9 No. 2, April-June 2007.
2. Chattopadhyay Nibedita , Mukherjee Amitava , Pati Shyamapada , Mukho- padhyay Partha, Gupta Dipankar , Ganguly Gautam - Feto-maternal outcome in pregnancy with epilepsy in a tertiary care hospital J Obstet Gynecol India Vol. 58, No. 5 : September/October 2008 pg 406-409.
3. Thomas. SV. Managing epilepsy in pregnancy - Neurol India 2011; 59:59-65.
4. Thomas SV, Indrani L, Devi GC, Jacob S, Beegum J, Jacob PP, Kesavadas K, Radhakrishnan K, Sarma PS- Pregnancy in women with epilepsy: preliminary results of Kerala registry of epilepsy and pregnancy. Neurol India. 2001 Mar;49(1):60-6.

5. P. Goel, L. Devi, P. K. Saha, N. Takkar, A. Huria & D. Dua : Maternal And Perinatal Outcome In Pregnancy With Epilepsy. The Internet Journal of Gynecology and Obstetrics. 2006 Volume 5
6. Crawford P - Epilepsy and pregnancy. Seizure-2002 Apr;11 Suppl A:212-9.
7. Harrison-Principle of Internal Medicine-17th edition, chapter:363, page 2498-2512.
8. Tripathi. KD Essentials of Medical Pharmacology- 5th edition, chapter: 2 page 369- 380.
9. Williams Obstetrics – 23rd Edition , chapter 55, page 1166- 67.
10. Adam & Victor Principles of Neurology., Ninth Edition- Page 326-329.
11. Engel Pedler., Epilepsy-A comprehensive Textbook 1997 –First Edition Vol.2 page 2027, Vol.3 page 2635.