

## Maternal and fetal complications in pregnant epileptic women

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**Objective:** To determine the maternal and fetal complications in pregnant epileptic women seen at our institution.

**Methodology:** Retrospective chart review of pregnant epileptic women who presented in neurology clinic of Shifa International Hospital, Islamabad from January 2009 to December 2010. Type of epilepsy, drugs used and complications during pregnancy were recorded.

**Results:** A total of 19 patients were seen during this period. Mean age was 27±4.5 year. Seven (36.8%) were on dual antiepileptic drugs (AED). Five (31.2%) were on valproate either alone or in combination. A total of seven complications occurred in six pregnancies and included premature labor in 3 (15.8%), IUD in 2 (10.5%), ectopic pregnancy and intrauterine growth

retardation in 1 patient each. Sixteen women were followed up to delivery. Two had low birth weight babies. None of the children born had any major malformation.

**Conclusion:** The frequency of major malformations in babies was low; however, pregnancy related complications were seen in almost 1/3 of our patients including IUD and higher incidence of caesarian section. There is a need to establish epilepsy registries in Pakistan to evaluate the complications of epilepsy, risk of malformation and side effects. (Rawal Med J 2014;39: 174-177).

**Key Words:** Women with epilepsy, maternal and fetal complications, pregnancy, Pakistan, intrauterine death, partial epilepsy.

## INTRODUCTION

Epilepsy is among the most common serious neurological condition. Its global prevalence is generally taken as between 5 and 10 cases per 1000 persons.<sup>1</sup> It affects approximately 0.2-0.7% of pregnant women.<sup>2</sup> In Pakistan, the reported prevalence of epilepsy is 9.9 per 1000 population.<sup>3</sup> Pregnancy has a variable effect on seizure frequency. About two third of the women with epilepsy remain seizure free whereas increase in seizure frequency is noted in about one- fourth of them.<sup>4</sup> Problems related to pregnancy and birth defects in the baby are another major concern. Although most women with epilepsy have uncomplicated pregnancies, there is increased incidence of stillbirths, spontaneous abortions, malformation and neonatal deaths as compared to general population.<sup>5-7</sup> Seizures during pregnancy have shown to be independently associated with increased risk of low birth weight babies.<sup>4</sup> Several studies have shown that most of the commonly used antiepileptic medications carry a

relatively increased risk of malformation when used in mono or polytherapy.<sup>8-10</sup> Adverse effect on cognitive development in the babies that are exposed to antiepileptic drugs (AED) in utero is possible. Valproate is particularly associated with adverse developmental effects.<sup>11-13</sup> In the recent years, many AED pregnancy registries have provided helpful information about the risks associated to AEDs. There is lack of data from our country regarding maternal and fetal complications of pregnant women with epilepsy. The aim of this study was to determine the maternal and fetal complications in pregnant epileptic women seen at a private tertiary care neurology clinic in Islamabad, Pakistan.

## METHODOLOGY

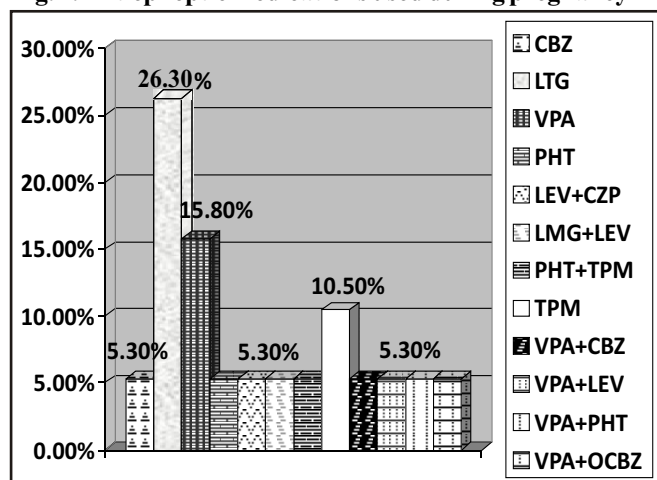
This was a retrospective review of pregnant epileptic women who presented in neurology clinic of Shifa International Hospital, Islamabad, from January 2009 to December 2010. Patients who developed new onset seizure during pregnancy were excluded from the study. The data including

demographics, type of epilepsy, antiepileptic drugs, seizure frequency, and complications during pregnancy, delivery and fetal outcome were recorded. Data were analyzed using SPSS version 16. Descriptive statistics and Chi-square test were used for categorical data.

## RESULTS

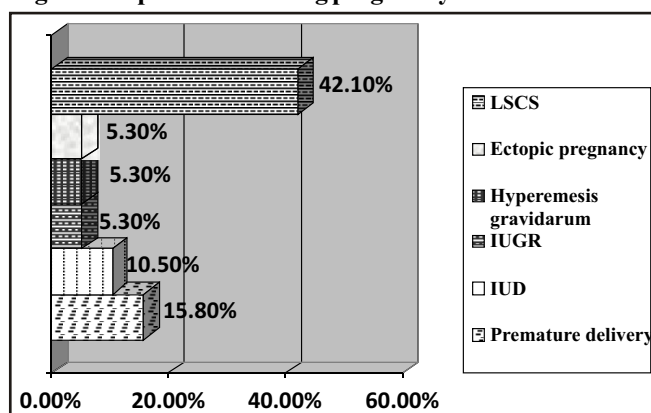
A total of 19 patients were seen during this period. Mean age was  $27 \pm 4.5$  year, 15.8% were illiterate (Table 1). Seven (36.8%) patients were on dual AED. Five (31.2%) were on valproate either alone or in combination. Majority (18) were taking medications for more than two years. Four (21.1%) patients had generalized epilepsy, 10 (52.6%) had partial epilepsy and 5 (26.3%) had juvenile myoclonic epilepsy. Almost 60% were seizure free six months prior to pregnancy. Twenty six percent patients had history of abortions and intrauterine deaths (IUD) before current pregnancy. All of them were on AED, majority on two drugs (Fig. 1).

**Fig. 1. Antiepileptic medications used during pregnancy**



Fourteen (73.7%) patients remained seizure free during pregnancy and 5 (26.3%) had seizures mainly during second trimester of pregnancy. All patients had taken folic acid during pregnancy. A total of seven complications occurred in six pregnancies mainly premature labor in 3 (15.8%) and IUD in 2 (Fig. 2). Both patients who had IUDs were on valproate. Sixteen women were followed up to delivery, one was lost to follow up and two patients had not delivered at this time.

**Fig. 2. Complications during pregnancy.**



Eight (42.1%) patients delivered babies via caesarian section, three of them were on valproate. Patients with partial epilepsy had more caesarian section and these patients had more rates of pregnancy related complications.

**Table 1: Demographic and clinical features of study population.**

	Number	Percentage
<b>Mean Age (years)</b>	27 ± 4.7	
<b>Educational Status</b>		
Illiterate	3	15.8
Middle	2	10.5
Matric	2	10.5
Graduate	2	10.5
Post graduate	2	10.5
<b>Type of Epilepsy</b>		
Primary Generalized Epilepsy	4	21.1
PGE (PGE)	10	52.6
Partial epilepsy	5	26.3
Juvenile Myoclonic Epilepsy (JME)		
<b>Seizure free interval before pregnancy</b>		
> 6 months	11	57.8
< 6 months	8	42.1
<b>Medications</b>		
Dual AEDs	7	36.8
Single AED	12	63.2
<b>Duration of treatment</b>		
> 2 years	15	78.9
< 2 years	4	21.1

There was no significant association between number of AED use and complication rates and mode of delivery, except that women who had IUDs were taking valproate. Women with partial epilepsy had more caesarian section but this was not statically significant ( $p=0.4$ ). Two patients had low birth weight babies. None of the children born had any major malformation.

## DISCUSSION

We found that majority of women delivered babies without any major congenital malformation. The mean age of our cohort is similar to other studies.<sup>9,11</sup> However, partial epilepsy was slightly more common but this could be due to small sample size. Despite proven side effects and risk of teratogenicity, the most commonly prescribed AED was valproate followed by lamotrigine. Majority of the patients remained seizure free during pregnancy. Kerala registry also reported low frequency of seizures during pregnancy.<sup>11</sup> Almost half of babies were delivered by caesarian section. This is similar to the studies from Norway and Israel, however, our patients did not develop post partum hemorrhage.<sup>14,15</sup>

The most common complications in our study were premature labor and IUD. Women who had IUDs were on valproate. All of our patients had taken folic acid during pregnancy, which is in contrast to other studies where compliance was poor in this aspect.<sup>11</sup> One of the reasons may be the selection bias as all the patients were seen by neurologist who regularly prescribed folic acid in their patients. Major limitations of our study include its retrospective nature and small sample size. We also did not record all potentially confounding variables like socioeconomic status, smoking and alcohol habits. In order to address these issues we are now planning a prospective registry at our hospital, which can be extended to national level.

## CONCLUSION

Although frequency of major malformations in babies was low in our small cohort; pregnancy related complications were seen in almost 1/3 of

patients including high rates of IUD and delivery through caesarian section.

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Conception and design: Maimoona Siddiqui  
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Drafting of the article: Maimoona Siddiqui, Ismail A. Khatri  
Critical revision of the article for important intellectual content: Ismail A. Khatri, Arsalan Ahmad  
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