

# Outcome of Pregnancy In Women With Epilepsy

Mehmet Hulusi ERGENELİ, Tekin DURUKAN, Abdurrahman CİĞERLİ *Hacettepe Üniversitesi Tıp Fakültesi Kadın Hastalıkları ve Doğum Anabilim Dalı ve Nöroloji Anabilim Dalı*

## SUMMARY

### OUTCOME OF PREGNANCY IN WOMEN WITH EPILEPSY

A comparison of 43 pregnancies in women with epilepsy and 30,945 pregnancies in nonepileptic women showed similar rates of breech presentation, premature birth and low birth weight infant. Induction of labor and cesarean section rates were also similar among epileptic and nonepileptic groups. The epileptic women were 3.28 times more likely to have preeclampsia, and 3.97 times more likely to have uterine bleeding during the third trimester, and congenital malformations were 5.09 times more likely to occur. There were no maternal or perinatal deaths. It is concluded that epileptic women may expect good maternal and fetal outcome with adequate care.

**Key Words:** Epilepsy, pregnancy complications, perinatal complications.

## ÖZET

### EPİLEPTİK KADINLARDA GEBELİK PROGNOZU

Epilepsisi olan 43 gebe ile epileptik olmayan 30,945 gebe karşılaştırıldı. Her iki grupta makat prezentasyon, prematür doğum ve düşük doğum ağırlıklı bebek hızları benzerdi. Eylem indüksiyonu ve sezaryen hızları her iki grupta farklı değildi. Epileptik gebelerde preeklampsi 3.28 kat, üçüncü trimesterde uterin kanama 3.97 kat fazla iken konjenital malformasyonların görülme hızı 5.09 kat fazlaydı. Bu seride maternal veya perinatal ölüm görülmedi. Yeterli izlem ve bakım ile epileptik kadınların gebelik sonuçlarının iyi olabileceği sonucuna varıldı.

**Anahtar Kelimeler:** Epilepsi, gebelik komplikasyonları, perinatal komplikasyonlar.

**D**uring pregnancy and labor, women with epilepsy reportedly have a slight increased risk of bleeding, preeclampsia, prematurity, low birth weight, fetal asphyxia, and perinatal death (1-8). They also appear to have an increased rate of cesarean sections (3). Series with no increase in obstetric complications or interventions in women with epilepsy have also been reported (9,10,11).

We present here the results of a retrospective study on the course and outcome of pregnancies in women with epilepsy.

## PATIENTS AND METHODS

Thirty-six epileptic women had 43 pregnancies (0.1% of fetal deliveries) of more than 20 weeks' duration and gave birth to 43 infants in the 12-year period from 1977 to 1988. The medical charts of all women who gave birth between these years at the Department of Obstetrics and Gynecology of Hacettepe University Medical School were reviewed retrospectively as well as the charts of the infants delivered in the same period.

Thirty-two but four of the patients were on at least one antiepileptic drug (AED) including phenobarbital, carbamazepine, valproic acid, clonazepam, phenytoin, primidone, or acetazolamide. Occurrence of seizures increased in 12 (27.9%), decreased in 10 (23.3%) and remained stable in 21 (48.8%) of the pregnancies. No dose adjustment was made in 31 (72%) of the pregnancies, while dosage of AED was increased or a second drug was added to control seizures in 12 (28%) of the pregnancies.

In order to examine differences between epileptic women and the general parturient population with regard to complications of pregnancy, women with epilepsy were compared with 30,945 pregnancies of nonepileptic women who gave birth in the same period of time. Epilepsy was not considered on indication for induction of labor. During labor and delivery, the epileptic women were treated according to the general obstetric principles.

Chi square test was used for statistical calculations. Relative risk was calculated for each pregnancy complication.

## RESULTS

We studied eleven factors describing the process or outcome of pregnancy and found three to occur

with significantly increased frequency for mothers with epilepsy (Table 1). Three of the pregnancy complications occurred among epileptic women as frequently as among the control group, these were low birth weight infant ( $p=0.95$ ), premature birth ( $p=0.10$ ), and breech presentation ( $p=0.91$ ).

Women with epilepsy were 3-28 times more likely to develop preeclampsia than nonepileptic women ( $p=0.0005$ ). Uterine bleeding in the last trimester was 3-97 times more common in epileptic women ( $p=0.05$ ).

Two medical interventions, induced labor and cesarean section, in epileptic women were as frequent as that in nonepileptic women ( $p=0.67$  and  $p=0.97$ ). Almost 18% of mothers with epilepsy underwent cesarean section. Only three of these were operated for epilepsy as the principal indication. Other indications were repeat cesarean in one, breech presentation in one and fetal distress in three patients. Postpartum haemorrhage was not frequent in epileptic women ( $p=0.65$ ).

Congenital malformations were observed in 4 of 43 infants (93%) of epileptic mothers, while that was seen in 562 of 30,945 infants (1.82%) of control subjects ( $p=0.003$ ). All four anomalies observed in infants of epileptic mothers were minor type anomalies, including polydactily, lumbar dermal sinus, hypospadias, and bilateral hydrocele.

There were no stillbirths, neonatal deaths or maternal deaths in this series. Thirty-five of the infants were breast-fed. Eight infants were bottle-fed for various reasons and one of those had with drawal symptoms.

## DISCUSSION

An excess in almost all of the common pregnancy complications has been observed in many studies of pregnancy in women with epilepsy, including preeclampsia, bleeding in pregnancy, placental abruption, premature labor, and breech presentation (1-8). The relative risk for these complications is approximately 1.5-3 times the risk in women without epilepsy, indicating a slight increase for women with epilepsy. However, no clear association has been seen between these obstetric complications and seizures or use of

AEDs during pregnancy. On the other hand, there are obstetric series showing only minimal or no increase in obstetric problems among women with epilepsy (9,10,11). Our series shows an increased risk of preeclampsia and third trimester bleeding as obstetric complications. No increase in rates of breech delivery, premature labor, or low birth weight infant was observed.

Rates of induction of labor four times greater than those for nonepileptic women have been reported for women with epilepsy (2). Nevertheless, the rate of induction of labor was similar in both epileptic and nonepileptic groups in our series where epilepsy was not considered an indication for induction of labor just as in some other series (4).

Maternal epilepsy warrants a cesarean section in only a selected minority of women. Patients with substantial neurologic or mental deficit, with very poor seizure control in late pregnancy or with prior knowledge of the occurrence of severe seizures during heavy physical or mental stress should be the candidates for cesarean section (4,9). Thirty-seven percent of the patients in our series had cesarean section because their epilepsy and others had obstetric indications for the intervention, while total rate of cesarean sections in the group of women with epilepsy was similar to the rate in nonepileptic women.

Almost all published reports agree that there is a 1.2 to 3-fold increase in perinatal mortality (1,9). However, no perinatal mortality was observed in our series.

The incidence of congenital malformations, major and minor, among infants of mothers with epilepsy treated with AEDs during pregnancy is higher than that among infants of normal control (12-15). The rate of malformations was 5-fold in our series. However, all of these malformations were minor anomalies which are defined as morphologic features of no serious medical or cosmetic consequence to the patient (15).

The pregnancies of women with epilepsy definitely carry additional obstetric risks, most importantly congenital malformations. Those women need neurologic and obstetric follow-up during pregnancy as well as pre-pregnancy counselling at medical centers with the experience and resources to handle very specific problems of epileptic women. Provided that adequate care is available, almost all women with epilepsy can be assured of a good maternal and fetal outcome.

**Table 1. Complications of Pregnancies of Women With Epilepsy and Control Group**

Complication	No of complications		Relative risk	95% confidence interval
	Epileptic group	Control group		
Preeclampsia	9	1968	3.28	1.60-6.72
3rd trimester bleeding	3	542	3.97	1.23-12.75
Breech presentation	2	1693	0.85	0.21-3.51
Premature birth	2	5050	0.29	0.07-1.18
low birth weight	4	2568	1.12	0.40-3.12
Congenital malformation	4	562	5.09	1.83-14.14
Cesarean section	8	6108	0.94	0.44-2.00
Induction of labor	4	4031	0.71	0.26-1.99
Postpartum haemorrhage	1	191	3.75	0.52-27.12

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