BACKGROUND

Epilepsy is one of the most frequent neurological disorders, with an overall estimated prevalence of 0.5–2.0% in western countries [1]. The prevalence in pregnant women has been estimated to be 0.5–2.0%, with approximately 35% of these women being childbearing age [2]. Epileptic women of child-bearing age, the majority of whom are seizure free with one or more antiepileptic drugs (AEDs) [3]. Seizure type and epilepsy syndrome are the principal determinants for the treatment choices in seizure disorders. However, different AEDs are characterized by different side effects and interaction potentials, and individual patients may have different toleration and pharmacokinetic profiles. Sex, genetic profile and co-morbid factors [4–6] pregnancy represents a unique situation in these respects. All of these elements need to be considered when selecting an AED for the individual patient. The era of the second AED generation started in the 1950s when several new drugs were added in rapid succession [7,8]. This marked the end of a 20-year long hiatus after the introduction of valproate (VPA), the last of the first generation AEDs. The second-generation AEDs did not generally prove to be more effective than the first generation, but many of them are better tolerated, less prone to drug interactions and have more predictable pharmacokinetics [9,10]. During the last two decades, much attention has been directed towards problems with the use of first-generation AEDs in women: hormonal and metabolic disturbances, pharmacokinetic interactions with contraceptives and pregnancy-related problems, including adverse reactions in the offspring. VPA, which for many years was a first-choice drug in generalized epilepsy of both sexes, has demonstrated the highest teratogenic potential among the first-generation AEDs [11,12]. The desire to avoid VPA has led to a wider use of second-generation AEDs in fertile women, particularly the novel benzodiazepine drugs in women with generalized epilepsies. New drugs devoid of interactions with hormonal contraceptives are also preferred in fertile women. Lamotrigine (LTG), gabapentin (GBP) and topiramate (TOPM) were used in a larger extent in female than in male patients, whereas carbamazepine (CBZ), VPA, phenytoin and oxcarbazepine (OXC) were more frequently used in male patients [12]. Recent clinical research has demonstrated that drug choice during different stages of gestation may change the pharmacokinetics of AEDs significantly and with great interindividual variation [14]. Some second-generation AEDs are more prone to these changes than others. Nevertheless, most of these difficulties can be dealt with, although close, time-consuming clinical and laboratory monitoring may be required. Treatment with AEDs may indeed be complex in females who are, or wish to become, pregnant. The balance between maternal and fetal health risks can be very demanding. Profound knowledge of these issues is necessary, not only to create a rational treatment strategy, but also to provide appropriate information to the woman wishing to conceive while being treated with AEDs.

PURPOSE

Our purposes were three folds: First to explore the relationship between the congenital anomalies and maternal exposure to new generation antiepileptic drugs, and second to analyze the incidence of obstetrical complications among women with epilepsy relative to a neurologically healthy population, and finally to characterize the seizure pattern during pregnancy and after delivery.

PATIENTS AND METHODS

All pregnant patients (n = 80) with epilepsy who required obstetrical care at the Department of Obstetrics and Gynecology and were also treated in the Department of Neurology in Szeged, were enrolled in our study between 1 January 2000 and 31 December 2011. The control group, selected by simple random sampling, consisted of 86 age-matched pregnant women with no diagnosis of epilepsy or any other neuro-psychiatric disorder. For statistical purposes different parameters were performed z test and independent sample test. Relationships between congenital anomalies and second generation AEDs were examined by non-parametric Kruskal-Wallis analysis. Results were considered significant with p < 0.05.

RESULTS AND CONCLUSIONS

In our 86 pregnant patients with epilepsy, the mean age was 29.4 years ± 5.57, and at the control group it was 30 ± 5.02 years. The mean gestational age was 38.24 ± 2.09 and 38.37 ± 2.16 weeks in the two group (p > 0.05). The average body weight of the newborn was 3182.65 ± 583.12 g in women with epilepsy, and 3346.7 ± 574.6 g in women without epilepsy.

The mean malformation rate (MMR) was 9.96% in all AED exposed mother’s newborns, which were similar to those in the literature described. [15] In our study, the MCM was greater for preganacies exposed only to valproate compared to all other AED (p = 0.054).

The rate of caesarean sections was significantly different for the two groups (46.51% vs 28.57%, p = 0.014), these result similar than reported in the literature [14,16].

The rate of breastfeeding was relatively low among women with epilepsy, since 40% of all babies were breastfed. Breastfeeding is generally thought to be safe for women using antiepileptic medications. Since anticonvulsant drugs are secreted in breast milk, infants may become sleeply and stop feeding prior to asxiation.

REFERENCES