

Abstract

Epilepsy is associated with reproductive disorders and decreased fertility. The role of antiepileptic medication and type of epilepsy in development of these disorders has been widely debated. The effects of oxcarbazepine on reproductive function in women and the effects of antiepileptic medication on male fertility have not been previously studied, and only a few studies have evaluated fertility in subjects with epilepsy in a population based setting.

This study aimed to analyze predictors of reproductive disorders and the effects of oxcarbazepine on reproductive function in women. Moreover, the effects of antiepileptic medication on male reproductive health were also evaluated, and finally, the reproductive health of patients with epilepsy and the normal population was compared in a population based setting.

The study was conducted in the Departments of Neurology, Gynecology and Obstetrics and Public Health Science and General Practice in the University of Oulu. Studies I–III were cross-sectional studies consisting of 249 subjects with epilepsy and 247 control subjects. Study IV was a retrospective study; the data was based on Northern Finland Birth Cohort 1966(NFBC1966), consisting of 12,058 subjects, of which 222 had epilepsy. In studies I–III all subjects were interviewed, clinical examinations were done, blood samples were analyzed and ovarian ultrasound examination or testicular ultrasound examination and sperm samples were studied. In study IV all subjects with epilepsy were identified from NFBC1966 and patient files were reviewed. Fertility analyses were based on information obtained from the Finnish Population Center and Finnish Birth Register.

Reproductive disorders were more common in women with idiopathic generalized epilepsy and in women taking valproate. Also young age increased the risk of these disorders. Oxcarbazepine was associated with reproductive disorders in women with epilepsy. In men all antiepileptic drugs studied were associated with sperm abnormalities, and sperm abnormalities in men taking valproate were associated with decreased testicular volume. In a population based setting active epilepsy and antiepileptic medication during adulthood decreased fertility.

The reproductive endocrine effects of AEDs should be taken into consideration when prescribed to fertile aged men and women, especially, if the anticipated duration of treatment is long.

***Key words:* epilepsy, fertility, oxcarbazepine, reproduction, valproic acid**

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