

KNOWLEDGE OF NEUROLOGISTS AND GYNAECOLOGISTS REGARDING REPRODUCTIVE AND MATERNITY ISSUES IN WOMEN WITH EPILEPSY

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ABSTRACT

Background: Epilepsy is one of the most common neurological disorders, with more than 400,000 individuals in Poland (about 1% of the population) affected. Epilepsy complicates approximately 0.5% of pregnancies.

Aim of the study: To determine the level of knowledge that neurologists and gynaecologists have about reproductive and maternity issues for women with epilepsy.

Material and methods: This study included 141 neurologists and physicians undergoing specialist training in neurology as well as 72 gynaecologists and physicians undergoing specialist training in gynaecology. A validated questionnaire was used to survey these neurologists and gynaecologists, who worked in Silesia Province.

Results: In the group of physicians advising on contraception, significantly ($p=0.003$) more gynaecologists than neurologists recommended hormonal birth control. Significantly more ($p=0.031$) neurologists than gynaecologists believed that monotherapy with antiepileptic medications should be aimed for before a planned pregnancy in women with epilepsy. More than a half of the surveyed physicians (56.8%) believed that pregnant women with epilepsy can have a natural delivery.

Conclusions: On the basis of these results, we have concluded that gynaecologists and, to a lesser extent, neurologists should have more extensive knowledge regarding reproductive and maternity issues for women with epilepsy. We further propose that close collaboration between neurologists and gynaecologists in the care of epileptic women is necessary.

KEYWORDS: epilepsy, reproduction, pregnancy, maternity, neurologists, gynaecologists

BACKGROUND

Epilepsy is one of the most common neurological disorders. Approximately 50 million people suffer from epilepsy worldwide, with around half being women. In Germany, 400,000 women have epilepsy, with three to four epileptic women for every 1000 pregnant ones. In the United States of America, there are approximately 500,000 women of childbearing age suffering from epilepsy. In India, around 2.73 million women suffer

from epilepsy, and more than half of them are of childbearing age. There are over 400,000 individuals with epilepsy in Poland (approximately 1% of the population). A multicentre study conducted in 2000-2001 suggested that pregnant women with epilepsy accounted for 4.7% of women of childbearing age suffering from this disorder [1-4].

The appropriate care of women with epilepsy during the reproductive years is still a considerable prob-

lem for physicians dealing with this issue around the world. This is in spite of great progress in knowledge in the fields of neurology and obstetrics. Physicians caring for women with epilepsy of childbearing age should have knowledge about the impact of antiepileptic medications on hormonal methods of birth control, the effect of epilepsy and antiepileptic medications on fertility and pregnancy, the potential influence of pregnancy on epileptic seizures and antiepileptic medications as well as the possible consequences of seizures and antiepileptic medications on the developing foetus. They should also understand the indications and contraindications for feeding a newborn infant during maternal antiepileptic therapy, and the challenges a women with epilepsy may face when caring for her child. Availability of neurologists and gynaecologists with a good knowledge base in this area would facilitate better preparation of women with epilepsy for pregnancy.

AIM OF THE STUDY

The objective of this study was to determine the level of knowledge that neurologists and gynaecologists have with respect to reproductive and maternity issues for women with epilepsy. Identification of potential inadequacies in knowledge of the study participants and demonstration of needs associated with this problem would allow an improvement in the care of female patients with epilepsy during the reproductive period.

MATERIAL AND METHODS

This study included 141 neurologists and physicians undergoing specialist training in neurology, as well as 72 gynaecologists and physicians undergoing specialist training in gynaecology. The participants were employed at teaching hospitals, hospital departments and neurology outpatient clinics in Silesia Province as well as running private practices. The study was survey-based and was conducted with the use of a questionnaire designed for neurologists and gynaecologists, based on the survey for women created by the Polish Epilepsy Centre for Pregnant Women, headed by Prof. Joanna Jędrzejczak.

The database for recording clinical material was created with the use of a licensed version of Microsoft Excel 2003. Statistical analyses were carried out using the StatSoft Statistica 7.1 statistics suite. A value of $p < 0.05$ was accepted as statistically significant

RESULTS

Twenty of the surveyed physicians, one with 16–29 years of professional experience and 19 with less than 15 years of professional experience, had not managed a female patient of childbearing age with epilepsy. Specialist physicians ($p=0.0001$) and those with more extensive professional experience ($p=0.0001$) had cared for significantly more epileptic women of childbearing

age. For the question regarding contraception, hormonal birth control was more frequently recommended by gynaecologists, but had the fewest supporters among physicians with more than 30 years of professional experience. More than a half of the surveyed physicians (60.0%) including 97 (68.8%) neurologists and 31 (43.1%) gynaecologists, believed that women with epilepsy should not use hormonal contraceptives. In the group of physicians recommending contraception, significantly ($p=0.003$) more gynaecologists than neurologists recommended hormonal birth control. The surveyed physicians were asked which female hormones could have proconvulsant effects. A significant correlation ($p=0.011$) between the answer to this question and specialisation was found. Oestrogen was indicated by greater than 20% more neurologists than gynaecologists, while progesterone was indicated by over 20% more gynaecologists. Seventy-four percent of physicians with 15 to 29 years of professional experience knew about the proconvulsant effects of oestrogens. In this group, there were also the fewest incorrect answers (19.8%). Almost all of the surveyed physicians (except for two individuals specialising in neurology) gave a negative answer to the question about whether epilepsy constituted a contraindication for having a child. Significantly more neurologists ($p=0.008$) than gynaecologists were of the opinion that pregnancy in women with epilepsy should be planned. Eighteen percent of the gynaecologists and only 4% of the neurologists did not see such a need. Irrespective of their specialisations, they were physicians with the least professional experience. The vast majority of physicians, both neurologists and gynaecologists, answered the question about the risk of developmental abnormalities in the offspring of mothers with epilepsy compared with healthy women, stating that it was slightly higher. Most (91.5%) of the surveyed physicians, irrespective of their specialisations and length of work experience, gave an affirmative answer to the question about whether epileptic seizures could have a negative impact on foetal development. For the question regarding the frequency of epileptic seizures in pregnancy, most surveyed physicians answered that the impact of pregnancy on seizure frequency is different in different women. Significantly more ($p=0.017$) gynaecologists believed that pregnancy had no effect on the course of epilepsy. The vast majority (80.7%) of respondents believed that monotherapy with antiepileptic medications should be aimed for before pregnancy, and 15% of physicians stated that the method of treatment should not be changed during pregnancy at all. Eight gynaecologists would administer antiepileptic medications only on an as-needed basis during seizures, and one gynaecologist would forbid the use of antiepileptic medications in pregnancy. Significantly more ($p=0.031$) neurologists than gynaecologists believed that monotherapy should be aimed for before a planned pregnancy in women with epilepsy. All of the physicians training to be neurologists and 81.3%

of the neurologists had such knowledge. Only two of the neurologists did not know of the need to administer folic acid to women with epilepsy before a planned pregnancy. More than a half of the respondents would administer it at a dose of 0.4 mg daily, but over 44% would increase the dose of folic acid in such women. More than a half of the surveyed physicians (56.8%) believed that pregnant women with epilepsy can have a natural delivery. Physicians specialising in neurology were significantly more frequently ($p=0.011$) of the opinion that caesarean section should be performed in such women. Seventy-one percent of the respondents did not see any contraindications for women with epilepsy taking antiepileptic medications while breastfeeding. Almost 16% of the respondents were strongly opposed to breastfeeding. Physicians who had already completed their specialist training, both neurologists and gynaecologists, would recommend breastfeeding more frequently ($p=0.004$). Physicians with more extensive professional experience would also more frequently make such a decision ($p=0.019$).

DISCUSSION

Even though women with epilepsy have over 90% chance of giving birth to a healthy child, the knowledge of physicians regarding pregnancy in such women seems insufficient. Literature devoted to the issue is not very extensive. So far, there has been no survey evaluation of the level of knowledge that neurologists and gynaecologists have about maternity management of women with epilepsy in Poland. Twice as many neurologists as gynaecologists participated in our survey. The survey indicated that more than 60% of physicians did not recommend that women with epilepsy use oral contraceptives. They may have been afraid of interactions between these agents and antiepileptic medications. Such interactions occur in the case of, for instance, carbamazepine, phenytoin, phenobarbital, oxcarbazepine and topiramate. These medications decrease the serum concentrations of oral contraceptives to cause their ineffectiveness [2]. A question regarding interactions between contraceptives and antiepileptic medications was included in a survey sent to 1000 neurologists and 1000 gynaecologists from 47 USA states in 1996. Of the 160 (16%) neurologist and 147 (15%) gynaecologist respondents only 4% of the neurologists and none of the gynaecologists knew of the impact of the six most commonly used antiepileptic medications on contraceptives. In addition, the applied contraception proved to be ineffective in women with epilepsy treated by 27% of the surveyed neurologists and 21% of the gynaecologists [5]. A survey regarding knowledge of the principles of care for women with epilepsy established by the American Academy of Neurology and the American College of Obstetricians and Gynecologists was conducted by the Epilepsy Foundation four years later. In this work, 3535 physicians specialising in different areas of medicine participated, with a number not knowing

which antiepileptic medications interacted with contraceptives. The knowledge of this interaction was better among neurologists than gynaecologists [6]. In 2003, most (71%) participants of the American College of Physicians Annual Meeting knew that enzyme-inducing antiepileptic medications could decrease the effectiveness of oral contraceptives [7]. Out of 100 obstetricians employed at university, private and state-owned hospitals in the south of India, almost all (94.8%) knew of the potential interactions between antiepileptic medications and contraceptives [8].

Gonadal sex hormones are known to affect the seizure threshold. The hormones that decrease seizure threshold include oestrogen, whereas progesterone has anticonvulsant effects [9,10]. There are also opinions that deny the proconvulsant effects of oestrogen [11]. In the present study, significantly more neurologists than gynaecologists knew that gonadal hormones could affect the seizure excitability of the brain. Of the 3535 specialists surveyed by the Epilepsy Foundation, the highest number of individuals did not know of the specific impact of oestrogen and progesterone on the seizure threshold [6]. Only quarter of the attendees of the American College of Physicians Annual Meeting in 2003 knew about the effects of these gonadal hormones on the seizure threshold [7]. Population-based studies showed that pregnancies in women with epilepsy account for approximately 0.5% of all recorded pregnancies and their course is mostly normal [12, 13]. Although epilepsy does not constitute a contraindication for pregnancy, in the present study, two physicians (one neurologist and one gynaecologist) were of the opinion that pregnancy is not recommended in women with epilepsy. The vast majority of neurologists and gynaecologists surveyed in this study believed that the risk of developmental abnormalities in children of mothers with epilepsy was slightly higher than the risk in healthy women. Most (86%) of the surveyed physicians participating in the American College of Physicians Annual Meeting in 2003 knew that there was a high probability of a woman with epilepsy giving birth to a healthy child. Further, 75% of them were of the opinion that there was no need to discontinue antiepileptic medications during pregnancy [7]. Almost all (92.7%) of the 88 surveyed neurologists practising in Massachusetts informed their female patients with epilepsy about the possibility of developmental abnormalities in their children, recommending avoidance of valproic acid [14]. Additionally, 91% of surveyed Indian obstetricians showed good knowledge regarding the teratogenic effects of antiepileptic medications. The same proportion of physicians knew that most women with epilepsy have a chance of giving birth to a healthy child without discontinuing antiepileptic treatment. Although the risk of a woman with epilepsy giving birth to a child with a defect is 2-6%, 44% of neurologists and 23% of gynaecologists who participated in the survey conducted in 1996 thought that the risk was 0-3% and some respondents believed it to be 50%. A

number of physicians surveyed by the Epilepsy Foundation also did not know how high the risk of developmental abnormalities in the children born to mothers with epilepsy was.

It is believed that folic acid supplementation before and during pregnancy, monotherapy and monitoring of antiepileptic medication serum concentrations can contribute to decreasing the occurrence of birth defects in newborn infants. It should also be remembered that some antiepileptic medications cause a decrease in the serum levels of folic acid [5,6,8,15–17]. In the present study, two neurologists did not know of the need to administer folic acid to women with epilepsy before a planned pregnancy. More than a half of the respondents would administer it at doses used in healthy women (0.4 mg/day). Almost 90% of the 88 surveyed neurologists from Massachusetts recommended that their female patients with epilepsy take folic acid before and during pregnancy [14]. The significance of folic acid in the prevention of developmental abnormalities was also known to 97% of the obstetricians surveyed in India [8]. To minimise the risk of birth defects in the children of mothers with epilepsy, more than 80% of physicians surveyed in this study believed that monotherapy with anticonvulsants should be attempted before pregnancy. Significantly more neurologists than gynaecologists were of this opinion. Attempts to introduce monotherapy in women with epilepsy planning a pregnancy were also applied in practice. An analysis of the course of the adaptation period of newborn infants born to mothers with epilepsy, carried out by Kociszewska and Wilczyński, showed that almost 70% of these mothers received only one medication [18]. Monotherapy used for at least six months before a planned pregnancy was also preferred by almost two-thirds of the respondents in studies from the USA and from India [7,8]. In the present study, over half of the physicians believed that pregnant women with epilepsy can have a natural delivery. Physicians specialising in neurology significantly more frequently believed that caesarean section should be performed in such women. The high frequency of caesarean sections in pregnant women with epilepsy in Poland was confirmed by a study by Stelmasiak et al. In this report, more than 50% of epi-

leptic women gave birth by caesarean section. Caesarean section was also commonly used in women with epilepsy treated at the Polish Mother's Memorial Hospital – Research Institute in Lodz. In the United Kingdom, on the other hand, most pregnancies in mothers with epilepsy were delivered naturally. There are no contraindications against breastfeeding for women with epilepsy taking antiepileptic medications [15,18–20]. A little more than 70% of the physicians surveyed in this study knew that. However, more than 15% of the physicians were strongly against breastfeeding. Only 47% of the attendees at the American College of Physicians Annual Meeting in 2003 knew that women taking antiepileptic medications can breastfeed their offspring. A slightly lower proportion of the surveyed neurologists from Massachusetts (38.2%) were of the same opinion, and 67.3% of respondents believed that the benefits of breastfeeding considerably exceeded the potential risks. A number of obstetricians surveyed in Scotland in 1994 had insufficient information regarding the possibility that epileptic women taking antiepileptic medications could breastfeed. Most (91.7%) obstetricians in India recommended that mothers taking antiepileptic medications could breastfeed their infants. Close collaboration between neurologists and gynaecologists as well as adherence to guidelines regarding care of women with epilepsy during reproductive years are necessary for the normal pregnancies in epileptic women. Canadian studies did not show an increased risk of obstetric complications in women with epilepsy, as long as appropriate care was provided. It is also necessary for epileptic women planning to have a child to follow their physician's recommendations. The findings of this research offer confirmation of this [7,8,14,21,22].

CONCLUSIONS

1. Gynaecologists and, to a lesser extent, neurologists should have more extensive knowledge of the reproductive and maternity issues of women with epilepsy.
2. Close collaboration between neurologists and gynaecologists in the care of epileptic women is necessary.

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