

## Clinician's Corner

### EPILEPSY AND PREGNANCY

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Women with epilepsy have a number of unique concerns during pregnancy. The overwhelming majority of women will have a normal baby without significantly affecting their epilepsy. Utilizing strategies to minimize the risk will promote a good outcome for mother and baby.

Epilepsy is one of the most common medical conditions in women of reproductive age. It has been estimated that over 1.1 million women with epilepsy in the United States are of childbearing age. With a birth rate of 3 to 5 per 1000 births, approximately 24,000 babies are born to women with epilepsy each year, with the overwhelming majority being normal.

Seizure frequency fortunately declines or remains the same in the majority of women during pregnancy. In 15 to 30 percent of women, however, there may be an increase in seizure frequency, most often in the first or third trimester. The increased seizure frequency is not predictable by the type of seizures the woman has, how long she has had epilepsy, or even the presence of seizures in a previous pregnancy. Even catamenial epilepsy, seizures occurring with the menstrual cycle, does not predict if the woman will have more seizures. A number of factors have been suggested as possible triggers for the seizures including hormone changes, water and sodium retention, stress, and decreasing blood levels. Inadequate sleep and not taking medications as prescribed may be the most important factors that women with epilepsy may control.

Both seizures and medications are associated with some risks. The risk of seizures is associated with seizure type. Partial seizures probably do not carry as much of a risk but may become generalized seizures, and generalized tonic-clonic seizures are associated with increased risk to both the mother and baby. These risks include trauma from falls or burns, increased risk of

premature labor, miscarriages, and fetal heart rate suppression. The risk of seizures are felt by epileptologists to be greater than the risk of medications, which may be minimized by utilizing some strategies.

The risk of the anti-epileptic drugs is primarily that of congenital malformation or birth defects. In the general population, there is a two to three percent occurrence of congenital malformations that cannot always be predicted or prevented. In women with epilepsy, the risk is approximately doubled, about four to six percent, but overall remains low. There is an increased risk with using polytherapy, more than one type of

medication, and a higher dose of medication. There clearly is a genetic role with a previous pregnancy or family history of a congenital malformation raising the risk during the current pregnancy. Genetic counseling is utilized in this circumstance. The most common malformations include cleft lip and cleft palate, accounting for approximately 30 percent of the birth defects, which can most often be surgically corrected, and cardiac and urogenital defects.

While most of our anti-epileptic drugs can be and are used safely, there are several that carry increased specific risks. Valproate used in the first 28 days of pregnancy carries a 1 to 2 percent risk of neural tube defects or lack of spinal cord closure. In the general population, this risk is decreased by taking folate at the time of neural tube closure. Although it may not be as protective in women with epilepsy, folate should be taken daily prior to becoming pregnant. A daily multivitamin, containing 0.4 mg folate, is recommended to all women of childbearing age, as well as supplemental folate.

There is limited information on our new and classic epileptic drugs. Pregnancy registries have been established to help gain information on our drugs. All women with epilepsy are encouraged to enroll in the North American Anti-Epileptic Drug Pregnancy Registry by calling 1-888-233-2334 prior to having the initial pregnancy screening to help add to our knowledge base. In the meantime, it is recommended that the most effective drug with the fewest side effects be used.

Most importantly, this information should be used prior to and during the pregnancy. If anti-epileptic drugs are not needed, or multiple medications are being taken, changes should be made prior to a planned pregnancy. The lowest possible anti-epileptic drug dose is recommended which will continue to maintain seizure control. Being on a single type of drug, monotherapy, will decrease the risk birth defects, result in fewer drug interactions, fewer side effects, and improve compliance.

Vitamins play an important role during and prior to pregnancy. Folate supplementation in a multivitamin and additional folate should be started prior to any pregnancy. As most women do not know they are pregnant until after the time of neural tube closure (24-28 days after conception), taking at least a multivitamin daily and an additional 1 to 4 mg of folate daily is recommended. Selenium and zinc, contained in a multivitamin with minerals, also may be of some benefit. Vitamin K1 should be taken the last month of pregnancy to prevent rare bleeding complications in the newborn.

Monitoring drug levels are important as well. Anti-epileptic drug levels should be checked throughout the pregnancy and following delivery. The level of all anti-epileptic drugs decline during pregnancy, with some being more affected. As the levels then rise following delivery, monitoring in the post-partum period will minimize side effects.

Monitoring the baby with maternal serum-alpha-fetoprotein and high resolution or a level II ultrasound should be performed by the obstetrician. Epilepsy is not an indication alone for a cesarean section, and most women deliver vaginally.

While the anti-epileptic drugs are present in breast milk, breastfeeding is generally encouraged. Breastfeeding can generally be done safely as the baby has been

exposed to the anti-epileptic drugs throughout the pregnancy, and the absolute amounts of drug are low. Taking the anti-epileptic drugs immediately after a feeding should be considered. Breastfeeding is generally safe and recommended for its benefits to the infant.

Caring for the baby can also be a concern. Changing diapers on the floor and bathing the infant with other adults present or with a sponge bath are some useful strategies.

Seeing the doctor before becoming pregnant, keeping regular appointments, and checking blood levels during pregnancy are recommended. Taking medications as prescribed, as well as having adequate rest and sleep are of utmost importance. Paying attention to nutrition with adequate weight gain and taking a multivitamin and folate before, during, and after pregnancy are key. Avoiding cigarettes, alcohol, and caffeine are important for all women during pregnancy. Keeping all these factors in mind, the overwhelming majority of women with epilepsy will have a normal healthy baby.