



## **Pregnancy and the Developing Child**

### **If I get pregnant, what are my chances of having a healthy baby?**

Your chances of having a normal, healthy child are excellent — greater than 90 percent. However, there are some increased risks for women with epilepsy that you should consider before getting pregnant, if possible. Both your neurologist and your gynecologist/obstetrician need to be involved in reviewing your antiepileptic drug (AED) and any potential medication changes prior to the beginning of a pregnancy.

### **What do I have to do to get ready for a pregnancy?**

All women who want to ensure that their baby is healthy should be in good general health themselves, and pay attention to their nutrition. A regular schedule with adequate exercise and appropriate rest will keep you physically fit and may help you manage stress.

It is important to take vitamins with a folic acid supplement prior to and throughout pregnancy, to reduce the risk of certain kinds of birth defects. Since many of these problems occur very early in pregnancy (sometimes before you recognize you are pregnant) it is wise to start the supplement before becoming pregnant. Check with your physician about the exact dosage.

You may want to ask your physician for a referral to a genetics specialist who can help you assess the risks to your baby from your epilepsy, your seizure medication, and other inherited traits that may be present in your family.

### **Are there risks to my baby from having seizures?**

There are other risks, to both mother and developing child, from uncontrolled seizures. Seizures can result in falls, or cause oxygen deficiency for the baby. They can increase the risk of miscarriage or stillbirths. For most women with epilepsy, staying on medications poses less risk to their own health and the health of their babies than discontinuing medication and the subsequent risk of having uncontrolled seizures.

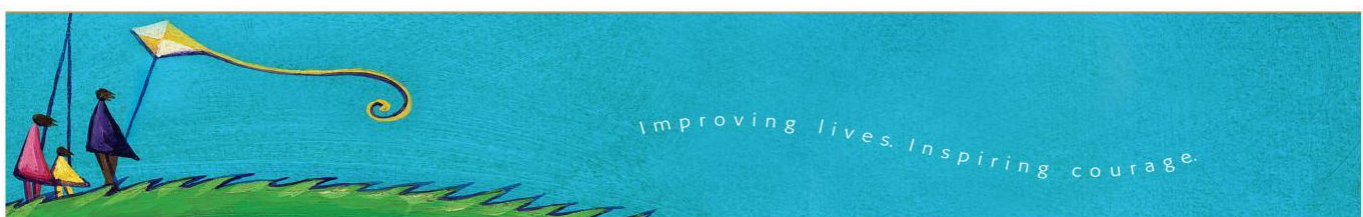
Most women with epilepsy should continue their seizure medication, and whenever possible, take a single anticonvulsant at the lowest dose that provides seizure control. It is important to work with both your neurologist and your gynecologist/obstetrician to make the best decisions about medications during pregnancy. Remember, you should never stop your antiepileptic drug or change the dose without the advice and the supervision of your doctor.

### **Are there risks to my baby from my anti-epileptic medication?**

Yes, there may be some increased risk to children of women with epilepsy who are taking seizure medications. In the general population there is a 2-3% chance that a child will have a birth defect, also called a congenital malformation. These are physical abnormalities that are present at the time of birth. In women with epilepsy, this risk is statistically increased to 4-6%. In general, there seems to be higher risk if a woman is taking more than one seizure medication, particularly at high doses.

### **What are the kinds of birth defects that my baby might have?**

Major congenital malformations are found more often in the babies of women with epilepsy than in other babies. Examples of this type of birth defect are cleft lip or palate (portions of the mouth do not grow together properly), heart abnormalities, and neurological problems like spina bifida (deformities of the spinal cord). Surgery may be necessary to correct these malformations, and even then it may not be possible to "fix" the problem completely.



Other problems may occur and are considered minor congenital malformations; they primarily affect the baby's appearance. These can involve facial features, such as wide-set eyes or a short upper lip, or slight differences in the shape of the fingers and nails. These minor abnormalities do not cause any serious problems, and the degree of increased risk of the baby having one is not clear.

### **Are some anti-epileptic medications more dangerous for the baby than others?**

All commonly used seizure medications have been associated with congenital malformations although some of the newer medications have not been used in large enough numbers of women to know their effect on the developing child. The valproate products valproic acid and divalproex sodium (Depakene and Epival) and carbamazepine (Tegretol) have been linked to spina bifida (abnormalities of the spinal cord). Using the information from current research, the risk with valproic acid seems greater (1-2%) than that with carbamazepine (0.5%). It is important to recognize that most infants of mothers who take these seizure medications do not develop spina bifida or any other congenital malformation. Taking the folic acid supplement before and throughout pregnancy may decrease this risk.

A recent study supports the notion that valproic acid has adverse effects on the cognitive development of children of women with epilepsy. The study followed the children's development for 6 years. There was a lower than expected IQ in the children of women who were on valproic acid during pregnancy. This was even more significant the higher the dose of valproic acid the mother was on. This effect on IQ was not seen in the children of women on lamotrigine, phenytoin and carbamazepine. Only these four AEDs were studied.

All of these findings regarding valproic acid support the latest recommendation that this not be a first choice AED in a woman of childbearing potential. There are some women, however, whose epilepsy will only be controlled by this medication. It is important to work with your neurologist in order to determine what the best decision is for you.

### **Will my baby have epilepsy?**

Children of women with epilepsy do seem to have some increased risk of developing seizures themselves. If the mother has uncontrolled seizures during the pregnancy, the risk seems greater, although we don't yet understand all the complex reasons for inherited epilepsy. If other people in your extended family have epilepsy, your baby may inherit that tendency.

### **Are there risks to my baby from breastfeeding if I am on AEDs?**

Most experts agree that the benefits of breastfeeding, even if you are on AEDs, outweigh the potential risks.

All AEDs get transferred to some extent into the breast milk. This is at relatively low levels compared to what the baby was exposed to in the uterus. A clear "safe" level has not yet been determined. Some AEDs penetrate the breast milk to a larger extent than others; primidone, levetiracetam, topiramate, lamotrigine and gabapentin transfer to a larger extent than valproic acid, carbamazepine, phenytoin and phenobarbital. It is unclear if these differences have any significance to the baby's development.

Remember that the decision to breastfeed is an individual one. You should discuss this issue with your neurologist and/or obstetrician in order to make the best decision for you and your baby.

Any woman who is pregnant and taking AEDs is strongly encouraged to enroll in the North American Anti-Epileptic Drug (AED) Pregnancy Registry. This is a research project that is collecting data to help determine the effects of AEDs used during pregnancy. Women who enroll will be asked to provide information about the health of themselves and their baby in three short phone interviews. You can enroll by calling 1-888-233-2334. To learn more go to [www.aedpregnancyregistry.org](http://www.aedpregnancyregistry.org)

Adapted with permission from the Epilepsy Foundation. References include "Fetal Antiepileptic Drug Exposure and Cognitive Outcomes at Age 6 years (NEAD study): A Prospective Observational Study." (Meador et al. 2013) and the 2009 American Association of Neurology guidelines on the management of women with epilepsy during pregnancy.

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