

## Specific Problems Affecting Infants

**Babies born to mothers with epilepsy face a host of specific problems.**

### **What's the risk of birth defects?**

The risk for birth defects or malformations in children born to women with epilepsy is about twice that for the general population. This means that birth defects generally occur in 4% to 6% of infants born to women with epilepsy. Studies are still being carried out, and there is still a lack of information on the newer seizure medications.

- Information obtained from pregnancy registries so far do show that some seizure medications have higher risks than others. Valproic acid or valproate appears to have the greatest risk of major congenital malformations (10%).
- The most common type of birth defects include cleft lip and palate and certain types of heart defects. Valproic acid has been associated with a 1-2 % risk of spina bifida (a serious malformation affecting the brain and spinal cord) in the infant.

### **Can birth defects be detected before birth?**

Some types of birth defects can be identified before delivery and help parents with family planning.

- An ultrasound done between 16 and 18 weeks of pregnancy can check for problems in the infant with an accuracy rate of over 95%.
- Blood tests can measure a protein (called alpha fetoprotein) that is higher in the blood of a mother when the baby has a birth defect.
- Amniocentesis is a test of the amniotic fluid that surrounds the baby in the uterus.

### **What is the risk of developmental delay in babies born to moms with epilepsy?**

Developmental delay is when children tend to be less likely to learn quickly. The development of language skills in particular tends to be slower. This condition affects 2% to 6% of births and differs from retardation in that children with developmental delay sometimes are not permanently impaired, although it's uncertain how many of them catch up. This may be seen more often in children whose mothers had poor seizure control, low intelligence scores or were taking valproic acid during pregnancy.

### **Is epilepsy hereditary?**

About 2% of the children whose mothers have epilepsy will develop epilepsy. This rate is about double that of the general population. Having a father with epilepsy does not seem to increase the risk.

### **What is the risk of infant mortality?**

Stillbirths or miscarriage are slightly more common in infants born to mothers with epilepsy, however the rate is still very low. For example, stillbirths or miscarriage occur in 1.7% of pregnancies, which is 2 to 3 times higher than in women without epilepsy. The reason for the greater rate of infant death is unclear, but it appears to be related to the mother's seizure control—the more uncontrolled the mother's seizures, the higher the infant mortality rate.

### **Do newborns have internal bleeding problems?**

Bleeding once was a major problem in newborns of mothers with epilepsy, but it has been declining. The condition is called neonatal internal hemorrhaging.

## ***Infants / Breastfeeding for women with epilepsy (continued)***

- While the effect of Vitamin K is not fully known, pregnant women with epilepsy who are taking enzyme-inducing medications (for example phenytoin, carbamazepine, phenobarbital, primidone) may be given 10 mg Vitamin K daily during the last four weeks before delivery to decrease the risk of this problem.
- Newborns of mothers taking these seizure medications during pregnancy should be given Vitamin K 1 mg by injection at birth. (Note that this should be done for all babies born in the U. S.)

## **Are babies born to women with epilepsy at risk for low birth weight?**

This problem is seen about twice as often in infants of mothers with epilepsy. The use of topiramate during pregnancy has been associated with a low birth weight in 9.8% of children exposed to the drug before birth.

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## **Breastfeeding**

Breastfeeding a newborn baby has many advantages, including improving the baby's health (important antibodies are present in breastmilk that are good for the baby!). Breastfeeding also helps the mother and baby bond during the early months. In addition, for many women, breastfeeding is an integral and important part of the experience of motherhood.

Given these considerations, the American Academy of Neurology and the American Academy of Pediatrics advise that women with epilepsy taking AEDs or seizure medications **can** breastfeed.

- During breastfeeding the baby will continue to be exposed to the seizure medication in varying concentrations depending on the prescribed AED. Usually this is only a small amount.
- However, the amount of medication present in breastmilk is less than the amount the baby was exposed to during pregnancy.
- Larger scale studies are needed to better understand drug transfer in breast milk and metabolism in infants for all AEDs.
- Two large studies have found no side effects of breastfeeding an infant while taking seizure medications, when the children were later tested at 3 years of age. One of these studies followed children to age 6. The study found that these children actually had higher IQ than children of women with epilepsy who were not breastfed.
- If mothers receiving ethosuximide, phenobarbital, primidone, diazepam, lorazepam, or lamotrigine choose to breastfeed, they should exercise caution and closely monitor the infant for their level of alertness, sleepiness, not gaining weight, or other developmental changes or problems.

### **Tips to lessen the amount of medication that reaches the baby:**

- If you take your seizure medicine just once a day, try to take it at the beginning of the baby's longest sleep interval, usually right after the bedtime feeding.
- If you need to take your seizure medicine more than once a day, breast-feed the baby immediately before you take a dose. That's when the level is likely to be lowest.
- Supplement breastfeeding with formula at some feedings. Doing this at night may help the mother get good sleep while someone else feeds the baby!



# Resources for Women

## References:

[NEAD Study Group. Effects of breastfeeding in children of women taking antiepileptic drugs.](#)

[Early child development and exposure to antiepileptic drugs prenatally and through breastfeeding.](#)

Meador KJ, Baker GA, Browning N et al. NEAD Study Group. Breastfeeding in children of women on antiepileptic drugs: Cognitive outcomes at age 6 years. JAMA Pediatrics 2014 (in press)

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