

Tuesday, March 1, 8:00AM-12:00PM  
Plenary Session

### **Teratogen Update**

Moderator: Angela Lin, MassGeneral Hospital for Children, and the Massachusetts Birth Defects Monitoring Program, DPH, Boston, MA

### **Update on Anticonvulsant Drugs**

Lewis B. Holmes, Genetics Unit, MassGeneral Hospital for Children, Boston, MA 02114

Exposure to an anticonvulsant drug during pregnancy is one of the most common potentially teratogenic exposures: 0.4% (1:250) in Boston (1). Many studies have been carried out over the past 40 years. The most common effects have included an increased frequency of malformations and deficits in IQ.

This experience has shown that the risks vary for each drug; it is not appropriate to “lump” all anticonvulsant drugs together. Some drugs are a serious risk to the fetus exposed to these drugs during pregnancy. The two drugs that are of greatest concern are:

- 1) valproic acid (brand name Depakote);
- 2) phenobarbital (several different generic brands).

The drugs with a much lower risk to the fetus include: carbamazepine, lamotrigine, levetiracetam, zonisamide and clonazepam. However, each of these drugs can pose specific risks, such as a higher risk for spina bifida after exposure to carbamazepine and cleft palate after exposure to lamotrigine.

We all hoped that the mother taking a supplement of a multivitamin with folic acid would decrease these risks. But there is little evidence that these supplements change the risks.

A major question being asked now is whether exposure to topiramate increases the risk during pregnancy. The specific effects identified have included:

- 1) malformations, including cleft lip/palate;
- 2) low birth weight.

One factor in the speed with which new information is being obtained is the establishment of pregnancy registries. One is: the North American AED (antiepileptic drug) Pregnancy Registry. To enroll, the eligible pregnant woman calls: 1-888-233-2334 (toll-free). This Registry enrolls women in the United States and Canada.

### **References:**

1. Holmes LB et al. The teratogenicity of anticonvulsant drugs. N Engl J Med 2001; 344:1132-1138.
2. Wyszynski DF et al. Increased rate of major malformations in offspring exposed to valproate during pregnancy. Neurology 2005; 64:961-965.
3. Morrow J et al. Malformation risks of antiepileptic drugs in pregnancy: a prospective study from the UK Epilepsy and Pregnancy Register. J Neurol Neurosurg Psychiatry 2006;77:193-198.