Home Visits Help Pediatric Outcomes for Hispanics

BY KATE JOHNSON
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SAN ANTONIO — An intensive home visiting program targeting pregnant women and parents of newborns reduced premature births and significantly improved health care and pediatric health in Hispanic families, according to preliminary results of a study presented by Kimberly Dumont, Ph.D., at the annual meeting of the Society for Prevention Research.

The Healthy Families New York (HFNY) program, which is modeled after the national Healthy Families America initiative, is primarily aimed at preventing child neglect and abuse, said Dr. Dumont, senior research associate with the New York State Office of Children & Family Services in Rensselaer. Home visits are conducted by trained paraprofessionals until children reach age 5 years, with the goal of enhancing parent-child interactions and improving child health and development and parental self-sufficiency.

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The study, a collaboration between the Bureau of Evaluation and Research at the Office of Children & Family Services and the Center of Human Services Research of the State University of New York at Albany, included 1,173 Hispanic, African American, and white women. A total of 42% of the sample were included because screening identified them as being at risk for depression, and 9% were included because they had a history of substantiated child abuse or neglect. The remaining 49% were randomly assigned before 31 weeks' gestation.

The subjects were randomized to the HFNY intervention or to a control group that was given information and referrals to other services in the community. Baseline interviews were conducted shortly after randomization, with follow-up interviews at birth and annually up to 3 years post partum in this preliminary report. During these interviews, participants were asked about health insurance, primary care providers, birth outcomes, and child behavior.

Preliminary results up to 2 years post partum show significantly fewer premature babies, better pediatric health care, and less pediatric somatic complaints and behavior problems in Hispanic families receiving the HFNY intervention, compared with Hispanic controls who were offered information and referral only. The intervention did not improve these outcomes in white and African American families. Dr. Dumont speculated that this may demonstrate that the Hispanic population was most in need of this type of intervention because it may reduce the health care disparities between them and non-Hispanic families.

"Hispanic women in the control group were initially well connected to a primary care provider, but this connection weakened over the course of the study," she said in an interview. By the end of the second year of the study, Hispanic controls were less likely than non-Hispanics to have a primary care provider (relative risk 0.92). In contrast, connection to health care was relatively strong for the non-Hispanic controls throughout the study, resulting in a disparity between the Hispanic and non-Hispanic controls. The HFNY intervention prevented this disparity from emerging, with Hispanic women retaining their connection to a primary care provider (RR 1.06). "HFNY demonstrates particular success in keeping Latina women connected to health care, [which] may promote positive child outcomes," she said.

There was a reduction in premature births in treated Hispanic women, compared with Hispanic controls in the subgroup of 116 Hispanic women who were randomized before 31 weeks' gestation. Those receiving the HFNY intervention had a 7% rate of premature births, compared with 14% in controls. "Although marginally significant, probably due to the limited sample size, this difference was clinically meaningful," said Dr. Dumont in an interview.

In addition, using the Child Behavior Checklist, the study found a reduced rate of pediatric somatic and behavior problems in the Hispanic intervention group, compared with Hispanic controls.

For affective problems, the average number of symptoms for Hispanic target children was 2.1, compared with 1.3 in controls. For pervasive developmental problems, the average number of symptoms for target children was 2.3, compared with 3.1 in controls. For attention deficit symptom, the average number of symptoms for target children was 4.4 vs. 5.1 in controls. And for somatic complaints, the average number of symptoms for target children was 0.5 vs. 1 in controls. The HFNY intervention also resulted in improved pediatric health care in the entire study population. ■

DRUGS, PREGNANCY, AND LACTATION

First-Generation Anticonvulsants

BY GERALD G. BRIGGS, B.PHARM

Although it has been known for years that some first-generation antiepileptic drugs (AEDs) cause birth defects, intrauterine growth retardation (IUGR), and, possibly, developmental delay, these toxicities were not thought to apply to the second-generation AEDs. New information has challenged that belief.

The first-generation AEDs known to cause birth defects and other developmental toxicities include the hydantoins (ethotoin [Peganone], fosphenytoin [Cerebyx], mephenytoin [Mesantoin], and phenytoin [Dilantin]), phenobarbital, primidone (Mysoline), carbamazepine (Tegretol), and valproic acid derivatives (Depakene, Depakote). In a 2001 study, the incidence of embryopathy (major and minor anomalies, microcephaly, and IUGR) after first-trimester monotherapy was 21% (phenytoin), 27% (phenobarbital), 14% (carbamazepine), 21% any monotherapy, and 28% (polytherapy) (N. Engl. J. Med. 2001;344:1132-8).

Phenytoin also causes a pattern of defects collectively called the fetal hydantoin syndrome (FHS), characterized by variable degrees of hypoplasia and ossification of the distal phalanges and craniofacial abnormalities. Other defects, such as those involving the heart and growth, are commonly observed. A syndrome with carbamazepine consisting of minor craniofacial defects, fingernail hypoplasia, and developmental delay has been observed; this drug may also cause neural-tube defects (NTDs).

The defects observed with primidone are similar to those in FHS. Phenobarbital has been associated with an increase in congenital defects when used for epilepsy, but not when used for other indications. The use of valproic acid derivatives between the 17th and 30th day after fertilization is associated with a 1%-2% risk of NTDs. Other defects are those of the head and face, digits, urogenital tract, and mental and physical growth. Carbamazepine, phenytoin, primidone, and phenobarbital affect folate metabolism or absorption, and this may increase the risk of birth defects, including NTDs. Women taking these agents should take folic acid 4-5 mg/day, preferably starting before conception. Moreover, anticonvulsants, particularly the hydantoins and barbiturates, are related to hemorrhagic disease of the newborn, so adequate doses of vitamin K should be administered to newborns exposed to AEDs in utero.

In contrast, first-generation AEDs that do not appear to be associated with a significant risk of birth defects include the benzodiazepines (clonazepam [Klonopin], clorazepate [Tranxene], diazepam [Valium], and lorazepam [Ativan]) and succinimides (ethosuximide [Zarontin] and methsuximide [Celontin]). However, some of these drugs have very little human data, and the benzodiazepines are known to cause toxicity in the newborn, most notably, floppy infant syndrome and withdrawal syndrome. In addition, the risk for birth defects from seizures alone is at least two to three times greater than the background risk of 2%-3%.

Until recently, the second-generation AEDs had not been associated with congenital defects. However, new data from the North American AED Pregnancy Registry and five other pregnancy registries have shown a very significant risk of isolated, nonsyndromic oral clefts after first-trimester exposure to lamotrigine (Lamictal) monotherapy (Birth Defects Res. A Clin. Mol. Teratol. 2006;76:313-428). The prevalence of oral clefts in the North American registry was 8.9/1,000, even though all of the mothers had been supplemented with folic acid before conception. This was significantly higher than the prevalence of 0.37/1,000 in a comparison group.

The human pregnancy experience is too limited to assess the embryo/fetal risk for the other second-generation agents: felbamate (Felbatol), gabapentin (Neurontin), pregabalin (Lyrica), levetiracetam (Keppra), tiagabine (Gabitril), and topiramate (Topamax). Although the data also are limited for zonisamide (Zonegran), the drug is teratogenic in three animal species and embryo lethal in a fourth and therefore is best avoided in the first trimester. Oxcarbazepine (Trileptal), a drug closely related to carbamazepine, has been associated with minor facial defects, but the data are too limited to assess the risk in humans.

To summarize, women with epilepsy should not be denied treatment with the most effective agents for their condition because of pregnancy or nursing. They should be treated with the lowest dose and the fewest drugs possible to control their seizures. Periodic serum levels are needed throughout pregnancy to ensure that therapeutic levels are maintained. They should take folic acid (4-5 mg/day), and vitamin K should be given to the newborns.

It is also important to counsel that seizures are a risk to both the mother and the embryo/fetus, as is the drug therapy. AEDs that appear to have the lowest risk for major birth defects are the benzodiazepines, the succinimides, and the second-generation agents. However, the human pregnancy data are very limited for many of these agents.

Carbamazepine and phenytoin are considered compatible with breast-feeding, and gabapentin, levetiracetam, oxcarbazepine, and tiagabine are probably compatible. Two AEDs (primidone and phenobarbital) are known to cause toxicity in the nursing infant and should not be given during breast-feeding. There are no data for the remaining AEDs, but they have the potential to cause toxicity and, if used during breast-feeding, the infants should be closely monitored. ■

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