



April 16, 2009

Prenatal meth use studied

UH research indicates it can cause abnormal brain development in kids

*By Curtis Lum
Advertiser Staff Writer*

The use of methamphetamine by women during pregnancy appears to cause abnormal brain development in children, according to a study by the University of Hawai'i John A. Burns School of Medicine.

The research results were published yesterday in the online issue of Neurology, which is the medical journal of the American Academy of Neurology. Dr. Linda Chang, a professor at the UH school of medicine, is the principal investigator of the study and assistant professor Christine Cloak wrote the research paper.

Methamphetamine abuse is a growing problem in Hawai'i, but until now, the affect on unborn children was not known. Chang said meth use by pregnant women also is increasing.

As part of the study, brain scans were performed on 29 3- and 4-year-old children whose mothers admitted using meth while pregnant, and 37 children of the same age who were not exposed to the drug. Researchers used a new magnetic resonance imaging technique known as "diffusion tensor imaging" to look for abnormalities in tiny brain structures.

The research, the first of its kind, showed that children with prenatal exposure had differences in the white matter, which carries messages throughout the brain, and in the maturation of their brains compared with unexposed children.

"Our findings suggest prenatal meth exposure accelerates brain development in an abnormal pattern," Chang said. "Such abnormal brain development may explain why some children with prenatal meth exposure reach developmental milestones later than others."

Studies have shown that prenatal meth exposure can lead to increased stress and lethargy and poorer quality of movement for infants. So far, the UH research has shown what appears to be "very subtle" problems associated with the meth exposure, Cloak said.

"We're not seeing huge problems," Cloak said. "We do do some memory tests with them, but that all is in the process of being analyzed as we go. So we don't have any real conclusive things right now."

UH is in the middle of the five-year study and the participants will be tested annually to determine if brain differences will normalize with age.

"So we'll be able to watch to see if any of the differences that we saw, whether they got better or worse or anything as the children get older," Cloak said.

Cloak said there haven't been many studies in this area because of restrictions set by the Food and Drug Administration on scanning children's brains for research purposes. A lack of funding also has limited research, she said.

"Part of what we're doing is actually new to see what the normal is," Cloak said. "We really need to

keep watching both the children who had exposure and the children who didn't because we can't just look at children who had the prenatal methamphetamine exposure and say, 'Oh yeah, that's different from the norm,' because we don't know what the norm is."

The study was supported by the National Institute on Drug Abuse, National Center for Research Resources, National Institute of Neurological Disorders and Stroke, and the Office of National Drug Control Policy.
