Even Small Amounts of Lead Harmful to Kids

THURSDAY, Sept. 17 (HealthDay News) -- Children with blood lead levels well below those considered safe are still at risk for problems with intellectual and emotional development, British researchers report.

Currently, the maximum safe blood level of lead is 10 micrograms per deciliter (10 mcg/dl), which was set by the U.S. Centers for Disease Control and Prevention in 1991. However, even this level appears to be too high, experts say.

"This study confirms what we have been seeing in recent studies, that the current CDC level of concern here in the United States of 10 [mcg/dl] is not adequately protective," said Kim Dietrich, a professor of environmental health at the University of Cincinnati.

This study clearly shows that blood level concentrations between 5 mcg/dl and 10 mcg/dl are associated with poorer educational performance and antisocial behavior, Dietrich said.

Dietrich noted that, in his own studies, he found children exposed to low levels of lead were also prone to criminal activity as adults.

The British report is published in the Sept. 17 online edition of the Archives of Disease in Childhood.

For the study, researchers from the University of Bristol's Center for Child and Adolescent Health, led by Dr. Alan Emond, took blood samples from 582 2-year-olds. The children were participants in the Avon Longitudinal Study of Parents and Children.

When the children were 7 to 8 years old, Emond's team assessed their school performance. Among the 488 children for whom complete data was available, the researchers found a link between blood lead levels at age 2 and academic performance and behavior at ages 7 and 8.

In fact, the higher the lead levels at 2, the poorer the later reading, writing and spelling grades, and the greater the chances of antisocial behavior, the researchers found.

Lead levels up to 5 mcg/dl had no obvious effect on intellectual capacity or behavior, but lead levels between 5 mcg/dl and 10 mcg/dl were tied to 49 percent lower reading scores on standardized tests and 51 percent lower writing scores, Emond's group found.

Moreover, children whose lead levels were higher than 10 mcg/dl were about three times more likely to display antisocial behavior and hyperactivity, compared with children whose blood lead levels were between 0 mcg/dl and 2 mcg/dl.

Emond's team noted that effects of lead exposure are worse when children are very young, because lead is easily absorbed and young tissues are particularly vulnerable to damage. Once lead enters the body, it is stored in the bones and can stay there for up to 30 years, the team noted.

The World Health Organization estimates that half of all children under 5 living in cities and towns have lead levels above 10 mcg/dl, Emond's group pointed out. Based on their data, the researchers argue that the current threshold of 10 mcg/dl should be lowered to 5 mcg/dl.

"Lead poisoning is a continuing hazard, and should be considered in children presenting with behavioral or educational difficulties," the researchers wrote. "Early childhood exposure to lead affects later educational attainment and behavior, even at low blood levels, and the level of concern should be lowered to 5 [mcg/dl]." They concluded.

While exposure to lead in the United States has dropped significantly with the banning of lead in gasoline and lead-based paint, it still remains a big problem, Dietrich said.

In the United States, lead exposure continues to come from lead-based paint, Dietrich said. "This is still a huge problem," he said. The problem is particularly acute in inner cities among people living in housing built before 1960, he noted.

Lead from paint can be found in dust in the home and in the soil around the home, Dietrich said. "This is the result of years of sloughing off of exterior lead paint," he said. "It's still a big problem, and we haven't begun to attack that in any meaningful way."

Lead exposure also comes from toys coated with lead paint, particularly toys from China and India, Dietrich added.

Dietrich agreed that the CDC should lower the amount of blood lead levels deemed safe. "I strongly believe the CDC should reduce the current level of concern," he said. "It's time to get real about this. 10
Another expert, Kim Cecil, a professor of radiology, pediatrics and neuroscience at the University of Cincinnati College of Medicine and Cincinnati Children’s Hospital Medical Center, said that “findings reported in this study suggest we need to do more to protect children in their daily environments.” The science is becoming clearer that lead is harming the brain, despite the historically low levels in Western countries, Cecil said.

"From a public health viewpoint, lowering the level of concern would aid in improving cognitive and behavioral outcomes,” she said. "Blood lead screening is essential for identifying children at risk of permanent brain injury.”

More information

For more on lead poisoning, visit the U.S. Centers for Disease Control and Prevention.

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