Pesticides may be linked to slightly smaller babies, shorter pregnancies

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Babies were, on average, 1/3 pound lighter, and pregnancies were about three to four days shorter, study finds.

(HealthDay) -- Exposure to a type of pesticide commonly used on crops eaten by U.S. consumers is linked to shorter pregnancies and smaller babies, new research says.

The pesticides are known as organophosphates, which kill insects by disrupting their brains and nervous systems. Originally developed as nerve poisons during World War II, they can disrupt human nervous systems as well, according to the U.S. Environmental Protection Agency.

The effects seen in the study were relatively small. Pregnancies for women exposed to higher levels of organophosphates had babies that were, on average, 1/3 pound lighter than women exposed to lower levels

of the pesticides, and their pregnancies were about three to four days shorter.

Spread out over millions of babies, however, lighter babies and shorter pregnancies could have serious health consequences, said senior study author Dr. Bruce Lanphear, a clinician scientist at the Child & Family Research Institute at BC Children's Hospital in Vancouver, British Columbia.

"When we see a [1/3 pound] reduction in birth weight, we have to start to take notice," Lanphear said. "For an individual kid, it's maybe not a big deal, but for a population it can be. If you shift the whole population down [1/3 pound], it can lead to dramatic increases in kids who are very small. What we see is subtle shifts that, across a whole population, could have dramatic effects on the premature rate."

Prior research also has found that exposure to higher levels of organophosphates during pregnancy is associated with lower IQs and more behavior problems in children.

The study is published in the April 5 online edition of the journal *Environmental Health Perspectives*.

Use of organophosphates has declined in recent years, but it remains the most commonly used insecticide, said Lanphear, who is also a professor at Simon Fraser University in British Columbia. Prior research has shown that more than 90 percent of pregnant women and children have measurable levels of organophosphate pesticides in their body.

The study included more than 300 pregnant women in the Cincinnati area, including whites and blacks living in urban, suburban and rural areas and representing the full spectrum of socioeconomic status. Twice during pregnancy, women had their urine tested for organophosphate

metabolites, or chemicals that result when the pesticides are broken down.

Researchers also tested for or asked about other factors that could influence the health of a pregnancy and fetus, including smoking or exposure to secondhand smoke, race, poverty and maternal depression.

Women whose exposure was in the 85th percentile, meaning they had the most exposure, had smaller babies and shorter pregnancies on average than those in the 15th percentile. Women in the 85th percentile showed evidence of exposure that was 10 times the rate of exposure for women in the 15th.

The reduction in pregnancy length was statistically significant only in white women, while reduction in birth weight was significant only for black women.

The study couldn't pinpoint the main source of pesticide exposure, but previous research has singled out diet and home pesticide use as leading sources in non-agricultural settings, the authors said.

Commenting on the study, experts voiced mixed opinions.

"This is an important study, part of the ever-accumulating body of evidence that pesticides are hazardous to human health, even at low doses," said Dr. Kenneth Spaeth, director of the Occupational and Environmental Medicine Center at North Shore-LIJ Health System in New Hyde Park, N.Y. "We tend to think that the kinds of low-level exposures we get on a regular basis are not harmful, but studies like this help show there is harm, and we need to be much more mindful and rethink how we regulate and understand how these pesticides affect us."

It's known that pesticides reach the fetus, "because we find traces of

pesticides in umbilical cord blood," Spaeth said. "Pesticides can also accumulate in breast milk, so you get a double whammy for infants who can be exposed in the womb, and then after birth."

Dr. Michael Katz, interim medical director for the March of Dimes, cautioned against drawing firm conclusions from the study. Although it was carefully designed and conducted, he said, researchers found an association between pesticide exposure and shorter pregnancies and lower birth weights, but they don't show that the pesticides caused the fetal effects.

That would require a randomized controlled trial, which is unlikely to ever be done because ethical constraints prevent scientists from deliberately exposing kids to pesticides.

In addition, the differences in birth weight and pregnancy length were minor and fall within what are normal variations, Katz added.

"The differences were very small, and there are things that can be statistically significant but aren't biologically significant," he said.

Researchers can't explain why they saw racial differences in the effect on fetuses. Prior research, however, has shown racial differences in how people metabolize toxins, while blacks and whites may be exposed to different organophosphates, experts said.

More information: The U.S. National Institute of Environmental Health Sciences has more on pesticides.

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