REPRODUCTIVE ENDOCRINOLOGY

Exposure to pesticide residues linked to adverse pregnancy outcomes

In the field of endocrinology, there is interest in examining the health effects of exposure to pesticide residues in the general population. Mouse studies have shown that early exposure to very low doses of pesticides during pregnancy can lead to cell death in embryos, but whether the same is true for humans is unknown.

Now, new research suggests that the ingestion of pesticide-treated fruits and vegetables is associated with a reduced chance of pregnancy and an increased chance of pregnancy loss in humans.

In their study, Jorge Chavarro and colleagues examined whether exposure to environmentally relevant concentrations of pesticide residues, through contamination from fruits and vegetables, is related to pregnancy outcomes in women of reproductive age who were attending a fertility clinic. The amount of pesticide residue contamination on fruits and vegetables was assessed using a validated method based on surveillance data from the US Department of Agriculture.

“We know that being exposed to pesticides at work, or living in close proximity to agricultural areas that frequently use pesticides, is related to adverse reproductive outcomes,” explains Chavarro. “We also know that switching from eating conventionally grown produce to eating organic produce can substantially decrease exposure to pesticides and that most of this exposure is from consumption of fruits and vegetables.”

The investigators report that women who ingest ≥ 2.3 servings per day of highly contaminated fruits and vegetables were less likely to become pregnant or to have a live birth as a result of assisted reproductive technology than women

who consumed <1 serving per day. Chavarro explains that most of the observed difference resulted from an increase in pregnancy losses happening very early in pregnancy, which is consistent with mouse models.

“To move this forward we need to improve how we assess day-to-day exposure to pesticides as measurements of urinary levels is prohibitively expensive for large studies. Solving this methodological challenge will be essential to further investigate the health effects of ingesting pesticide residues,” concludes Chavarro. “On the practice end, I think we need replication before strong conclusions can be drawn, but at this time avoiding intake of high-pesticide residue produce, by either consuming low-pesticide residue produce or the organic version of high-pesticide residue produce, is not a bad idea.”

Alan Morris

“...new research suggests that the ingestion of pesticide-treated fruits and vegetables is associated with a reduced chance of pregnancy...”

ORIGINAL ARTICLE Chiu, Y.-H. et al. Association between pesticide residue intake from consumption of fruits and vegetables and pregnancy outcomes among women undergoing infertility treatment with assisted reproductive technology. *JAMA Intern. Med.* <http://dx.doi.org/10.1001/jamainternmed.2017.5038> (2017)

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