Eating soy may protect women from health risks of BPA

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Consuming soy regularly may protect women who are undergoing infertility treatments from poor success rates linked to bisphenol A exposure, according to a new study published in the Endocrine Society's *Journal of Clinical Endocrinology & Metabolism*.

Bisphenol A (BPA) is a chemical found in a variety of food containers, including polycarbonate plastic water bottles and can linings. BPA can mimic estrogen, one of the two main sex hormones found in women. Biomonitoring studies by the U.S. Centers for Disease Control and Prevention estimate that more than 96 percent of Americans have BPA in their bodies.

As of 2014, nearly 100 epidemiological studies have been published tying BPA to health problems, including reproductive disorders, according to the Society and IPEN's Introductory Guide to Endocrine-disrupting Chemicals.

"Our study is the first to show a possible interaction between soy and BPA in humans," said first author Jorge E. Chavarro, MD, ScD, of Harvard T.H. Chan School of Public Health, Brigham and Women's Hospital, and Harvard Medical School in Boston, MA. "This is consistent with research in mice that found a soy-rich diet could protect against reproductive health problems associated with BPA exposure. More research is needed to determine why soy has this effect in humans."

The researchers examined the relationship between BPA exposure, diet and success rates among 239 women who underwent at least one in vitro fertilization (IVF) cycle at the Massachusetts General Hospital Fertility Center between 2007 and 2012. The women participated in the Environment and Reproductive Health (EARTH) Study, an ongoing prospective cohort study designed to evaluate the role of environmental factors and nutrition in fertility. The EARTH Study was funded by the National Institutes of Health's National Institute of Environmental Health Sciences.

Participants' urine samples were analyzed to measure BPA exposure. The women, who were between the ages of 18 and 45, completed a lifestyle questionnaire that included questions about how frequently they ate soy-based foods. Among the participants, 176 consumed soy foods.

Among women who did not eat soy foods, those with higher levels of BPA in their urine had lower rates of embryo implantation, fewer pregnancies that progressed to the point where the fetus could be seen on an ultrasound, and fewer live births than women with lower levels of BPA in their bodies. In comparison, BPA concentrations had no impact on IVF outcomes in women who routinely ate soy.

"Although it is recommended that women trying to get pregnant reduce their exposure to BPA, our findings suggest that diet may modify some of the risks of exposure to BPA, a chemical that is nearly impossible to completely avoid due to its widespread use," said senior author Russ Hauser, MD, ScD, MPH of Harvard T.H. Chan School of Public Health, Massachusetts General Hospital, Harvard Medical School in Boston, MA.

"Additional research could help identify other diet and lifestyle changes that may modify the effects of not only BPA exposure, but also exposure to other chemicals," Chavarro added. "In order to fully appreciate risks

to human health, we need to design studies that adequately assess both diet and environmental chemical exposures"

More information: Jorge E. Chavarro et al. Soy Intake Modifies the Relation Between Urinary Bisphenol A Concentrations and Pregnancy Outcomes Among Women Undergoing Assisted Reproduction, *The Journal of Clinical Endocrinology & Metabolism* (2016). DOI: 10.1210/jc.2015-3473

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