

A genetic component in some women breaks down contraceptive hormones

14 March 2019, by David Kelly

Women who get pregnant while using birth control may carry a gene that breaks down the hormones common in contraceptives, according to researchers at the University of Colorado Anschutz Medical Campus.

"The findings mark the first time a genetic variant has been associated with [birth control](#)," said the study's lead author Aaron Lazorwitz, MD, assistant professor of Obstetrics and Gynecology at the University of Colorado School of Medicine.

The study was published today in the journal *Obstetrics & Gynecology*.

Contraceptives are not 100 percent effective but the reasons they fail have never been fully explained.

Women are usually blamed for not using the medication properly. But Lazorwitz and his colleagues suspected that there may be other reasons at work. They looked at 350 healthy [women](#) with a median age of 22.5 years old and a contraceptive implant in place for between 12 and 36 months.

The researchers found that 5 percent of women tested had a gene called CYP3A7*1C that is usually active in fetuses and then switched off before birth. But some women with this gene continue to make the CYP3A7 enzyme into adulthood.

"That enzyme breaks down the hormones in birth control and may put women at a higher risk of pregnancy while using contraceptives, especially lower dose methods," Lazorwitz said.

The variant could be found during genetic screening.

"When a woman says she got pregnant while on birth control the assumption was always that it was

somehow her fault," Lazorwitz said. "But these findings show that we should listen to our patients and consider if there is something in their genes that caused this."

The findings point to how pharmacogenomics, a relatively new field which analyzes how genes affect a person's response to drugs, has the potential to dramatically alter the field of women's health.

"Especially in light of the social, financial, and emotional consequences of contraceptive failure and the breadth of indications for [steroid hormones](#) throughout a woman's life-span," the study said.

Lazorwitz said the study may help spur the development of more precise medical tools that can help tailor treatment to individual patients.

"As more [genetic data](#) becomes available, clinicians may need to consider adding [genetic predisposition](#) to increased steroid hormone metabolism in their differential diagnosis for [unintended pregnancies](#) in women reporting perfect adherence to hormonal contraceptive methods," he said.

More information: Influence of Genetic Variants on Steady-State Etonogestrel Concentrations Among Contraceptive Implant Users *Obstetrics & Gynecology*. [DOI: 10.1097/AOG.0000000000003189](#)

Provided by CU Anschutz Medical Campus

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