

Vaginal progesterone reduces the rate of preterm birth

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Treatment with vaginal progesterone reduced the risk of preterm birth, neonatal complications and death in pregnant women with twins and who have a short cervix— a risk factor for preterm birth— according to a meta-analysis of individual patient data by researchers at the National Institutes of Health, the Wayne State University School of Medicine, the Detroit Medical Center, and other institutions in the United States and abroad.

Births occurring before the 37th week of pregnancy are considered preterm. Preterm birth increases the risk for infant death and long term disability. Twin pregnancies present a five- to six-time increased risk for [preterm birth](#).

In preparation for birth, the cervix (lower part of the uterus) thins and shortens during pregnancy. In some women, the cervix shortens prematurely, as early as the fourth or fifth month of pregnancy. The natural hormone progesterone (also called the "pregnancy hormone"), inserted in the vagina either as a gel or tablet has been shown to decrease the risk for preterm birth associated with a short cervix in women with a single fetus in previous conducted by NIH and WSU investigators.

The new study, "Vaginal progesterone decreases preterm birth and neonatal morbidity and mortality in women with a twin gestation and a short cervix: an updated meta-analysis of individual patient data," was published in *Ultrasound in Obstetrics and Gynecology*.

"The findings represent persuasive evidence that treatment with [vaginal progesterone](#) in women with a short cervix and a twin gestation reduces the frequency of preterm birth, neonatal complications such as respiratory distress syndrome, and importantly, [neonatal death](#)," said the study's first author, Roberto Romero, M.D., chief of the Perinatology Research Branch of the Eunice Kennedy Shriver National Institute of Child Health and Human Development. Dr. Romero emphasized that individual patient data meta-analyses represent the "gold standard" in the hierarchy of scientific evidence to answer clinical questions.

"Currently there is no treatment for the prevention of preterm birth in twin gestations," said Sonia Hassan, M.D., a co-author of the study. Dr. Hassan is the associate dean for Maternal, Perinatal and Child Health at WSU, professor of Obstetrics and Gynecology for the School of Medicine, and director of the Center for Advanced Obstetrical Care and Research for the NIH's Perinatology Research Branch, hosted at Wayne State University and the Detroit Medical Center.

The meta-analysis included the results of six studies, encompassing 303 women pregnant with twins, all of whom had a cervical length of 25 mm or less in the mid-trimester. Of these, 159 women received vaginal progesterone and 144 received a placebo or no treatment. Women who received vaginal progesterone were 31 percent less likely to deliver before 33 weeks of pregnancy (31 percent for those receiving vaginal progesterone, compared to 43 percent for those who did not). Vaginal progesterone also reduced the rate of preterm delivery before 32 weeks and 34 weeks. All results were statistically significant.

Infants born to patients who received vaginal progesterone had a 30 percent reduction in the rate of [respiratory distress syndrome](#), the most common complication of prematurity (from 47 percent in the placebo/no treatment group, to 33 percent in the vaginal progesterone group), a 46 percent reduction in the rate of mechanical ventilation (from 27 percent

in the placebo/no treatment group, to 16 percent in the vaginal progesterone group), and a 47 percent reduction in the risk of dying in the neonatal period (from 22 percent in the placebo/no treatment group, to 11 percent in the vaginal progesterone group). These results were all statistically significant, as well.

The authors conclude that the results of this individual patient data meta-analysis represents strong evidence that vaginal progesterone in twin gestations with a short cervix reduces preterm birth, [neonatal complications](#) and neonatal death. This is the first intervention to successfully reduce both preterm birth and neonatal death.

"One of the most serious complications of multiples in pregnancy is premature birth. In 2014, the Michigan rate of preterm birth due to plurality was over 60 percent," said Kara Hamilton-McGraw, Maternal Child Health director for the March of Dimes. "Discovering a successful intervention to address premature birth in multiples could largely impact the rate of babies born too soon and those that, sadly, do not live to see their first birthday."

Provided by Wayne State University

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